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# FOOD POLICY AND ITS ROLE IN CREATING SUSTAINABLE FOOD SYSTEMS IN EAST AFRICA

UNDERSTANDING THE RELATIONSHIP BETWEEN STAKEHOLDERS AND THE  
EFFECTIVENESS OF POLICIES USING MAIZE AS THE MODEL VALUE CHAIN

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## **Abstract**

Food systems are made up of highly diverse producers and consumers connected by a network of markets that function in both macro and micro contexts. This research aimed to understand the role that food policies play when it comes to sustainable food value chains, focusing on the stakeholders' integration in policies.

The research in this thesis focused on determining stakeholder inclusion in current agri-food policy making and whether the inclusion has an effect on the efficacy of the policy. To allow for a comparative study, two countries in the East African region (Kenya and Tanzania) and one common food product value chain (maize) was used.

Progression of the research began with the analysis of current food related policies and the policymaking process using critical interpretative synthesis. This step aided in establishing the standing of stakeholders and sustainability within the policies and the policymaking process. Viewpoints of stakeholders concerning these policies and the impact on the food value chain was explored with the help of social life cycle assessment with data collected through interviews and secondary data collections. Expert based interviews provided the overview of the importance of the policies, their impact, successes, and shortcomings.

The findings of the analytical steps came together in a comparative study that established the awareness of the policies and the policy making procedures within the stakeholders of the East Africa region, the importance of sustainability in both policy and action programs and nuances that needed to be covered such as gender and cultural considerations as well as power dynamics in the food chain. Combined, the results display the importance of stakeholders within policy making and how their awareness and understanding of the policies lead to effectiveness of the policies and what this means for the establishment of food secure systems in the region.

**Keywords:** *food policy, sustainability, stakeholders, East Africa, maize, food security*

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# Contents

Abstract.....	
Acknowledgements.....	ii
List of tables.....	vii
List of figures.....	viii
1.1. Overview.....	1
1.2. Background.....	1
1.2.1. <i>Food security in Africa</i> .....	3
1.3. Case study selection.....	5
1.4. Overview of the Proposed Research.....	6
1.4.1. <i>Proposed methods and outcomes</i> .....	7
1.4.2. <i>Structure of the thesis</i> .....	7
1.5. Summary.....	8
2.1. Overview.....	10
2.2. The Policy Environment.....	10
2.2.1. <i>Policymaking in the region</i> .....	13
2.2.2. <i>Sustainability, food security and food policies</i> .....	15
2.3. Institutional Theory.....	17
2.3.1. <i>Critiquing Institutional theory and linkage to stakeholder theory</i> .....	19
2.4. Stakeholder Theory.....	20
2.4.1. <i>Stakeholder engagement</i> .....	22
2.4.2. <i>Stakeholders' contribution and group composition</i> .....	26
2.5. Institutional Theory and Stakeholder Theory.....	29
2.5.1. <i>Relationship between institutional and stakeholder theories</i> .....	29
2.5.2. <i>Institutional and Stakeholder theories and the value chain</i> .....	29
2.5.3. <i>Institutional theory, stakeholder theory, policymaking, and policies</i> .....	30
2.5.4. <i>Relationship between the institutional theory, stakeholder theory and sustainability</i> .....	32
2.5.5. <i>Conceptual framing in context</i> .....	32
2.6. Research Gap.....	33
2.6.1. <i>Addressing the gap</i> .....	34
2.7. Summary.....	35
3.1. Overview.....	37
3.1.1. <i>Background</i> .....	37
3.1.2. <i>Importance of maize</i> .....	38
3.1.3. <i>Context of maize in Kenya and Tanzania</i> .....	39
3.2. The Maize Value Chain.....	41
3.2.1. <i>Characteristics of the chain and its use to conduct the assessment</i> .....	41

3.2.2. <i>Actors and activities in the value chain</i> .....	42
<b>3.3. Relation Between the Research Questions and the Maize Value Chain</b> .....	44
3.3.1. <i>The maize chain and the theories</i> .....	45
3.3.2. <i>Maize value chain and the research questions</i> .....	45
<b>3.4. Summary</b> .....	45
<b>4.1. Overview</b> .....	46
<b>4.2. Research design</b> .....	46
4.2.1. <i>Philosophical context/underpinnings</i> .....	46
4.2.2 <i>Research aim and objectives</i> .....	49
<b>4.3. Case Study</b> .....	51
<b>4.4 Introduction to the Methods</b> .....	54
4.4.1 <i>Overview</i> .....	54
4.4.2 <i>Overview of Critical Interpretative Synthesis (CIS)</i> .....	54
4.4.3. <i>Overview of Social Life Cycle Assessment (S-LCA)</i> .....	55
4.4.4. <i>Overview of Expert-Based Interviews</i> .....	56
<b>4.5. Data collection</b> .....	57
<b>4.6. Summary</b> .....	57
<b>5.1. Overview</b> .....	58
<b>5.2. Critical Interpretative Synthesis</b> .....	58
5.2.1. <i>What is Critical Interpretative Synthesis?</i> .....	58
5.2.2. <i>In relation to the study</i> .....	59
<b>5.3. Methods</b> .....	60
5.3.1. <i>Protocol Development</i> .....	60
5.3.2. <i>Search strategy</i> .....	60
5.3.3. <i>Data retrieval</i> .....	63
5.3.4. <i>Data extraction</i> .....	63
5.3.5. <i>Analysis</i> .....	64
<b>5.4. Results</b> .....	64
5.4.1. <i>Overview</i> .....	64
5.4.2 <i>Summary of policies and strategies</i> .....	65
5.4.3. <i>Policymaking process</i> .....	75
5.4.4. <i>Drivers of policymaking</i> .....	81
5.4.5. <i>Policy coherence for food and nutrition security</i> .....	83
5.4.6. <i>Additional themes</i> .....	87
<b>5.5. Discussion</b> .....	94
5.5.1. <i>Overview</i> .....	94
5.5.2. <i>Policymaking</i> .....	94

5.5.3. <i>Policy coherence</i> .....	97
5.5.4. <i>Drivers of formulation</i> .....	98
5.5.5. <i>Vulnerable populations and technology</i> .....	99
5.5.6. <i>Inclusion of sustainability within policies</i> .....	100
5.5.7. <i>Conceptual framing</i> .....	101
5.6. <b>Summary</b> .....	101
6.1. <b>Overview</b> .....	103
6.1.1. <i>Need for assessment</i> .....	103
6.2. <b>Social Life Cycle Assessment</b> .....	104
6.2.1. <i>In context of the research</i> .....	106
6.3. <b>Methodology</b> .....	111
6.3.1. <i>Methods</i> .....	111
6.3.2. <i>Sample selection and areas</i> .....	111
6.3.3. <i>Data</i> .....	112
6.4. <b>Analysis</b> .....	113
6.5. <b>Findings: Stakeholder Categories</b> .....	117
6.5.1. <i>Farmers</i> .....	117
6.5.2. <i>Brokers</i> .....	126
6.5.3. <i>Processors</i> .....	131
6.5.4. <i>Consumers</i> .....	135
6.6. <b>Findings: Cross cutting Themes</b> .....	139
6.6.1. <i>Participation in the policymaking process</i> .....	140
6.6.2. <i>Relationships</i> .....	141
6.6.3. <i>Awareness of policies and sustainability</i> .....	145
6.6.4. <i>Gender</i> .....	150
6.6.5. <i>The importance of maize</i> .....	152
6.7. <b>Discussion</b> .....	155
6.7.1. <i>Overview</i> .....	155
6.7.2. <i>Importance of maize</i> .....	155
6.7.3. <i>Policy awareness, impact, and participation</i> .....	157
6.7.4. <i>Country comparison</i> .....	160
6.7.5. <i>Conceptual framing</i> .....	160
6.8. <b>Summary</b> .....	161
7.1. <b>Introduction</b> .....	163
7.1.1. <i>Need for assessment</i> .....	163
7.2. <b>Expert-based Interviews</b> .....	164
7.2.1. <i>In the context of this research</i> .....	164

<b>7.3 Methodology</b> .....	165
7.3.1. <i>Adaptation of the research</i> .....	165
7.3.2. <i>Adaptations to the qualitative interview guide</i> .....	167
7.3.3. <i>Participant recruitment and implementation</i> .....	168
<b>7.4. Analysis</b> .....	170
<b>7.5. Findings</b> .....	171
7.5.1. <i>Existing policy system</i> .....	173
7.5.2. <i>Food policies</i> .....	176
7.5.3. <i>Stakeholder involvement</i> .....	179
7.5.4. <i>Socio-economic aspects</i> .....	181
7.5.5. <i>Societal awareness regarding stakeholder participation in policymaking</i> .....	182
<b>7.6. Discussion</b> .....	183
7.6.1. <i>Perceptions of the policy environment</i> .....	183
7.6.2. <i>Awareness raising regarding policy formulation, development, implementation, and evaluation processes</i> .....	184
7.6.3. <i>Food security</i> .....	185
7.6.4. <i>Conceptual framing</i> .....	185
<b>7.7. Summary</b> .....	185
<b>8.1. Overview</b> .....	187
<b>8.2. Conceptual framing</b> .....	187
<b>8.3. Stakeholder Engagement in Policy Formulation, Development, Implementation, and Evaluation</b> .....	188
8.3.1. <i>Policymaking process</i> .....	189
8.3.2. <i>Awareness raising pathways</i> .....	191
8.3.3. <i>Systems of participation</i> .....	193
<b>8.4. Dynamics of Participation</b> .....	194
8.4.1. <i>Gender and participation in policy processes</i> .....	194
8.4.2. <i>Education and inclusion in participatory processes</i> .....	195
<b>8.5. Perceptions of Policies</b> .....	196
<b>8.6. Effectiveness of policies</b> .....	197
<b>8.7. Sustainability</b> .....	200
<b>8.8. Country comparison</b> .....	202
<b>8.9. Summary</b> .....	203
<b>9.1. Overview</b> .....	205
<b>9.2. Stakeholders, policy effectiveness, and what it means for food security in Kenya and Tanzania</b> .....	205
<b>9.3. Methodology contribution</b> .....	206
<b>9.4. Recommendations</b> .....	208

<b>9.5. Future research</b> .....	209
<b>9.6. Research limitations</b> .....	210
<b>9.7. Summary</b> .....	211
<b>Appendix A- Research permits</b> .....	264
<b>Appendix B- Critical synthesis protocol</b> .....	266
<b>Appendix C-Search terms and online sources</b> .....	277
<b>Appendix D-Description of policies and objectives</b> .....	279
<b>Appendix E-Adjusted Expert Interview guide and questionnaire checklist for society</b> .....	285
<b>Appendix F-SDGs and the policies</b> .....	299
<b>Appendix G- Respondents Details and Coding process snapshot</b> .....	303

## List of tables

*Table 2.1: Food security characteristics (Jones et al., (2013); FAO, (2014))*

*Table 2.2 Policy making steps outlined (Source: Author)*

*Table 2.3: Sustainability pillars according to FAO (2018) and Pfahl, (2005)*

*Table 2.4: The principles of Sustainable Food Value Chain Framework (FAO, 2018)*

*Table 2.5: Levels and characteristics of stakeholder engagement based on Warren et al., (2021)*

*Table 2.6: Advantages and disadvantages of stakeholder engagement according to various sources*

*Table 2.7: Literature references of papers covering different fields with the theories as frameworks*

*Table 4.1: Guiding questions for the first objective*

*Table 4.2: Guiding questions for the second objective*

*Table 4.3: Guiding questions for the 3rd objective*

*Table 4.4: Parameters of the study according to the stages of the case study approach*

*Table 5.1: Characteristics of the strategies used for meta-ethnography (Source: Dixon-Woods et al., 2006)*

*Table 5.2: The steps for conducting a critical interpretative synthesis*

*Table 5.3: The developed inclusion and exclusion criteria used for data acceptance*

*Table 5.4: Guiding questions used to conduct the CIS*

*Table 5.5: Number of documents retrieved*

*Table 5.6: Table showing policies collected in different categories*

*Table 5.7: Related strategies and plans for the identified policies*

*Table 5.8: Acts of parliaments or laws used to govern the food sector in the region*

*Table 5.9: Examples of the different timelines for a sample of policies*

*Table 5.10: Phrases used to indicate stakeholder inclusion in policies*



*Table 5.11: Development visions in the East Africa region as well as the continental development region to which Kenya and Tanzania are signatories*

*Table 5.12: Theme categories identified within the policies*

*Table 5.13: Sustainability phrases and the policies they are mentioned in*

*Table 5.14: Policies that mention women and youth and the context*

*Table 6.1: Steps for S-LCA (Adapted from Benoit and Mazijin, 2009)*

*Table 6.2: Stakeholder categories with respective indicators and the potential sources for the information required (Source: Author's own)*

*Table 6.3: Number of respondents in each category and case study area*

*Table 6.4: Different databases used for secondary data collection*

*Table 6.5: The coding framework used for the analysis*

*Table 6.6: Themes identified in the farmers category*

*Table 6.7 Sample of land area used to cultivate maize*

*Table 6.8: Seed varieties and characteristics that farmers find favourable*

*Table 6.9: Fertilizer quantities in the region (FAO, 2019)*

*Table 6.10: Projected income returns for sample farmers based on their responses*

*Table 6.11: Options followed by farmers with regards to maize harvests*

*Table 6.12: Themes identified for the brokers category*

*Table 6.13: Themes identified in the processors category*

*Table 6.14: Consumer category themes*

*Table 6.15: Challenges facing the maize chain in the region*

*Table 6.16: Cereal production/trade in the region in 2018(000's= thousands) (FAO, 2018)*

*Table 7.1: Indicators and sample questions used for the questionnaire/interview checklist*

*Table 7.2: Topics and sample questions in the interview checklist*

*Table 7.3: Identified potential interviewees*

*Table 7.4: Final categories and number of participants interviewed*

*Table 7.5: Themes generated from the data*

## **List of figures**

*Figure 1.1: Diagrammatical representation of the proposed research objectives, techniques, and data to be collected*

*Figure 2.1: shows that institutional theory covers attributes that affect activities within a particular field or environment however also indicates the gap in the theory in determining aspects obtained from the society and the impact (Source: Author's own)*

*Figure 2.2: Diagrammatical representation of the theoretical framework for the research related to the value chain of choice. Solid arrows indicate the forms of elements enacted on the value chain while the*

*broken arrows indicate the relations between the different elements of the two theories, interacting via the value chain*

*Figure 3.1 Geographical map of Tanzania and Kenya. Obtained from mapofworld.com*

*Figure 3.2: The maize value chain in Sub-Saharan Africa as depicted by Grant et al., (2012)*

*Figure 5.1: Food related policies in East Africa implemented between 1980 and 2020. While Kenya has had a series of food security policies, Tanzania still operates under the one developed in 1992. The two countries have participated in regional objectives such as Jo'Burg Communique.*

*Figure 5.2: Resources related policies and strategies in both countries between 1980-2020. Resources refer to land, environment, water. The key point in that diagram is that the region is focused on managing the water resources available*

*Figure 5.3: Labour related policies specifically gender and youth policies in operation in both countries.*

*Figure 5.4: Technology based policies in the region, it is noted that the science and technology guidelines increased in the 2000s*

*Figure 5.5: Policies that deal with the economic aspects of food security such as processing, trade and financing. It is notable that during the 80s both countries employed economic recovery programs under the guidance of the IMF and World Bank*

*Figure 5.6: Policies that touch on the consumption and effect of food on the society. Within the policies, health and nutrition are linked.*

*Figure 5.7: Illustration depicting the policy making process in Kenya*

*Figure 5.8: An example of an announcement printed in the local newspaper calling for public participation. (Source- Author's own)*

*Figure 5.9: Different policies as related to food and nutrition policy. Based on the Tanzanian policies*

*Figure 5.10: Interlinkages between food security policies and other policies (straight line) and interlinkages between other policies outside the spectre of food (dotted lines) based on the Kenyan policies*

*Figure 4.1: Diagrammatic representation of the coding activities using a priori theme-production; showing code categorisation-inputs, size; challenges, gender, codes*

*Figure 6.2: Illustration of the interaction between policies and practices within the value chain. Policies in place advocate for the use of certified seeds by farmers but farmers may easily trade seeds between themselves without caring about origin.*

*Figure 8.1: The circular nature necessary for the effective stakeholder engagement in policymaking highlighting the need for participatory systems and awareness raising programs*



## Chapter 1: Introduction

### 1.1. Overview

Policies that do not engage stakeholders will not be effective (Wentholt *et al.*, 2009), including those related to food security.

Food security exists when “...all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 1996). There has been an increase in the challenges that affect food security, such as inefficient production practices, rising food prices, overpopulation, and rapid diet transitions leading to both undernutrition and overconsumption (obesity) (Beddington *et al.*, 2012). Food security policies are designed to address the social and climatic drivers of food insecurity. Policies may be designed which have global, regional, national, and local impacts. It has been proposed that codesigning policies with stakeholders (at different scales) will optimise their effectiveness and impact.

Stakeholders may be individuals or groups that have the ability to affect or be affected by the implementation of policy (Brinkerhoff and Crosby, 2002). They can include government officials, academicians, civil society organisations, researchers, citizens and consumers, and advocacy organisations. Stakeholder involvement when dealing with important issues such as food security extends from raising awareness about the issue, through to aiding in the development of solutions to food insecurity and implementing said solutions (Ndlela, 2019; Thorpe, 2015). The food situation in Kenya and Tanzania is insecure. According to the Integrated Food Security Phase Classification in 2022, 1.1 million people in Tanzania and 2.4 million in Kenya have experienced acute food insecurity (IPC, 2022). Understanding the measures that East Africa employs when dealing with food security issues, together with the extent of the stakeholder involvement in these measures, is a necessary step in optimising food security policy development, implementation, and impact pathways.

This chapter provides an introduction to food security, the role of policy, food systems and the link between these as well as an introduction to the research area. An overview of the research presented in this thesis is provided together with an outline of the thesis structure.

### 1.2. Background

For a food system to be sustainable, it must deliver food and nutrition security, while taking into account the necessary economic, social, and environmental considerations, for both current and future generations (El Bilali *et al.*, 2018; University of Oxford, 2018). Food security has

been conceptualised as involving four pillars: availability, access, utilisation, and stability (Sheahan and Barrett, 2017), derived from the Food and Agriculture Organization (FAO)'s World Food Summit (1996) declaration: "food security exists when all people, at all times, have access to sufficient, safe, nutritious food to maintain a healthy and active life" (p. 43). However, these pillars are faced with challenges leading to persistent food insecurity.

Inadequate food production, poor quality and quantity of food, protests over the possible introduction of food technologies, for example genomic technologies, and import/export bans driven by regional food standards or production practices are just some of the challenges faced when it comes to achieving food security (Ozor *et al.*, 2014; Boon, 2007). Food insecurity has the potential to, in addition to public health problems, lead to political instability, economic downturn and morally reprehensible actions (Jones *et al.*, 2013).

These challenges and impacts, coupled with climate change and projected population growth, mean that ensuring that the global population has enough safe and nutritious food to eat is an important priority for both governments and international organisations (Beddington *et al.*, 2012; FAO, 2015). Achieving food security is a global initiative with numerous bodies and organisations involved, from national bodies (governments and parastatals<sup>1</sup>) to industries and intergovernmental organisations such as the World Food Programme and the Food and Agriculture Organization (FAO).

There are a wide range of activities along the food value chain including infrastructure support, capacity building, technological support and governance that are necessary for the achievement of food security (UNCTAD, 2017). All these activities require an enabling environment to operate successfully, as well as effective governance structures, all created with the help of policies. Achieving food security is an important driver of policy development (Timmer *et al.*, 1983).

Policy has an impact on what foods are produced and how they are processed, distributed, purchased, consumed, protected, and disposed of. The policies impacting upon the food value chain are extensive and govern the actions of society and the government. As such, it is important to understand both the intended and unintended impacts of the policy, including the environmental, societal, political, and nutritional implications, all of which are linked to the stakeholder perspectives on these issues. The development and implementation of food policy

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<sup>1</sup> Parastatals are organisations with political authority, separate from the government but which serve government indirectly.

is a multi-sectoral and interdisciplinary process driven by various actors, factors, and actions along the different food commodity value chains.

### 1.2.1. *Food security in Africa*

The food situation in Africa is characterised by persistent hunger due to recurrent famines (Baro and Deubel, 2006), reliance on food aid and imports (Clover, 2003), and malnutrition and micro-nutrient deficiencies (Fraival *et al.*, 2019). The FAO *et al.*, (2018) has stated that one in four people in Africa were under-nourished in 2017, which aligns with the global average of one in four people being severely food insecure (Roser and Richie, 2019).

Food systems in East Africa are represented as a mixture of traditional and modern farming practices, dependent largely on the circumstances of the farmer and the crop being cultivated (Nzuma *et al.*, 2014). Most farmers will engage in subsistence farming practices (mostly food crops), only selling off surplus crops (Mugwanya, 2019). Others will be semi-commercial whilst larger commercial farms will be cultivated for the market (mainly cash crops).

Food production in the East African region is predominantly conducted by smallholder farmers and is impacted upon by the changing climatic conditions and inadequate infrastructure such as inadequate transportation links to move the produce from the production areas to markets further away. This had led to a reliance on food imports, making the countries within the region vulnerable to volatile international market prices, and as well as heightening the reliance on food aid as noted in the case of maize (Tapio-Bistrom, 2001).

It is estimated that smallholder farmers will largely be responsible for feeding nearly half of the world's population by 2050 (Mwenda, 2014), with 90% of the agricultural production in some African countries currently conducted on smallholder farms (Wiggins and Keats, 2013). This is an indication of the impact that such farmers have on the value chain, with regards to the availability of food and ensuring the sustainability of food systems. There is a need to support small-scale farmers, especially women, in Africa and other low-income regions to ensure development and access to resources, for example, health care and education for children (IAASTD, 2009). Supporting the smallholder farmers in overcoming challenges such as the high prices of inputs or limited access to markets provides them with a route to leave poverty and contribute to food security.

Given the high levels of undernourishment, ensuring food security in Africa is an ongoing endeavour that requires support from all levels of society (Dodo, 2020). With regards to food policy, various actions have been undertaken by both national and regional authorities to set up measures to promote food security, including the Comprehensive Africa Agriculture

Development Program (CAADP) of 2003 and the East African Community (EAC) treaty of 2000 that focuses on rational agricultural production and achieving food security. However, Sasson (2012) has stated that misguided government policies could make matters worse, e.g., unfair and unequal trade agreements, which may be developed regionally and implemented nationally, which may negatively impact local farmers. An example of an adopted policy program aimed at developing the agriculture sector, which is seen as controversial by some stakeholders, is the New Alliance program, established by the G8 and implemented by the African Union. It seeks to enhance sustainable inclusive agriculture-led growth (Vercillo *et al.*, 2015; Schutter, 2015). However, the programme has been associated with the eradication of small-scale farming, which forms a large section of the agriculture sector in Africa (Provost *et al.*, 2014). To prevent this, a deeper understanding of food systems, the value chains that are subsumed into them, stakeholders, and the impact of previous and current policies is required to develop and implement effective future policies.

Understanding which stakeholders are, and should be, engaged in the process can be conducted through stakeholder analysis which provides a conceptualisation that assists in the analysis of interests and influences, focusing on the inter-relations of groups and organisations and their impact on policy. Stakeholder analysis is used to assess the likelihood of success of specific projects or collaborations by mapping stakeholder power, interest, and influence (Brugha and Varvasovszky, 2000; Yang *et al.*, 2018).

Stakeholder involvement in the policymaking process is seen as a positive way forward, to the extent that it is outlined in documents such as the constitution of countries like Kenya and Tanzania (GOT, 1977; GOK, 2010). Collaborations with stakeholders must be emphasised and implemented in the policymaking process if the policy is to meet its goals as the stakeholders will have a better understanding of the policy. The extent of involvement by the region's population in the policymaking process, and the impact of achieving targets when the policy is implemented is not clearly understood. This represents the research gap explored in this thesis.

Research has also identified gender inequality as a cause of food insecurity (Tayal, 2019; Kakota *et al.*, 2011; Kapunda, 2000). Broussard (2019) stated that women in Africa are 2% more likely to be food insecure compared to men. Food insecurity among women, especially during the reproductive age range, has long-term developmental ramifications for society as a whole (Botreau, 2019).

In Africa, women play a crucial role in many aspects of crop production (FAO, 2016) and as such, can be considered important participants in the achieving of food security in the region.

Policy measures should increase agricultural productivity (for example, through the application of emerging agricultural technologies) in relation to gender-sensitive agriculture production (High Level Task Force, 2015). Understanding gender characteristics in agriculture is important due to changes in the perceived division of labour in households, as well as the fact that in some cases, interventions are targeted at male farmers (Jost *et al.*, 2015).

The need to improve food production and reduce food insecurity is coupled with ensuring the survival of both current and future populations. It should be appropriately encapsulated within the Sustainable Development Goals (SDGs) (UN, 2015) that the global community has decided to work to achieve, especially through policies. For this research, Goals 1, 2, 5, 6, 8, 9, 12, 13, 15, 16, and 17 are of relevance as they relate to the food sector (see Appendix F).

### **1.3. Case study selection**

The research in this thesis will focus on two countries in East Africa: Kenya and Tanzania. They belong to regional blocs that facilitate trade and have linked governance such as the African Union, East Africa Community (EAC), and the Common Market for Eastern and Southern Africa (COMESA). They cover a combined land area of 1,527,667 km<sup>2</sup> and are bordered on the east side by the Indian Ocean (EAC, 2013). As neighbours, they share country borders and landmarks such as the Rift Valley, Lake Victoria, and Mount Kilimanjaro. They have similar and differing characteristics that are important when conducting research. These include the fact that they are working towards the same regional goals, such as the common market within East Africa, which prompts them to align their national legislations and policies with the regional overarching ones, as well as considering the importance of specific crops (e.g., maize) within their borders.

Tanzania is located 6.3690° S, 34.8888° E in East Africa (Google, 2019). It is bordered by eight countries: Kenya and Uganda (to the north), Rwanda, Burundi, and Democratic Republic of Congo (to the west), Zambia, Malawi and Mozambique (in the south), as well as the Indian Ocean in the east. It is the largest of the East African countries covering over 947,300 km<sup>2</sup> (WorldAtlas, 2019) in area (combined land and water bodies) with three physiographic regions: islands, highlands, and the plateau. The available area for economic activity is 74,730 ha and 37% of this area is allocated to agricultural production (approximately 15,500 ha) (Census, 2012). Kenya is located at coordinates 0.0236° S, 37.9062° E in East Africa (Google, 2019) and is bordered by Tanzania and Uganda as well as Sudan, Ethiopia, and Somalia. Like Tanzania, it also borders the Indian Ocean. The physiography of the country is diverse with a coastal plain, highlands, the lake regions, the plateaus, and the Rift Valley covering an area of 582,644 km<sup>2</sup>



(WorldAtlas, 2019), where 48.5% of the land is attributed to agriculture use (Census, 2010). Kenya and Tanzania have population sizes of 53,771,296 and 59,734,218 respectively (UN DATA, 2020), with the primary sector playing a large role in its development. Agriculture is a major contributor to the economies of both countries; 24% of the GDP in Kenya (KARI, n.d.) and 31.4% in Tanzania (ANSAF, 2015).

#### **1.4. Overview of the Proposed Research**

Effective policy development and implementation is considered to be fundamental in attaining food security and ensuring the sustainability of the food system (FAO, 2018). It is important to ensure that any policy is accepted by all stakeholders (Saviolidis *et al.*, 2020; UNEP, 2019). Therefore, stakeholder participation in the process of policy development and implementation is an important step in ensuring that a policy will be accepted and effectively implemented within the society it impacts (Zimmerman *et al.*, 2009).

The proposed geographical region of study aims to achieve food security through the establishing of relevant and effective policies and associated programs. The relationship between societal stakeholders and policy (as tools for the achievement of food security) is described in Chapter 2. This research aims to understand the intricacies of food policy in relation to stakeholder involvement, the roles that stakeholders play in policy formulation and implementation, how this might be improved, and how this relates to the development of sustainable and secure food systems. Chapter 4 provides the objectives of the research, which include:

- Exploring food-related policy in East Africa; understand the policymaking process, stakeholder engagement in the process, and the aims of the policies.
- Evaluating the effectiveness of policies in the selected value chain.
- Assessment of the findings against the Sustainable Development Goals.

Understanding policy and its role in ensuring food security has not been explicitly studied in East Africa to date. However, the relationship between policy and food security in general has been validated. It is important for policymakers to implement policies that will enhance food security by targeting economics, food access, agronomic practices, access and other relevant factors (OECD, 2013). An important research gap is the disconnect between policy development and the potential to increase its effectiveness through co-development with affected stakeholders.

This thesis will address the research gap by considering the situation in East Africa regarding food security and food policy through an important staple product value chain in the region -

maize. Policy analysis, specifically through critical interpretive synthesis, will be applied to assess the efficacy of the policymaking process and the resultant policies and their effectiveness. In addition, the societal perspective and expert opinion will be researched through assessing the impact of policies on the maize chain and on society using social life cycle assessment (Benoit & Mazijin, 2010) and semi-structured interviews (Fig 1.1). This research will also apply a conceptual logical framework based on two theories, institutional theory and stakeholder theory.

Research is needed because Africa, and the rest of the world, is striving to ensure that current and future generations have the capabilities and resources to feed themselves adequately (FAO, 2009). Ensuring food security relies on mechanisms and structures being put in place and secured by policies. However, policy effectiveness relies on the successful collaboration of stakeholders and government. Understanding the role of stakeholders in policymaking will provide evidence which can potentially improve the effectiveness of food security policies in Africa.

#### 1.4.1. *Proposed methods and outcomes*

Figure 1.1. outlines the different methods briefly mentioned in Section 1.4, the data to be collected from these methods and the expected outputs/outcomes of the proposed research. The outcomes are linked to the research in the following ways:

1. Outcomes such as the identified drivers of policymaking, the factors that make a policy successful, and policy coherence all contribute to understanding the policy environment in East Africa, providing information about the existing policies and food security and any changes needed.
2. The relationship between society and policy will be understood through the outcomes on the stakeholders' position, the relationship between society and policy, and the impact of policy on society.
3. Existing sustainability and food security status contributes to understanding the policies that influence food security and improved sustainability.

This research will aid in understanding the successful implementation of policies and the contribution to sustainability with regards to the sustainable development goals in the course of attaining food security.

#### 1.4.2. *Structure of the thesis*

Following an introduction to the research and region of interest (Kenya and Tanzania) within this chapter, Chapter 2 presents the literature review relevant to the research questions to be

addressed. Areas that are covered concern food security, food policy and the relationship between the food policy and food security, as well as stakeholder engagement in Kenya and Tanzania. The research to be presented in this thesis is also introduced within this chapter.

Chapter 3 offers a brief introduction to the maize value chain and its relation to the research. Chapter 4 introduces the research methodologies used and the adaptation of the methodologies in relation to the specific research questions asked. An interpretative review of the existing policies using critical synthesis methodology is presented in Chapter 5 followed by a critical review of the policies and discussion of the findings.

Chapter 6 reports on the research focused on the Social Life Cycle Assessment (S-LCA) of the maize value chain to situate the importance of maize within the region, providing the link between the policies that are implemented within the chain and their effect on stakeholders, including consumers. The chapter introduces the S-LCA, its applications, and the justification for using it. The parameters used to define the research methodology, the findings and analysis, are also presented.

Chapter 7 reports on the interviews that sought expert opinions concerning the effectiveness of the policies currently in effect. The basis of the interview checklist is also discussed. The results and implications for food security policy are presented.

The relationship between the various findings in Chapters 5 - 7, as well as their relationship to the research questions presented in Chapter 2, are covered in Chapter 8. The conclusions arising from the research presented within the thesis are discussed, while the limitations of the research and future research implications are presented in Chapter 9. This includes policy recommendations based on the findings in relation to ensuring the implementation of sustainable food systems.

## **1.5. Summary**

Achieving food security is essential for the continued and sustained development of the population. Developing and implementing effective food policy is essential if this goal is to be attained. This research aims to understand stakeholder involvement in the development and implementation of food policies in Kenya and Tanzania, as well as the effectiveness of these policies in establishing sustainable food secure systems. This starts with understanding the current status of the region. The next chapter explores the literature on stakeholder engagement, the policymaking process, and food policies.

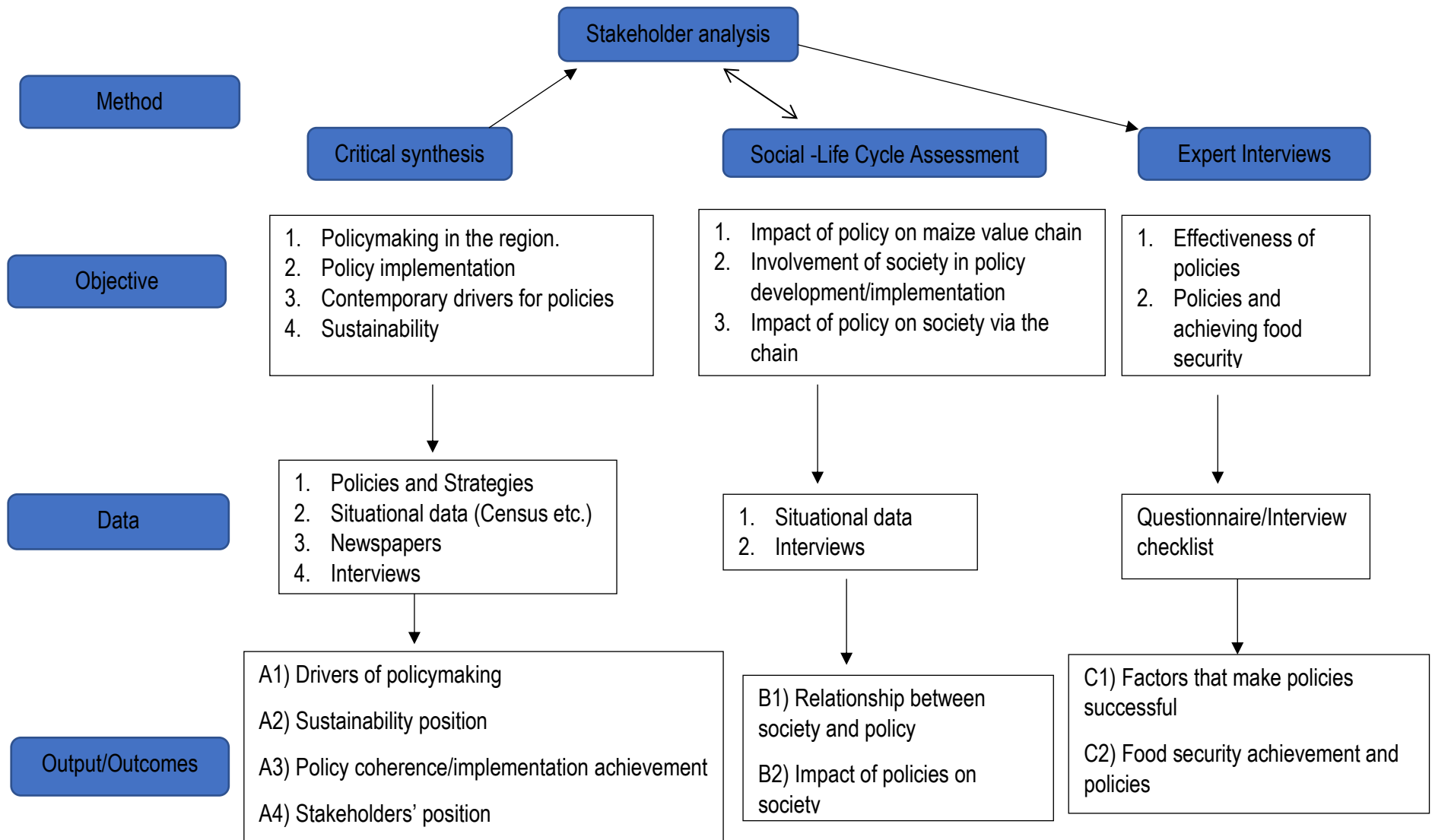


Figure 1.1: Diagrammatical representation of the proposed research objectives, techniques, and data to be collected

## **Chapter 2: Policies, Stakeholders and Food Security**

### **2.1. Overview**

Managing the challenges of food insecurity is the focus of food related policies in Kenya and Tanzania evidenced by the titles of the main food policies in the country. Involvement of societal stakeholders in attaining food security is not only important but also necessary as the global population increases. One of the ways that these two factors, i.e., society and food security, intersect is in the development and implementation of food policies, through stakeholder engagement in the policymaking process. Chapter 2 seeks to provide an overview of the policymaking process, by understanding the institutional context it takes place in, with an emphasis on stakeholder participation both globally and regionally while framing this within the parameters of food related policies.

The chapter looks at the policy environment in Kenya and Tanzania outlining the process undertaken to formulate food policies as well as identifying the link between policies, food security and sustainability. Background information on institutional theory, stakeholder theory and stakeholder engagement are provided to aid in the development of a conceptual logical framework. Under stakeholder engagement, the relationship between food security and women, given the status of women as important stakeholders in ensuring food security is covered as well. The interlinkages between stakeholders, food security, food policies and sustainability are related to the conceptual framework to enhance the understanding of the importance of stakeholder engagement in policy making.

The following section begins by outlining food security and policies.

### **2.2. The Policy Environment**

The definition of food security has changed over time (FAO, 2003; Jarosz, 2015). However, the definition has always encompassed the factors of availability, access ,and utilization (See Table 2.1.) (Jones *et al.*, 2013; Barrett, 2010). The most widely used, current definition was devised in 1996 by the World Food Summit, which states “*Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life*” (FAO, 1996). It also includes the stability of food which accounts for access to adequate food at all times (Jones *et al.*, 2013), and so the sustainability of food systems. A sustainable food system delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised (University of Oxford, 2018; FAO, 2018).

Table 2.1: Food security characteristics (Jones et al., 2013; FAO, 2014)

<b>Pillars</b>	<b>Particulars</b>
<b>Access</b>	Dependent on the individual or household's access to resources to acquire food for appropriate diets
<b>Availability</b>	Covers the availability of sufficient quantities of quality food through domestic production and imports
<b>Utilization</b>	Applies to dietary intake and utilization of nutrients of the body. This takes into account other non-food inputs which are important to food security such as sanitation, health and clean water
<b>Stability</b>	Individual and household's access to adequate food at all times, with no risk to losing access due to shocks such as seasonal insecurity or climate change

The definition of food security frames the overview of the range of policies that can be involved in ensuring it is achieved, including in relation to the different pillars. Such policies may be economic (food prices), physical (use of land, fuel versus food production, public access) or social (food programs).

Achieving food security involves collaborations between numerous organizations from national (governments and parastatals) to international organisations (for example, the World Food Programme). Food secure systems should address all aspects of food security. To attain food security: infrastructure support, capacity building, technological support and effective governance including policy development are needed. An understanding of the policy making process and assessment is therefore important in establishing if and how these pillars are being addressed.

Policy making relies on factors such as the identification of the problem to be mitigated or averted, input from the relevant stakeholders and evidence that justifies the formulation of the policy. Whilst the process of policy making itself is not always well documented (Raphael *et al.*, 2008), broader stages of policy making, including the existence of an agenda, policy formulation, policy adoption, policy implementation and its' evaluation, have been recognised as important (Sabatier, 1991; Howlett and Ramesh, 1995). These stages of policy making are outlined in Table 2.2 (Appiah-Kubi, 2015; Ncchpp, 2013). Within all the stages, the participation of members of society (either the general public, experts, or both) is necessary

(see, inter alia, Rowe and Frewer, 2000; Cerna, 2013). For example, identifying an issue as a problem requires communication between the affected parties and policy makers while implementation of the solution requires collaboration between these different actors, stakeholders and end-users.

*Table 2.2 Policy making steps outlined (Source: Author)*

<b>Stage</b>	<b>Activity</b>
<b>Agenda setting</b>	At this stage, the pertinent issue is identified provided it meets certain pre-requisites such as it has been identified to be a problem, or a potential issue.
<b>Policy formulation</b>	Solutions to the identified issue are generated here. It is important to note that it is at this stage that power dynamics within a group are in play as they rationalise and justify their choices. This shapes the direction of the policy
<b>Policy adoption</b>	Decisions are made as to the approaches to be followed to address the issue. It can be through issuance of a statement or decree
<b>Policy implementation</b>	At this point, activities necessary to make the designed policy work are performed.
<b>Policy evaluation</b>	The policy is assessed to determine if the implementation and subsequent effect are in line with the designed objectives

During the formulation stage of the process, input from gathered evidence, viewpoints from civil society and experts in the field are ideally considered. However, this is not always the case and research from across the globe has suggested that there is limited use of evidence in policy making, and that in some instances, political will (motivation) drives policy formulation (Mwamakamba, 2017). Waqa *et al.*, (2017) cited among other factors, the lack of resources and engagement with other stakeholders as barriers to the use of evidence, while Rocha & Harris (2019) emphasised that the framing (and who is doing the framing) of the evidence necessary to make decisions is important when it is to be used for policymaking. Using the formulation stage as an example, the involvement of stakeholders in the process is important, from the initial stages where the problem is identified to finding and using the solutions to be delivered by the policy and assessing policy impacts.

### **2.2.1. Policymaking in the region**

Regional policy making processes are outlined in Table 2.2. Development of policies is initiated by the identification of a particular issue affecting society that needs to be solved followed by a series of consultations with experts and stakeholders to construct a draft document outlining a solution which will be released to the public for comments. After the public stage, the draft is adjusted and goes through the parliamentary process to become a legal document (policy). The process in Kenya has been referred to as Deliberative Inclusionary Process (DIPs) (Njoroge, 2017) which aims to include different viewpoints through discussions. Mattee (2007) stated that the process in Tanzania is meant to follow the bottom -up approach (information and evidence flowing from society to policymakers) but this not the reality. There are cases of limited involvement and power dynamics at play that distract from the process.

Documented studies of the policy making process in the region include Gitau *et al.*, (2008) who considered agricultural policymaking in Kenya. They found that stakeholder inclusion was occurring although the process of policy development became longer and that more knowledgeable stakeholders could drive the policy to their favour. KIPPRA (2007) considered trade policy making calling for the need for integration of the different policies for effective implementation as well as highlighting the different levels of stakeholder participation. Another paper by Njoroge *et al.*, (2017) on climate change policy making outlined the dynamics of leading the policy making process especially in the case of novel policies showcasing the conflict between politics and interest as well as the interactions between different actors in shaping the narrative. In Tanzania, the influence of NGOs (Elliot- Teague, 2007) in development policy making (Hartman, 1983) and changes in public policy (Babeiya, 2011) indicated citizens' empowerment in the formulation process is inadequate. Mattee (2007) recommended the application of a consistent, pro-active system for interaction between stakeholders and the policymakers. There is still a need for a consistent system of stakeholder inclusion in the policy making process.

Evidence for the inclusion of stakeholders beyond the initial policy formulation stage is minimal. In practice, stakeholders are normally presented with the draft policy at “stakeholder workshops” and offered the opportunity to make their comments (Mattee, 2007), rather than having input earlier in the process. However, this is changing with forms of collaborations for example the National Engagement Strategy under the International Land Coalition (International Land Coalition, 2020) which works at actively encouraging the participation of stakeholders. The extent to which this format has been adopted within other sectors is not yet known.



Policy analysis in East Africa has been conducted by both organizations (NGOs, government) and individuals (researchers), with specific organizations/ departments dedicated to policy research within the two countries. In Tanzania, the private Policy Analysis Group is involved in this activity, while in Kenya the governmental Kenya Institute of Public Policy Research Analysis (KIPPRA) fulfils this role. Within the various ministries, there are departments that are set up for policy creation specific to the ministry concerned (i.e., water policy is under the Policy Department of the Ministry of Water).

Existing investigations into stakeholder involvement in policy have explored various policy areas including interventions outlined in school policy (Mkumbo, 2009; Sifuna, 2007), evidence used for the development of anti-malarial drug policy (Mubyazi & Block, 2005; Shretta *et al.*, 200), impact of foreign policy on national interests (Adar, 1994) and on biomass-based policies (Onesimo, 2014). These have used a range of techniques including policy matrix analysis (Pearson *et al.*, 1995), price risk decomposition (Barrett & Luseno, 2004), the policy analysis framework (Aldersey & Turnbull, 2011) situation analysis (Mwanga *et al.*, 2011) econometric analysis (Yegon *et al.*, 2014) and dividend policy and power analysis (Hydén & Mmuya, 2008).

Research has also specifically focused on stakeholder involvement in food policy development and implementation in Africa. Mwaniki (2006) identified challenges that affect achievement of food security in Africa, classing them into five broad categories. One category was “handicapping policies” which detailed the use of policies that are not inclusive and designed to put other factors above the need of the people.

Policies within Tanzania and Kenya have also been a focus of research including from the perspective of economic impact (Jayne and Jones, 1997; Maro and Mwaijande, 2014) and nutrition and hunger (Alphonse, 2017; Nyariki *et al.*, 2002). This is also the case with food policies.

In Kenya, food policy in the context of agriculture policy (Alila & Atieno, 2006), availability and nutrition (Ateng, 1986) and actions of specific stakeholders such as NGOs (Odera, 2018) have been investigated assessing policy effectiveness in attaining food security.

Isinika *et al.*, (2016) who examined agriculture policy analysis research in Tanzania and found that there is little evidence of research informing policy. Care (2013) published a report on the analysis of food and nutrition security in Tanzania which established that the success or failure of any policy is influenced by the political, social, and economic environment in which they are being implemented. The FAO also conducted a review of Tanzania’s food and agricultural

policies, focusing on three policy driven initiatives in the country- MKUKUTA I & II and the Five-Year Development Plan (MAFPP, 2013). The results indicated that there were discrepancies, between the objectives of the policy and the actual impact, which had prevented the country from meeting its food security objectives.

National agricultural development strategies within the region have identified the need to develop effective community-based food storage infrastructure (EAC secretariat, 2006), in particular developing economies, where there is a need for simple and effective pest management approaches. Some effort has been used to understand the farming communities and the possible gender characteristics underpinning policy decision and also probably affecting policy implementation (Mwaniki, 2006). Haug and Hella (2013) considered enhancing food security in the region and concluded that misguided policies were a cause for food insecurity.

Although the policies are in place, their implementation is not ideal (Salami *et al.*, 2010). Successful implementation of policies along the food chain relies on acceptance and co-operation of stakeholders. Collier and Dercon (2014) stated that for development in African agriculture to occur there was a need for new institutional and policy frameworks. This is of extreme importance when one considers the Sustainable Development Goals.

### ***2.2.2. Sustainability, food security and food policies***

Considered the blueprint for a better and more sustainable future for all, the Sustainable Development Goals (SDGs) were ratified by 193 countries in 2015 (UN, 2020), including Kenya and Tanzania. Of the 17 goals, the 2<sup>nd</sup> SDG (Zero Hunger) deals directly with food. However, it is also linked to the achievement of several of the other goals (see Appendix F). Together with the 2<sup>nd</sup> SDG, the 17<sup>th</sup> SDG (Partnerships) are the most relevant as they outline both the importance of food, policy and of society working together to achieve sustainability.

Additional efforts in relation to global sustainability include the development of the Sustainable Food Value Chain framework by FAO (2014) that places the food value chain at the core of the food system and emphasises the principles to which sustainability should adhere. These principles are informed by sustainability pillars. Sustainability pillars are the dimensions that food chains and systems must develop along simultaneously to be sustainable (Table 2.3). There are four recognizable pillars: environmental, social, economic (Purvis *et al.*, 2018) and institutional (Pfahl, 2005; Burford *et al.*, 2013). Table 2.4. summarises the principles of the framework and how they relate to food security and sustainability pillars.

Table 2.3: Sustainability pillars according to FAO (2018) and Pfahl, (2005)

<b>Sustainability pillars</b>	<b>Characteristics/Specifics</b>
<b>Environmental</b>	The management and conservation of the natural resource base
<b>Social</b>	Maintenance of the socio-cultural attributes of the community
<b>Economic</b>	Meeting the needs of the present generation without impacting future generations
<b>Institutional</b>	Steering change that is oriented towards the appropriate achievement of the other three pillars

Table 2.4: The principles of Sustainable Food Value Chain Framework (FAO, 2018)

<b>Principles of the Sustainable Food Value Chain Framework</b>	<b>Relation to food security</b>	<b>Sustainability pillars</b>
1. Efficiency in the use of resources is crucial to sustainable agriculture	Contributes to the availability pillar	Environmental and economic
2. Sustainability requires direct action to conserve, protect and enhance natural resources	Contributes to the stability and availability pillar	Environmental
3. Agriculture that fails to protect and improve rural livelihoods, equity and social well-being is unsustainable	Involved with the access pillar of food security	Social and Economic
4. Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture	Contributes to availability pillar	Social, economic and environmental
5. Sustainable food and agriculture require responsible and effective governance mechanisms.	Covers all pillars of food security	Institutional

The importance of institutions in achieving sustainability is highlighted in both the pillars and principles of sustainability. The fifth principle of sustainability (Table 2.4) addresses the need for effective and responsible governance mechanisms, combining it with the institutional pillar of sustainability, as governance underpins both the human and natural aspects of the systems (FAO, 2014). Effective and responsible governance requires enabling policy, legal and institutional environments that strike the right balance. This underscores the value of the proposed research in understanding policymaking, governance and stakeholder involvement in the region.

Continuous efforts are being focused towards ensuring food secure systems in the face of the challenges posed by both overpopulation and climate change. Calls for effective interventions

to improve the situation are becoming the norm. However, food security interventions are only effective if the solution is tailored on the needs of the particular society which increases the need for stakeholder participation in the process of developing solutions. In the selected region, stakeholder participation is currently considered to be minimal, although it is a recommended activity in the policy making process (Mutero *et al.*, 2014; Gitau *et al.*, 2008), which has the potential to limit the effectiveness of the resulting policy. Understanding this in more detail, is therefore important going forward.

To get the “strategy right”, policymakers must have a well-rounded perspective that integrates research evidence and stakeholder perspective. There is a knowledge gap between policy development and implementation. It is important to analyse the policymaking process to identify any possible shortcomings that result in the failure of implementation, with a focus on stakeholders’ requirements.

Understanding policy impact and its unintended effects is of importance when it comes to its assessment. The impact of policies can be analysed by various methods, for instance, institutional theory and stakeholder theory may be applied to understand how stakeholders react to the norms and practices established by food security policies as well as stakeholder contribution to evidence used to formulate the policies. However, an understanding of individual theories and the potential relationship between the two theories is needed.

### **2.3. Institutional Theory**

There are various definitions of institutional theory available in literature; for example, “*a unique approach regarding the study of social, economic and political dynamics*” (DiMaggio and Powell, 2000, pg. 2). The theory aims to consider the process by which norms and routines in the social sphere become established as authoritative guidelines (Scott, 2005).

Essentially, institutional theory is identified as an approach to understand the reasons as to why organisations in the same field or environment possess homogenous characteristics (Dacin *et al.*, 2002; Fernando & Lawrence, 2014). These reasons are seen as the foundation of organisational legitimacy.

Characteristics of the theory develop initially from the definition of the word “institution” and what it represents. Brunton *et al.*, (2010) saw institutions as a combination of formal rule sets, less formal shared interactions, and assumptions that organizations are expected to follow. This echoes Scott (2001) who stated that institutions are a set of rules, customs and values in a given environment that cause or drive uniformity of behaviour of the people in that particular

environment. The relationship between institutions and institutional theory was captured by Scott (2005; pg 5):

*“Institutions are variously comprised of culturally cognitive, normative and regulative elements that together with the associated activities and resources, provide stability and meaning to social life”*

Institutional theory has two main branches, decoupling and isomorphism. Decoupling focuses on the separation between the externally portrayed formal image of an organisation and the actual practices of the organisation (Fernando & Lawrence, 2014). Of interest to the research presented in this thesis is isomorphism, which is a process that compels one organization to resemble other organizations in the same environment (DiMaggio & Powell, 1983; Fernando & Lawrence, 2014; Lin, 2016). Conducting or adopting similar norms and practices is one of the ways this resemblance manifests and can be seen as a result of policy transfer and diffusion of knowledge (Stone, 2001).

Isomorphism is considered in three forms: normative, coercive and mimetic which are also considered to be the three pillars of institutional theory, which is normative, regulative and cognitive respectively (DiMaggio & Powell, 2000; Lin, 2016; Fernando & Lawrence, 2014).

The normative pillar, also known as normative isomorphism, concerns the pressures emerging from the common values of the stakeholders in a particular field or system to adopt particular institutional practices. The regulative pillar, coercive isomorphism, leans into the external factors such as stakeholder influence and government policies. Regulative pillar emphasizes conformity to legal systems (Palthe, 2014) and associated matters such as policies and regulations. The cognitive pillar, also known as mimetic isomorphism, follows the emulation of other organizations' practices and addresses the culture aspect. These pillars aid the participant (individuals or companies) in gaining legitimacy and be competitive in the sector. These pillars may mutually work together, in various combinations, to provide legitimacy and ensure survival of the organization. However, it should be noted that over time some pillars may be become dominant, or one pillar may undermine the effects of another (Scott, 2005).

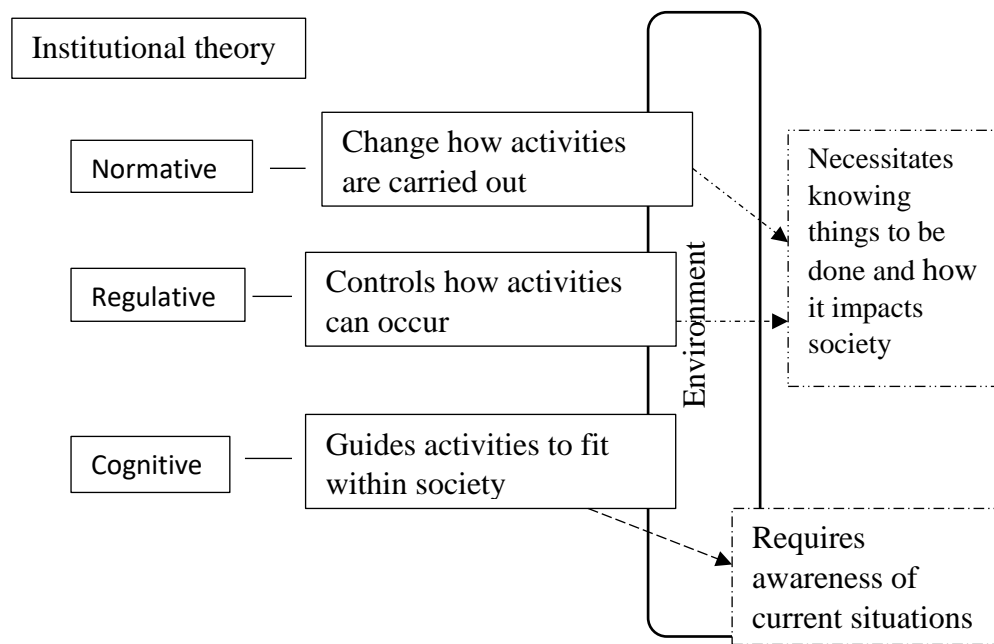


Figure 2.5: shows that institutional theory covers attributes that affect activities within a particular field or environment however also indicates the gap in the theory in determining aspects obtained from the society and the impact (Source: Author's own)

Given that institutions can incorporate or represent a set of values, for the purposes of this research, it is applicable to refer the relevant policies as institutions in the environment of institutional theory, particularly with the regulatory pillar. Norms that have been accepted by society and practices that are seen as necessary to be able to effective in a particular environment but not regulatory in nature are relevant as institutions. Institutional theory allows for the assessment of the causes of the behaviour of participants, particularly the influence of policies, of culture and the need to fit in within the environment.

### 2.3.1. Critiquing Institutional theory and linkage to stakeholder theory

Institutional theory has been critiqued by various researchers in different areas of application. For example, Zilber (2021) focused on its application in relation to organizational culture, Kauppi (2013) on supply chain management and Glynn & D'Aunno (2023) on the history of the theory. Phillips (2003) compared institutional theory and discourse analysis, stating that discourse analysis provides a more nuanced view of institutional processes than institutional theory. Various critiques have been made of the theory such as the danger of overlooking power dynamics present in institutions (Munir, 2019; Phillips, 2003) and the static nature of the institutional explanations, that structures persist while individuals come and go, as outlined by Peters (2000) and Mohammed (2017). However, these shortcomings do not negate the value of institutional theory calling for modifications and expansions.

A key characteristic of the institutional theory is that “*something identified at a higher level is used to explain processes and outcomes at a lower level of analysis*” (Amenta & Ramsey, 2010: pg. 15). This is also seen as a shortcoming of the theory as the nuances involved in the systems being studied might be missed (Phillips, 2003; Fig 2.1). This introduces the need to centre the research, especially given its value chain characteristic, appropriately so as to structure the findings on not only the overarching system (governance) but also the operating ones (the value chain). Munir (2014) stated that institutional theory can profit from the additional engagement with critical theoretical perspectives, through linkages with other critical theories.

Another criticism of institutional theory is that it avoids examining the way power operates in social life (Munir, 2014). Some authors have argued that when understanding society, the concept of power must be included (Clegg, 2010), in particular especially when considering organizational change. Institutional theory avoids analysis of power, powerful actors and how they initiate change (Willmot, 2014) and accept at face value results of the uses of power (Munir, 2014), thus failing to explore the role of power in establishing institutions. Policies aim to create change, so it is essential to consider power, starting from the recognition that institutionalization is not only an effect of power but also a product of power (Willmot, 2014). Additionally, power plays a role in governance as ideational power which considers establishment of accepted norms, and material power which deals with force or economic structures (Nelson & Tallontire, 2014). This creates an explorable situation of institutional dynamics especially between actors and regulations as well as power dynamics between stakeholders (Brouwer *et al.*, 2013; Nelson & Tallontire, 2014). Given that institutional theory misses the opportunity to understand impact of power dynamics within the institutions, stakeholder theory as an additional theory can provide the necessary lens to understand this aspect.

#### **2.4. Stakeholder Theory**

Stakeholder theory was conceptualized in the 1980s by Edward Freeman in his work “*Strategic Approaches to Management: The Stakeholder Approach*”. The theory contends that a business should create value for all its stakeholders (Freeman, 1984), by taking them into account in their decision making. As it developed, the theory integrated moral philosophies which strengthens the theory in terms of integrating social issues in management (Laplume *et al.*, 2008). Therefore, stakeholder theory is a managerial strategy and ethics concept that focuses on the fact that a firm’s success is dependent on the management of its relationships with key stakeholder groups (Freeman and Phillips, 2002). Advancement of the theory has seen its

classification into three branches; *descriptive*, *normative* and *instrumental* (Donaldson & Preston, 1995).

Descriptive stakeholder theory looks at how organizations currently behave, outlining how organizations manage or interact with stakeholders (Freeman, 1999; Donaldson & Preston, 1995). The instrumental branch outlines how exploring stakeholder relationships that are currently subject to managerial influence correlates to how organizational behaviour affects performance (Freeman, 1999). Normative stakeholder theory was the earliest branch to develop primarily as a result of the inclusion of moral philosophies. It establishes that irrespective of the stakeholder power, all stakeholders should be treated fairly by the organization, therefore focusing on how organization should behave (Egels-Zanden & Sanderg, 2010; Freeman & Phillips, 2002).

Stakeholder theory, like institutional theory, has been critiqued by the researchers (Donaldson & Preston, 1995; Gibson 2000). Some of the shortcomings associated with the theory include the fact that it is difficult for all stakeholders to be treated equally and it may lead to the reliance on abstract decision making when focusing on stakeholders rather than the long-term goals of the organization (Phillips, 2003). However, the shortcomings of stakeholder theory maybe due to “misunderstandings and misinterpretation of the theory”, providing in depth clarifications (Post, 2003; Phillips *et al.*, 2019). The implied shortcoming is that stakeholders are not equal, introducing the power dynamics aspect, while the need for long-term perspectives in policy development integrates the importance of the institutions which can be assessed with the institutional theory. However, to ensure a comprehensive understanding, the starting point is to understand the priorities and preferences of stakeholders for policy development and outcomes.

Stakeholders in this case being anyone who can impact the business or be impacted by the activities of the business (Gibson, 2000), highlighting one of the paradoxical characteristics of the theory where stakeholders are seen as both a means to an end and are the end themselves (Freeman, 1994). In the context of the research, stakeholder theory provides the theoretical foundation to assess the relationship between governing aspect (specifically policies) and societal stakeholders. While the definition of stakeholder is disputed (Miles, 2017), this research will use the definition provided by Lemke and Harris-Wai (2015) where the term stakeholder may refer to a person, group or organization either involved in or affected by a course of action, in this case the action being food policy.

Based on its premise of a managerial strategy, stakeholder theory is underpinned by the need to engage with stakeholders.



### **2.4.1. Stakeholder engagement**

Defined by Warren *et al.*, (2021), stakeholder engagement is viewed as an iterative process that involves active solicitation of knowledge, value, and experience of individuals in the quest of representing a wide range of direct interests in a particular issue for the purposes of increasing understanding between the different players and leading to effective decision making that is transparent in nature. This definition echoes previous definitions by Deverka *et al.*, (2012) and Rowe and Frewer (2005), among others.

Stakeholder engagement is sometimes used interchangeably with stakeholder involvement, public participation, or stakeholder participation (Walls *et al.*, 2011). Stakeholder engagement is a form of “bottom-up” participatory process, whereby representatives of the chain allow for the collation of the diversity of approaches and societal needs within a sector (Mazzocchi & Marino, 2020). This is due to the fact that stakeholders’ perspectives are shaped by their position within the system in question, be it society or specific industry (Garcia-Gonzalez & Eakin, 2019). Stakeholder engagement enables identification of pertinent points of an issue that may lead to either agreements or disagreements, allowing for a more rounded understanding of the different viewpoints on a topic. Bijlsma *et al.*, (2011) have noted that it is a complex path-dependent process in which actors, not knowing exactly how their interests will be affected by future development, seek to reach an understanding about the policy situation.

There are five levels of facilitating stakeholder engagement as identified by the International Association for Public Participation (IAP2) (Bammer, 2020; Table 2.5.), with progress being made to improve the levels from involvement upwards (towards stakeholder empowerment). The shift will be dependent on, and driven by, increased stakeholder engagement. These levels of participation build upon the Shand-Arnberg participation continuum (Bishop & Davis, 2002) which emphasises that different levels of participation are required based on the goal the policy is aiming for. This continuum moves from minimal involvement to community-controlled agendas allowing choice with regards to the participation.

Currently, as seen in Section 2.2, policymaking is geared towards the first two levels, that is informing and consulting although there is a drive to move towards collaboration when it comes to stakeholder engagement.

Table 2.5: Levels and characteristics of stakeholder engagement based on Warren *et al.*, (2021)

<b>Levels of stakeholder engagement</b>	<b>Criteria</b>
<b>Informing</b>	Through newsletter to inform society to observe discussions on the policies
<b>Consulting</b>	Conducting interviews, surveys, providing draft policy documents for public comment
<b>Involving</b>	Stakeholders work together during the policy development process
<b>Collaboration</b>	Stakeholder recommendations are incorporated in the final decisions
<b>Empowerment</b>	The final decision is by the public

These levels of engagement are accompanied by several different mechanisms and/or strategies for facilitation of engagement (Walls *et al.*, 2010). Engagement strategies vary by the level of collaboration sought and can be uni-directional (e.g., sensitization exercises, conferences, policy briefs and dissemination events) or bi-directional, including inception and feedback meetings (Warren *et al.*, 2021), face-to face-workshops, collaborative scenario building, consensus building workshops and interviews (Helbig *et al.*, 2015). Other more collaborative methods are proposed by Bishop and Davis (2002) who indicate that participation should be discontinuous and use different techniques with associated instruments for each of the different levels of participation. Renn *et al.*, (1993) created a novel model for public participation that focused on a three-step involvement of citizens, experts and stakeholders based on their expertise and experience. Fischer *et al.*, (2014) proposed a framework on selecting what methods to be used for stakeholder engagement as different methods yield specific relevant information. These studies highlight that different measures must be employed to enhance stakeholder engagement. Existence of these different strategies provide mechanisms to allow for the participation of stakeholders from the beginning of the policy making process, and is extremely beneficial (Doody *et al.*, 2009). It should also be noted that in some cases, stakeholders participate through informal channels such as ad-hoc interest representation (Bengtsson & Klintman, 2010).

As progress is made more towards participatory policy development, stakeholder participation has increased in importance (Mulyaningrum *et al.*, 2013; Long *et al.*, 2019). Governments, and organizations, have been increasingly incorporating stakeholder engagement in their decision

making (Prager and Freese, 2009). Bingham *et al.*, (2005) outline that, generally, governments actively involving citizens in decision making is a form of deliberative democracy.

This is because stakeholder engagement allows for the articulation by stakeholders of societal values and the alignment of policy recommendations with these expectations (Lemke and Harris-Wai, 2015). Table 2.6 summarizes the advantages and disadvantages of stakeholder engagement. It should be noted that while stakeholder engagement can improve trust in the government (Frewer and Salter, (2002); Reed, (2008)), it is dependent on the process being accessible, transparent and perceived as being fair.

*Table 2.6: Advantages and disadvantages of stakeholder engagement according to various sources*

<b>Advantages of stakeholder engagement</b>	<b>Disadvantages of stakeholder engagement</b>	<b>References</b>
<b>Increase public understanding of issues</b>	<b>Easier to promote mono-centric governance activities rather than facilitate multi-stakeholder activities</b>	Helbig <i>et al.</i> , (2015); OECD (2021); Breeman <i>et al.</i> , (2015)
<b>Provision of clarity in terms of vision and priorities held by the different stakeholders</b>	<b>Selection of the stakeholders may be <i>ad hoc</i> which may lead to marginalization of some stakeholder groups</b>	Breeman <i>et al.</i> , (2015); OECD (2021); Mulyaningrum <i>et al.</i> , (2015); Cottrell <i>et al.</i> , (2015)
<b>Reveals conflicts and agreements between different groups and resolutions</b>	<b>Underpinning assumptions may be erroneous in nature</b>	Helbig <i>et al.</i> , (2015); Walls <i>et al.</i> , (2010)
<b>Increased trust in policymakers</b>	<b>Time -consuming</b>	Walls <i>et al.</i> , (2010); Helbig <i>et al.</i> , (2015);
<b>Inclusion of more information into deliberation</b>		Helbig <i>et al.</i> , (2015)

Table 2.6. indicates there is a need for a balancing act to ensure engagement does not lead to the unintended exclusion of stakeholders as well as a system that will allow information and eliminate assumptions.

Stakeholder engagement in policy can take two forms; those which are based on expert involvement and, public or citizen based participatory which involves a wider pool of people instead of experts alone (vanBallaert, 2017). Expert-based stakeholder engagement is the inclusion of individuals or representatives with considerable experience in the issue in question. Fischer *et al.*, (2014) defined expert stakeholders as “those stakeholders who have gained domain specific expertise through their profession” (pg. 2). Examples of these experts include

researchers in the public and private sectors. It is common to find stakeholder involvement in policy making refers to expert-based engagement as opposed to engagement with the general public (Fischer *et al.*, 2014). Involvement of the public in decision making can be referred to as public engagement or participatory engagement (Rowe and Frewer, (2005); Helbig *et al.*, 2015), and as such is a combination of citizens, experts and stakeholders. Rowe and Frewer (2005) defined public engagement according to the flow of information, capturing three forms of participation under one term; communication (policymaker → public), consultation (public→ policymaker) and participation (policymaker ↔ public).

In participatory engagement stakeholders are not only consulted on drafted policy documents but are involved in problem framing and subsequent decision making (Helbig *et al.*, 2015). The participatory approach incorporates both technical expertise and societal values (Renn 2006), under the broader category of deliberative processes.

From the late 1990s, the trend towards increased participatory engagement, allowing for deliberative actions in decision making, is increasing (Tambe *et al.*, (2021); Beierle, (2002); OECD, (2001)). Reed (2008) reviewed stakeholder participation finding that “*the quality of decisions made through stakeholder participation is strongly dependant on the nature of the process leading to them. Deficiencies in this process are most commonly blamed for the failures that have led to disillusionment in stakeholder participation*” (pg. 10). Riege and Lindsay (2006) highlighted opportunities that governments could utilise to strengthen stakeholder engagement and improve public policy development. However, challenges (Reed, 2008) such as conflicting goals between stakeholders or opposition by stakeholders who feel excluded may be problematic (Alberts, 2007). Abelson *et al.*, (2003) noted that people’s willingness to participate may be dependent on them perceiving that their participation has an impact, particularly as their involvement may be time-consuming. Mitigation of undue influences of strong interests on outcomes and achieving representativeness in terms of participation when citizens are unwilling to participate may also represent challenges to effective participation. Beierle and Cayford (2002) developed a framework to assess effective stakeholder participation. The key finding identified was how the experience of the participants with an issue contributes to their capacity to participate in formulation-implementation phases of policy development. Similarly, Albert (2007) identified the need for participants to have prior knowledge with regards to an issue so as to effectively participate in policy development. This emphasises the importance of ensuring that stakeholders and other members of society are aware of the policy environment in relation to participatory processes, and so are motivated to participate and contribute to change. Similarly, within stakeholder theory, it has been identified

that stakeholders need to be aware of participatory opportunities to enable engagement (Laplume *et al.*, 2008) as well as the existence of conflicting interests between the different stakeholder groups (Wolfe & Pulter, 2002).

The strengths and weaknesses of both expert and participatory engagement (such as Bijlmsa *et al.*, 2001; Fischer *et al.*, 2014; Renn, 2006). Nindi (1990) reported expert-based participation to be ineffective due to foreign interference which displaced local capacity instead of supplementing it. Additional contributions have been made to improve public participation through designing approaches of evaluating the current systems to identify challenges and design alternative approaches such as Rowe & Frewer (2000); Abelson & Gauvin (2006) and Frewer & Rowe (2005). While there are challenges such as time, who and number of stakeholders to be consulted and what makes participation effective: participation or engagement is still seen as a vital step forward in policy development. This is particularly true for food security with the expansive range of stakeholders involved in the food value chain (Lang *et al.*, 2009).

#### ***2.4.2. Stakeholders' contribution and group composition***

The identification of which stakeholders contribute to particular engagement activities is important. Stakeholders are influenced by policy decisions and through the action they take in response to these (Mulyaningrum *et al.*, 2015). Stakeholders also have the ability to affect the food value chain (Tuji, 2012), through activities such as consumption patterns in relation to farmers and the use of production resources in the case of farmers (Garnett, 2013) and the use of production resources.

Individuals typically involved in policymaking will generally be representatives of different groups of stakeholders involved in the given sector, i.e., food which may also involve consumers. The composition of individuals (or participants) will vary depending on the issue under consideration, intended level of implementation, monitoring and evaluation (Rowe and Frewer, 2005; Walls *et al.*, 2010). This is challenging as considerations such as who should be included, how many individuals to involve, when and how the participatory exercise will occur need to be clearly identified (Helbig *et al.*, 2015). Stakeholders may be internal to government agencies (ministries and departments) or external to them (e.g., academicians, industry representatives, NGOs and citizens) (Helbig *et al.*, 2015). They may be academicians/researchers, be involved in primary level (production), the secondary level (processing) and tertiary (consumption) level stakeholders. For stakeholder engagement to be effective, it is necessary to have a detailed understanding that is based on the goal of the engagement, in order to identify who are the relevant stakeholders that need to be included.

Stakeholder salience becomes of importance. Stakeholder salience refers to the extent of prioritization of competing stakeholder claims (Raha *et al.*, 2021). Salience is dependent on stakeholder's power, legitimacy, and urgency (Mitchell *et al.*, 1997). The power and legitimacy of the stakeholder is connected to their influence (Laplume *et al.*, 2008) while urgency ties in with the degree taken to deal with the raised claim. O'Higgins and Morgan (2006) while studying political parties stated that when determining salience, the presence of the three attributes is not necessary, rather the presence of two strong attributes is enough.

One of the underpinning assumptions of stakeholder engagement in policy making, is that the "*recipients will understand and believe the information, think and behave appropriately in response*" (Walls *et al.*, 2010; see also Helbig *et al.*, 2015; Albert, 2007). Policy makers assume that the society is able to understand the reasoning behind the formulation and accept the proposed solution and work towards the goal, but this is not the case with society being less knowledgeable about the process. The knowledge gap contributes to power imbalance during deliberations which impacts the policy formulation (Provini, 2019). Careful identification of stakeholders, their knowledge and capabilities are therefore essential as they are linked to the tools that can be used to achieve the objective of the engagement exercise (Helbig *et al.*, 2015). Another factor affecting stakeholder inclusion is the need to have a system to allow for inclusive participation by different stakeholders (Shariff & Potgeiter, 2012). All these are associated with other challenges such as limited resources, concerns about policy impact, and resistance to policy change.

Another factor influencing the composition of stakeholders participating in the process is gender representation. When ensuring stakeholder inclusion, gender dynamics are an important consideration (Mulema *et al.*, 2021) in particular, for attaining food security (Tantoh *et al.*, 2021). Mwaniki (2006) emphasised the importance of the role of women in achieving food security, stating that "*women...were the caretakers of household food security*" (p.10). The connection between the women and food security gives credence to phrases such as "women are the key to food security" (Quisumbing *et al.*, 1996) where women's access to food has a vital bearing on their own and their family's food security (Agrawal, 2015). Women comprise a large percentage of the food producing population in Africa (Due and Gladwin, 1991). Palacios-Lopez *et al.*, (2017) identified women's contribution in Africa to be at around 40%, with some countries including Tanzania to be slightly above 50%. The complexities of the African households, such as culturally assigned household roles, mean that a number of factors must be taken into account, such as the roles and responsibilities placed on women in relation to food (Ross, 2015), adoption of new technologies to ease the workload and implementation

of development programs and policies. Women's household responsibilities and the belief that women are vital to achievement of food security led to the labelling (or mislabelling) of women that translates into developed government intervention schemes.

Women form a large majority of the food insecure population (Becker, 1963) but labelling them as vulnerable or special may stigmatise or lock them into certain roles. It also raises questions in relation to whether there are supporting measures to improve and remove them from these categories, to aid them in developing and changing their designated status. The Asian Development Bank's (ADB) report (2016) on gender equality and women's empowerment emphasises that there is more needed in practice apart from declarations and gender equality legislations. An example of this situation is seen in Rao (2006) where policy statements emphasise women's right to land, which was not translated into practice. The wording of policies which affect women has been explored by Lombardo & Meier, (2009) who found that policy documents tend to accept and reproduce existing power relation between the genders creating a barrier to greater inclusion of women in societal activities. Given the cultural norms in East Africa that typically place women at a disadvantage, this is a situation that can be reinforced unintentionally by policy documents and potentially their implementation.

The socio-cultural domain of the relationship between women and food focuses on their responsibility within their home and by extension within society (Allen & Sachs, 2007). In developing regions, this is observed with women being responsible for over 60% to 80% of the food produced (FAO, 2016). In Africa, women play a crucial role in many aspects of crop production (FAO, 2016) and as such can be considered vital participants for the achievement of food security in the region. In spite of this, women control few of the necessary resources needed to be able to meet this responsibility (Quisumbing *et al.*, 1996; FAO, 2016; Allen & Sachs 2007). Access to resources such as land, credit, agricultural inputs, training and extension services is limited and skewed towards the male population. This aligns with Farhall and Rickards (2021) who stated that it is not only inadequate inclusion of women but inadequate engagement of gender in development practice. Similarly, Visser and Wangu (2021) who state that it is not only important to listen to women's needs but build on their knowledge and resilience. To do this, inclusion of women in both policy development and implementation is essential, and governments should pay extra attention to ensure this inclusion (Botreau & Cohen, 2019). Change required advocates for the inclusion of women in the policymaking process, increasing avenues for sharing viewpoints and access to policy instruments. The consideration and impact of gender on policies will be explored in later chapters (Chapters 5 and 8).

## **2.5. Institutional Theory and Stakeholder Theory**

This section looks at the relationship between the two theories, value chain research and policies as articulated within the existing literature.

### ***2.5.1. Relationship between institutional and stakeholder theories***

Laplume (2008; pg. 8) quoted Luoma and Goldstein (1999) stated that integration of stakeholder theory with institutional theory is beneficial to strengthen the theoretical concept. Stakeholder theory provides a foundation for the understanding interactions between overarching systems of governance and rules and the members of society be it as direct stakeholders of the chain or secondary or general members of society. Based on the literature, the research proposes the linkage of institutional theory and stakeholder theory. Introducing stakeholder theory will allow the exploration of the power dynamics and its influences on the institutions which are assessed using the institutional theory. Using Fig 2.1, stakeholder theory pillars can aid in answering the requirements (dotted boxes) that are missing in institutional theory.

Both theories are considered to be organizational based theories and arose from the business sector. Organizational theories state that the stakeholders to be considered are the ones who matter to their operations (O'Higgins & Morgan, 2006). As explored in section 2.3.1. the theories have their shortcomings but together contribute to the understanding of stakeholders and their interactions with institutions. Individually, both theories have been critiqued by researchers such as Mainardes *et al.*, (2011) and Phillips *et al.*, (2019) looking to clarify the content of stakeholder theory or Peters (2019), Dacin *et al* (2002), and Suddaby (2010) on institutional theory.

To better understand the interaction of policies and stakeholders, an environment in which these two theories interact is required. In this thesis, this will be considered in relation to a food product value chain.

### ***2.5.2. Institutional and Stakeholder theories and the value chain***

When assessing value chains, the theories have been used from understanding terminology such as the concept of value to both companies and stakeholders (Argandoña, 2011; Freeman & Liedtka, 1991; Manning, 2015) to how prioritising stakeholders may require sacrifice by organizations in terms of profit making (Laczniaak and Murphy, 2012) and the burgeoning steps to global governance systems through deliberative democracy and stakeholder initiatives (Richter & Dow, 2017). With food, sustainable consumption (Govindan, 2018), and food loss along the value chain (Bhattacharya & Fayezi, 2021) has been investigated highlighting the



importance of multi-stakeholder collaborations. Stakeholder theory is used to highlight the difference in perspectives of the different stakeholders of the value chain (Manning, 2015) or how stakeholders will maintain flexibility to meet the needs of the end-consumer (Manders *et al.*, 2016)

Institutional theory has been used to explain stability and similarity in a given population or field of organizations (Palthe, 2014). As such it has been used in different fields from economics to food related studies. Drost *et al.*, (2012) used the theory to highlight four requirements for the successful value chain partnerships which included stakeholder involvement and societal embeddedness of institutional structures and Zulfakar *et al.*, (2018) showed that institutional forces affect operations and stakeholder actions within the value chain.

In some cases, a combination of the two theories have been used. Farooque *et al.*, (2019) applied the combined theory to analyse circular food supply chains in China. They reported that weak regulations and enforcement coupled to lack of support or collaborations between the chain actors to be the key barriers. The combination of the two theories allowed for the exploration of the relationship between actors within the chain and regulations that govern the chain. Farooque *et al.*, (2019) shows that the application of the combined theories for the proposed research is appropriate and legitimate for use as a logical concept framework.

### ***2.5.3. Institutional theory, stakeholder theory, policymaking, and policies***

Established as a viable concept, it is necessary to understand previous applications of the theories to understand the subjects of interest, specifically policymaking and policies.

Understanding policies and policymaking through the lens provided by the theories has been undertaken by Bartley *et al.*, (2008) who focused on nature governance and highlighted institutional incentives and how actors navigate the processes. Maynard-Moody (1998) attempted to understand administrative policymaking as a separate entity to legislative policy making through an institutional perspective. Buchholz & Rosenthal (2004) highlighted the importance of government in public policy making regardless, or because, of the shift towards stakeholder perspectives, almost opposite to a study by Bonnafous-Boucher & Porcher (2011) who pictured stakeholder theory as a theory of civil society.

Table 2.7: Literature references of papers covering different fields with the theories as frameworks

<b>Subject matter</b>	<b>Reference</b>
<b>Stakeholder theory</b>	
Importance of situational awareness	Holder <i>et al.</i> , (1998); Flak and Rose (2005); Kok <i>et al.</i> , (2015)
Inclusion of stakeholders and impact on formulation and implementation	Checchi <i>et al.</i> , (2012); Hodgkins <i>et al.</i> , (2018).
Different stakeholder groups inclusion	Bremmer <i>et al.</i> , (2016)
Importance of stakeholders	Nie <i>et al.</i> , (2019)
<b>Institutional theory</b>	
Application of standards	Bashir, 2019; Ab Talib <i>et al.</i> , 2016
Policy interventions	Kang <i>et al.</i> , (2016) Gordon (2021)
<b>Sustainability</b>	
Institutional theory (dairy value chain, hospitality, accounting, natural environment and governance)	Glover <i>et al.</i> , (2014); Raab <i>et al.</i> , (2018); Larrinaga, (2007); Higgins & Larrinaga, (2014); Hoffman <i>et al.</i> , (2015); Vandergert <i>et al.</i> , (2015); Dragu & Tiron-tudor, (2013)
Stakeholder theory (tourism, accounting, management, renewable energy, circular supply chain and food)	Byrd, 2007); Hörisch <i>et al.</i> , (2020); Hörisch <i>et al.</i> , (2014), Chang <i>et al.</i> , (2017); Kayikci <i>et al.</i> , (2022); Hodgkins <i>et al.</i> , (2019); Perrigot <i>et al.</i> , (2021)
Institutional and stakeholder theory (manufacturing, hotels, and food supply chains)	Ebrahimi & Koh (2018); Herold (2018); Govidan, 2018)

The use of the lens created by the theories in understanding policy making show that the theoretical foundation exists to allow for their use in this study. The previous studies highlighted institutional pressures on decisions across different fields as well as the importance of stakeholder inclusion in decision making.

#### ***2.5.4. Relationship between the institutional theory, stakeholder theory and sustainability***

The SDGs can be viewed as institutions that have been globally developed and accepted and which have created changes in how people conduct their activities. Essentially, the SDGs are a prime example of the interaction between institutional theory and stakeholder theory.

Literature shows the use of both institutional theory and stakeholder theory in reporting sustainability measures being undertaken by different organizations in different fields (Table 2.8). With regards to food sustainability, additional studies include Su *et al.*, (2022) who studied the agricultural food cold chain to identify sustainability-based improvements and Baah *et al.*, (2021) on green production practices to establish a guiding framework for policymakers and scholars. A common point among these studies is that using the lens provided by the theories led to the development of theoretical foundations that aided in explaining decisions of stakeholders in the various value chains and chart a sustainable way forward.

In context of the research, the use of the theories will enable the determination of the pressures facing the food system (through the value chain) with regards to sustainability and in particular the achievement of the sustainable development goals.

#### ***2.5.5. Conceptual framing in context***

Institutional theory provides a mechanism to understand how policies came to be and their pressures on the value chain, while stakeholder theory provides a view of society's reception to the policies (as the institutions) and how they contribute to the formation of these institutions.

Combining the theories will allow for the research to understand stakeholder input into situations that contribute to formation of the institutions and how these institutions cycle back to the stakeholders and their actions. That is the back-and-forth relationship between policies and society.

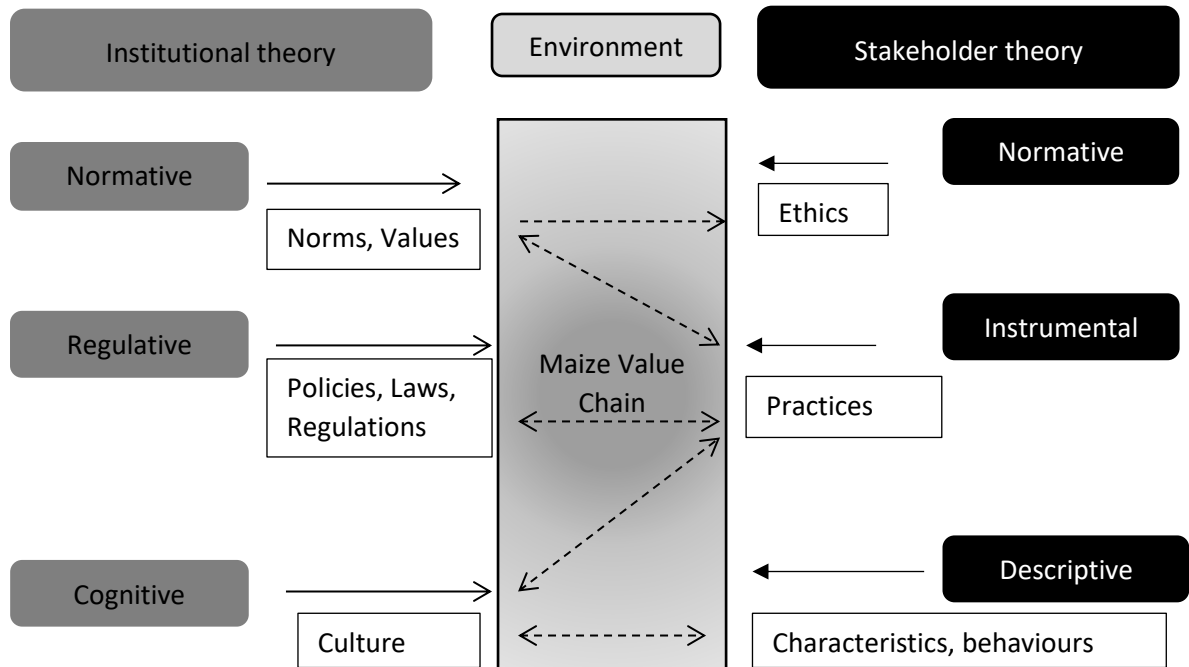


Figure 6.2: Diagrammatical representation of the theoretical framework for the research related to the value chain of choice. Solid arrows indicate the forms of elements enacted on the value chain while the broken arrows indicate the relations between the different elements of the two theories, interacting via the value chain

Representation of the relationship of the theories and the system indicates that there is an area to be explored with regards to understanding how the actions of the stakeholders influence not only the value chain and its activities but also contribute to the institutions that govern the chain, while also studying the challenges of the value chain in relation to sustainability. According to Fig 2.2, stakeholder theory contributes not only to the policy context in question, which is the maize value chain (solid arrows) but also to the pillars of institutional theory (indicated by the dotted arrows).

## 2.6. Research Gap

The numerous recommendations by researchers on increasing the involvement of stakeholders at the formulation of policy solution stage to issues that affect their daily lives indicates the importance of ensuring effective stakeholder engagement. The inclusion of stakeholders in the policy making process is a fundamental right for citizens, including within Kenya and Tanzania. However, the available evidence would suggest that this is not done consistently or sufficiently (Gitau *et al.*, 2008). Given the disconnect between what is stated in policy and evidence in the

literature, there is a need to evaluate what forms of stakeholder inclusion are currently being pursued, and its shortcomings as well as whether increased inclusion of stakeholders in the development of the policy solutions is the way forward.

Increased awareness within civil society associations and the creation of platforms such as the Policy Forum in Tanzania means that ways of facilitating more and better engagement in policy processes are being established. Yet, the question that arises is that of impact. Are the platforms actually ensuring the inclusion of stakeholders in the policy making process? It is important to determine if stakeholder views are collected and incorporated during the formulation process or not and whether this was a cause of failure/success during implementation.

Therefore, the research presented within this thesis aims to assess stakeholder engagement in policy formulation as well as additional factors, the resulting policies and their implementation strategies, as well as the societal perceptions of the resultant policies and the policy making process.

### **2.6.1. Addressing the gap**

The proposed project looks to understand the food policy development process, in particular in relation to stakeholder involvement, and the roles stakeholders play in achieving sustainable food systems. It is important to understand the pressures that the food system is under (Timmer *et al.*, 1983, Béné *et al.*, 2019).

Understanding the impact and effectiveness of policies on the establishment of sustainable food secure systems requires an in-depth study of the policies in play (past, present, drafted) as well as the reception of these policies by the broad range of members of society who have a stake in the policies, or who are affected by them. Because of the broadness of the food system, the maize value chain will be used to enable assessment of the policies and stakeholder roles. Applying the conceptual framework to this assessment requires a methodology that will allow for the analysis of institutions in place as well as the analysis of society's viewpoints concerning these institutions within the environment created by the maize value chain. The research aims to use three main techniques: *critical interpretative synthesis*, *social life cycle assessment (S-LCA)* and *expert-based interviews* to achieve this. This is because these methods will allow analysis of institutions and impact, especially the policies, through CIS and S-LCA and the collection of societal viewpoints through the S-LCA and interviews.

The suggested method, critical interpretative synthesis (Chapter 5), is considered to be a credible method of combining and analysing information from different sources to identify themes (Dixon-Woods, 2006). Using maize (as a food) as the model, the synthesis will look at

analysing policies in the two countries to understand the policy environment and stakeholder inclusion. The S-LCA will expand on stakeholder inclusion as well as policy interaction with the maize value chain (Chapter 6) through the exploration of stakeholder perceptions. S-LCA is basically a method for assessing the positive and negative social impacts along the product's life cycle, an integration of traditional life cycle assessment (Sala, 2014). It will allow for a link between policy and its' impact on food security on the road to food secure systems. Together with the S-LCA, the expert-based interviews (Chapter 7) will be used to determine the effectiveness of current policies as it will allow for the collection of expert stakeholder opinion with regards to the policies and their effectiveness, and on stakeholder influence on the success of the polices.

Additionally, by seeking the viewpoints of a specific value chain and its stakeholders, through interviews and S-LCA, the research will gain insights into the societal impact of the product (maize) and correlate these impacts to the changes caused by the policies.

The methodologies used in this research have not been fully utilised in East Africa and will be beneficial in understanding how to create more effective policies through an inclusive framework. This form of research is important as people become more aware of their rights coupled to changes in lifestyle, and as the need to have an environment that will promote food secure systems for their benefit increases.

## **2.7. Summary**

Achievement of food security begins with effective food related policies that can lead to sustainable value chains. Sustainable food value chains deliver food and nutritional security and are reliant on the existence of an enabling environment created by food-related policies. Generation of food-related policies, i.e., the policy making process, aims to resolve issues affecting the society, including food security and sustainability, and are informed by situational evidence and stakeholder viewpoints. Stakeholder inclusion is recognised as particularly important for the successful formulation and implementation of policies.

Research into the policy making process in the Sub-Saharan Africa, and Tanzania and Kenya specifically are limited. Also identified is a gap between the stated importance attached to stakeholder involvement by the two respective governments, yet limited evidence of this being done. There is a need to understand the policy making process with an emphasis on the inclusion or lack of inclusion of stakeholders so as aid in the development of an effective and inclusive policymaking process. This is important for policy that looks to address food security and sustainability. The theories will provide an understanding of the institutions, the ways that they

come to be and their acceptance and impact by the system and society, that is acquiring legitimacy, through the institutional theory with stakeholder theory providing a deeper look into power dynamics and contributions of stakeholders to the institutions and their acceptance.

This research seeks to address this gap, through firstly through understanding the policy-making process and the resultant policies in the study region using critical interpretative synthesis. This will also allow for the stakeholder analysis and subsequent selection of key informants for expert interviews and stakeholders for the S-LCA. The results of the expert-based interviews, stakeholder analysis and S-LCA will help create an understanding on the effectiveness and impact of policies, and the extent of stakeholder involvement. Chapter 3 provides an introduction to the maize value chain which will be used to guide the research, providing the environment for interactions.

## **Chapter 3: The maize value chain in East Africa**

### **3.1. Overview**

To better understand the policy making process and the impact of the food related policies, a staple food product and its associated value chain is used for context. The staple food in this case is maize. The maize value chain is associated with a mix of stakeholders and impacted by a range of policies.

It is important to understand the pressures that the food system faces to determine the direction it is headed towards. However, the starting point is having a framework of how issues are connected (Timmer *et al.*, 1983). Using maize (as a food) as the model, the research will look at collecting information on how producers and consumers in this maize chain make their decisions. Other stakeholders, such as government agencies, that are involved can be assessed in terms of the level of involvement in policy implementation. Viewpoints of stakeholders help research to understand the role that maize plays in society and for food security (sustainability, safety, nutrition), allowing for the identification of factors to be considered when designing and implementing policies.

This research will be conducted in East Africa, specifically two members of the East African Community: Kenya and Tanzania. Like the most of Africa, maize was imported into the countries and supplanted traditional grains as the preferred staple food grains.

Maize and maize products are such important commodities in Kenya and Tanzania that they are immortalised in popular culture from recent songs such as Elani's "Mahindi", Zuchu & Mkalimwenu's "Ugali", Padi Wubonn's parody song "Ugali" and old popular culture songs such as "Ugali sosa" by Man Ingiwe to an international video shoot for the magazine Vogue where Lupita Ny'ongo prepared Ugali for her family. These forms of media outline the role maize plays in daily interaction (Elani), its demand when cooked (Padi) and its role culturally within the region (Zuchi's and Lupita's video). The following section looks at the maize in Kenya and Tanzania, and its current importance in terms of food security.

#### **3.1.1. Background**

Portuguese travellers brought maize to the region in the 19<sup>th</sup> century. The cultivation of the crop spread rapidly within the continent and has been studied extensively by McCann (2005), Yoshida (1966) and Miracle (1965) among others. Smale & Jayne (2003) reported that the inward spread of maize cultivation was proportional to the slave trade while Cherniwchan &



Morena-Cruz (2019) hypothesised that the introduction of maize simply increased the supply of slaves during the slave trade and did not increase economic growth or reduction in conflict.

Initially, maize was consumed by the explorers. This, however, changed as time went on. Demand for maize increased as food consumption preferences were influenced by the rations (of maize) that employers used as in-kind payments for labour (Smale & Jayne, 2003). In Kenya, maize became a major food crop during World War I because of disease outbreaks affecting millet which was the dominant native cereal at the time (Oloo, 2020). The change from a crop predominantly produced by white people to being an African product increased during the struggle for independence.

The versatility of maize across the region is illustrated by the different consumption formats such as liquid (“uji”), semi solid (“fufu”), boiled kernel on the cob, roasted kernels on the cob, mixed with legumes mostly beans (“githeri”, “makande”), as a flour (“aish merahrah”, “ugali”, “phuthu”) among others. Ekpa *et al.*, (2019) covered the various dishes that are prepared and consumed in Africa.

### **3.1.2. Importance of maize**

Maize is a cereal grown in Africa and is one of the staple food items in households’ food baskets in the region (Kilimo trust, 2017). Maize is produced for food and feed (at a subsistence level), at a semi-commercial level, and commercial level. Despite diversification of people’s diet in the region, demand for maize is expected to continue to rise due to the growing population (GAIN, 2017).

In addition to the versatility of maize, as a crop it has adapted to a wide range of conditions for cultivation as well as the being more productive when compared to traditional cereals (Grote *et al.*, 2021) and an importance source of nutraceuticals (Ekpa *et al.*, 2019).

Consumption of maize is placed at 450g per person per day in Sub-Saharan Africa (Ekpa *et al.*, 2019). Statistics show that maize-based meals account for 60% and 65% of dietary calorie intake in Tanzania and Kenya respectively (Kilimo trust, 2017), demonstrating its important position in food security in the region. On the side of production, maize provides livelihoods with over 60% of small-scale farmers cultivating maize on their farms. Maize is therefore important from a nutritional and economic perspective. Organisations such as International Food Policy Research Institute (IFPRI), Famine Early Warning Systems Network (FEWS Net), National Bureau of Statistics (Kenya and Tanzania), and the countries’ ministries of Agriculture are involved in monitoring the production and consumption of maize.

Shiferaw *et al.*, (2011) studied maize as a global commodity crop and concluded that maize production, especially in Africa and Latin America, requires water resources. Therefore, there is an increased vulnerability to climate change associated with production, increasing the need for technological solutions, better policies, improved institutional arrangements, and investments in infrastructure that create enabling conditions to adopt and adapt new technologies and innovations. Overall, an integrated approach that links the biophysical and the socioeconomic areas is needed to improving productivity of maize and in enhancing adaptation to changing climate.

Understanding decisions and priorities associated with different stakeholders, and ensuring that all stakeholders are aware of these, is important if effective policy is to be developed and implemented. Farmers need to know the stance of the government; the government needs to understand the production process so as to provide beneficial support for the farmers and so on. The following section looks at placing the identified importance in the context of Kenya and Tanzania.

### ***3.1.3. Context of maize in Kenya and Tanzania***

Kenya is among the top countries in East Africa when it comes to consumption of maize while Tanzania has recorded surplus production (GAIN, 2017; FEWS NET, 2018). Although the East African region is, theoretically, capable of meeting demand for maize, there is a constant supply deficit (Kilimo trust, 2017), which is attributed to policy inadequacies and breakdown within the value chain. It is noted that policy uncertainty, such as the implementation of export bans, has a major influence on the maize value chain (Barker *et al.*, 2011), not least because there is regional over-dependency on maize as a food source (Rufino *et al.*, 2013). The potential for increased production in the two countries exists in the unexploited land resources they possess but increased land use for maize production will not meet demand unless other factors (such as access to sufficient water) are managed or controlled.

In Kenya, over 1.5 million ha of cultivatable land is used to grow maize with a yield of 3 million metric tonnes per year (KALRO, 2023) to satisfy demand with consumption at 270 million kgs per month nationally (Kang'ethe *et al.*, 2020). Demand commonly outstrips supply in Kenya, prompting importation levels to be high in the country. Tanzania, in contrast, is a surplus producer with supply outstripping consumption that stands at 135 kilograms per person per year (Townsend & Mtaki, 2019), producing 5.7 million tonnes per year grown on an average of 2 million ha of cultivable land (Temu *et al.*, 2011). A large percentage of the stated production, in both countries, is conducted on small scale farms i.e., smallholders. With this mindset, four areas (two in each country) are selected for case study research

In Kenya, the study areas were Nakuru and Nyeri. Both counties are located in the central area of the country with a combined population of 2,921,186 living on 10,787 km<sup>2</sup> of land (Census, 2019). Nyeri is a county of 3,325 km<sup>2</sup> divided into 10 sub-counties, with the main economic activity being agriculture (County of Nyeri, 2020). Nakuru is larger in size at 7,462.4 km<sup>2</sup> divided into 11 sub-counties, with agriculture is also the main economic activity (County of Nakuru, 2020).

In Tanzania, the study areas were Kagera and Kilimanjaro. The combined population of the two northern regions, Kagera and Kilimanjaro, is 4,098,110 spread out over 38,815 km<sup>2</sup> according to the 2012 Census (GOT, 2012). Kilimanjaro is spread out over 13,250 km<sup>2</sup> while Kagera is 25, 265 km<sup>2</sup> and the main economic activity in both areas is agriculture (GOT, 2012).

The selected areas of interest are dominated by small scale farmers with a mix of those who grow maize for subsistence and commercial use and those who grow for commercial purposes. Two of the selected areas, Nakuru and Kagera, are areas that generate a large percentage of the countries' maize production while Nyeri and Kilimanjaro produce a mid-level percentage of maize and are reliant on the importation of maize from external areas.



Figure 7.1 Geographical map of Tanzania and Kenya. Obtained from mapofworld.com

As seen in the map, Nakuru and Nyeri are centralized within the country while in Tanzania, Bukoba and Moshi are closer to different border areas. All four areas are separated by the Rift Valley.

With the established information concerning production of maize in the area and importance, the maize chain therefore represents an appropriate case study supply chain, in terms of analysis of stakeholders, stakeholder engagement, policies, and determination of policy improvement in relation to maize and food security.

### **3.2. The Maize Value Chain**

The value chain comprises of the full range of activities required to bring a product or service from the point of conception through different phases of production, delivery to final consumers and final disposal after use (Kaplinsky & Morris, 2001), with value addition at different stages of transfer by different stakeholders to increase the product value (Reddy, 2013). Interactions within the value chain that contribute to the availability and access of the product include post-harvest handling practices, middlemen/traders and the price of the commodity and trade policies.

There is a broad range of published research concerning the maize chain in Kenya and Tanzania, which have focused on topics such as economics, gender, food safety, and marketing among others. Examples include Massomo (2020) and Kang'ethe (2011) who assessed mycotoxins specifically along the value chain. This research suggested the need for increased awareness among the stakeholders and as well as highlighting the economical aspect of the chain. De Groote *et al.*, (2021) and Kirimi *et al.*, (2011) looked at improving the processing and earning potential along the chain. The importance of women's' participation in the chain was also identified as relevant (Adam *et al.*, 2020). The following section expounds on these characteristics.

#### ***3.2.1. Characteristics of the chain and its use to conduct the assessment***

The maize value chain has been mapped by different authors (Grant *et al.*, 2012; Kilimo trust 2017) outlining different stakeholders and activities involved in the chain. The Kenyan maize value chain was liberalized in 1993, having been previously controlled by the National Cereal Board while Tanzania's value chain is still semi-controlled by the government, indicating differences in power dynamics. The power dynamics of the value chain vary not only between the countries but also within the countries with matters such as the power of private entities for sourcing inputs and reliance on the government for solutions to challenges facing the value chain.

In addition to power dynamics, it is also important to address the supporting activities for the value chain (e.g., financial, political) and other interacting value chains (e.g., the seed supply value chain). These are described in more detail in the subsequent sub-sections, focusing on the actors and activities (production, processing, and end-use) involved.

### ***3.2.2. Actors and activities in the value chain***

As with any food product value chain, the maize value chain has a core set of stakeholders. Based on the value chain (Fig. 3.2), the actors and activities may be classified into production, processing, and end-use related nodes. Actors or stakeholders include:

*Input suppliers:* Stakeholders include government suppliers, extension officers and programs, representatives of NGOs and research projects/ programs, and commercial input suppliers as well as informal neighbour to neighbour transactions. Input suppliers for maize vary in size with 60% concentrated within the small sized category (Kilimo & CTA, 2013; Enzama, 2016). Farmers place most importance on the acquisition of seeds, with fertilizer deemed the least important input (Shehan & Barrett, 2017; Wambugu *et al.*, 2012).

*Farmers:* Maize production is carried out by both large scale and small-scale farmers across the continent for commercial and domestic purposes. Farmers within Kenya and Tanzania are primarily smallholders. Cultivated land statistics from Kenya and Tanzania (Section 3.1.3) show the attribution of land for maize production indicating its importance to farmers. Land used for maize production on smallholder farms is approximately 75% and 82 % of cultivatable land in Kenya and Tanzania respectively (Kilimo & CTA, 2013). Women are considered to form a large percentage of the maize farmers population.

*Brokers/Middlemen:* These stakeholders bridge the gap between the producers and the market, brokers often purchase the product from farmers and proceed to transport it to other markets such as processors or other large-scale brokers.

*Processors:* Depending on the use of maize, there are different processors. These include millers who grind the cereal for customer use, medium scale processors who mill for both individual consumers and package and sell small quantities of maize, and large-scale processors who mill and sell large quantities of processed maize.

These actors conduct production, processing and consumption activities that may involve economic and regulatory interactions as outlined in the following sub-sections.

## Production related activities

Maize production is seasonal. Stakeholders range from farmers to input suppliers and regulatory

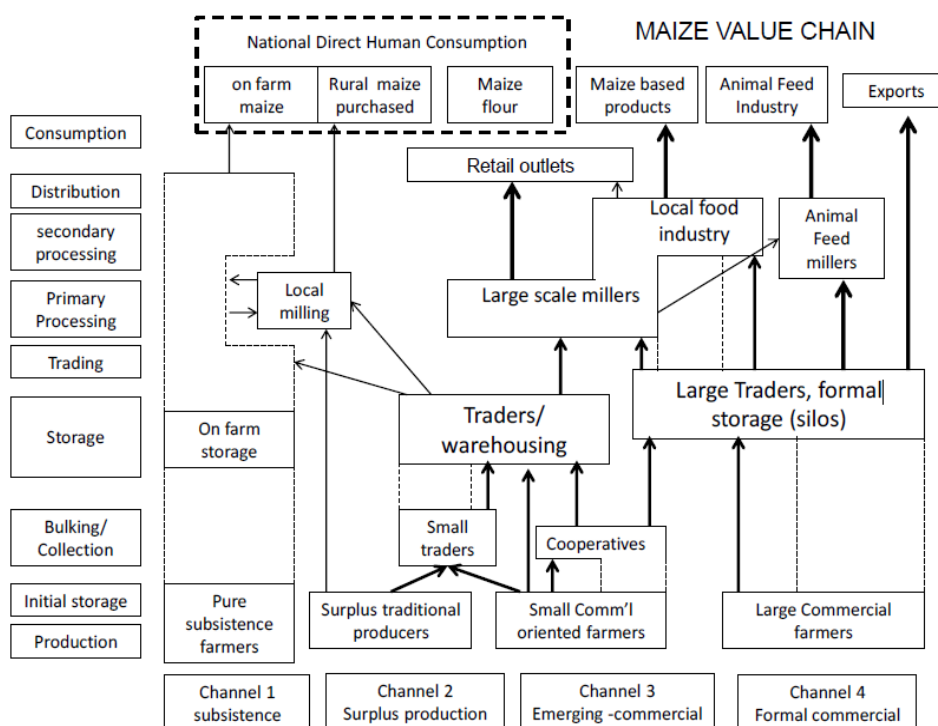


Figure 3.2: The maize value chain in Sub-Saharan Africa as depicted by Grant et al., (2012)

implementers at the production node. At the start of the value chain, decisions are made by different stakeholders concerning the inputs needed, farming technologies to be used, the intended end use of the product (subsistence, commercial or both), and regulations to be followed. All these decisions have a financial aspect to them. Finances, both personal and credit facilities, are therefore important to enable access to the necessary tools for production. Insufficient finance is a significant challenge for primary producers and can be coupled to other challenges faced including climate change, lack of support in relation to technology adoption, regulations, and poor infrastructure.

Regulations which are relevant at this point include the Plant Seed Act (Tanzania), and the quality assurance standards (Kenya) among others. It means that the inputs available to the farmers need to meet certain quality standards which may be costly to obtain. Therefore, policies and programs aiming to enhance the production of maize within the region lean towards input subsidies offered by the government, to ease the process of obtaining the inputs with the Seed Policy of Kenya (2010) as an example.

### *Processing related activities*

Stakeholders include brokers, millers, transporters, and storage facility workers. There is an overlap in stakeholder roles as in some cases farmers may also be the processors, and brokers may be the ones handling the storage as well. Activities also involve post-harvest management to preserve the quality of the product, processing of the grain into various products, and transporting the product from one stage in the value chain to another.

As with the production stage, a large percentage of processing is conducted at a small-scale, with only 3% of the processors in the region being considered large-scale processors (Kilimo & CTA, 2013). Millers/ processors process the grain into flour, either “posho” or sifted flour. Challenges that stakeholders face include the need to preserve the products, meeting the regulations that govern the processing nodes. Policies that come into play are mainly quality standards as outlined by the respective countries’ Bureau of Standards and post-harvest management strategies.

### *Consumer (end-user) related activities*

Consumption of the product starts with trading of the product which involves both storage and transportation. The main stakeholders are consumers of the product, who may be retailers buying from wholesalers or individuals buying for their personal consumption. Consumers create the constant market for the product through demand due to practical and cultural reasons.

80% of the maize produced within Tanzania is consumed within its borders. Tanzania is also a net exporter to its neighbours (Enzama, 2016). Kenya is a net importer of maize and has a large consumer base for maize. Policies in play include the National Trade Policy 2003 (Tanzania) and the National Food Safety Policy 2013 (Kenya).

The constant demand for maize justifies the inputs and resources used by farmers and processors to produce maize. Maize is an ever-present source of nutrition and income generation for the stakeholders. This economic and utilisation importance of maize justifies its use as a “metric” to assess the impact of the relevant policies in relation to determining the effectiveness of food security measures.

### **3.3. Relation Between the Research Questions and the Maize Value Chain**

The activities of the value chain and the people involved are affected by and potentially can affect the policies. This section looks at how the maize chain interacts with the theories outlined in Chapter 2 and the research questions.

### ***3.3.1. The maize chain and the theories***

While there are limited publications on the utilisation of the theories to study the maize value chain in the region, the theories have been used to understand other food value chains such as chicken (Pohlmann *et al.*, 2020), and dairy (Yawar *et al.*, 2018). This provides a foundation for the research in this thesis.

The maize chain, as stated in the overview (3.1.) and illustrated in section 2.4.5., provides an environment that allows the research to understand the “institutions”, specifically the policies, and to understand their impact on the activities of the maize chain. Additionally, the maize chain enables the assessment of policy making processes as well as how stakeholders contribute to the formulation and implementation of policy actions.

### ***3.3.2. Maize value chain and the research questions***

As outlined in Chapter 2, the research gap being investigated concerns the role that stakeholders play in attaining sustainable food security. Based on the activities and participants identified in Section 3.2.2, the maize value chain provides the necessary context and aids in the identification of stakeholders for the research.

In view of this, the research can be tailored to the maize chain in that it considers: what policies are related to the maize value chain, how do they impact the activities of the value chain and how the stakeholders of the chain interact with the policy development and implementation.

## **3.4. Summary**

Maize is important to the society and policy makers as they strive to attain food security at all levels (from individuals to household and national). The chapter covers the maize value chain as the environment that gives context for the research to be conducted. By highlighting the importance of maize in the region, there is an established justification for its use to investigate the questions raised in the literature review (Chap. 2) and aid in outlining the use of the theories in conjunction with the research questions (Chap 4).

Chapter 4 provides an overview of the methodologies and the steps taken to adapt them for application to the research context of this thesis.



## **Chapter 4: Overview of selected methodologies for the analysis of the food related policies environment**

### **4.1. Overview**

The research in this thesis aims to analyse food policy in the context of sustainable food systems in Kenya and Tanzania. The research is needed because many countries in Sub-Saharan Africa, and indeed the rest of the world, are striving to ensure that current and future generations have the capabilities and resources to feed themselves adequately (FAO,2009). Ensuring food security relies on mechanisms and structures which are to some extent, operationalised by policies. The objective is to understand whether the actions/activities leading to the development and implementation of policies is inclusive in terms of stakeholders and understanding the role of stakeholder involvement in food policymaking process, from formulation to implementation of policies in Kenya and Tanzania, and the impact of such policies on food security.

Understanding the impact and effectiveness of policies on the development and implementation of food security required an in- depth analysis of relevant policies (past, present, under development) as well as the reception of these policies by society, and their impacts in food security. The research used three main techniques, employing both primary and secondary data through application of a case study; critical interpretative synthesis (CIS) coupled with line of argument, social life cycle assessment (S-LCA) and expert-based interviews. This chapter first outlines the philosophical context under which the research was undertaken, before reiterating the overall aim and objectives of the research and the theoretical implications. The case study approach is then introduced followed by an introduction to each of the three methods. Finally, an overview of the data collection procedures is provided.

### **4.2. Research design**

#### ***4.2.1. Philosophical context/underpinnings***

The philosophical position adopted was critical realism. Critical realism distinguishes between the “real” world and the “observable” world drawing on the ontological realism premise which asserts that most of the world (real) exists and operates independently of our awareness and knowledge, and that of epistemic relativism that states knowledge is context, concept and activity dependant, a theory developed by Bhaskar in the 1970s (Bhaskar, 2020). Essentially the theory’s basis is that the unobservable (real) world and its structures cause observable events in the social world which can be understood if the structures that cause the event are understood (Archer *et al*, 2016; Leung & Chung, 2019).

Njihia (2011) presented critical realism as worthy of further investigation by scholars in Africa, as it may lead to the meeting of precedents necessary for development of the countries. The use of critical realism has been advocated in education-based policy research. For example, Couch (2020) explored the use of critical realism for analysis of education policy in emergencies arguing for the use of conceptual analytical tools in a conflict afflicted context. Luke (2009) made the case for use of critical realism in education policy development, stating that this approach provides a broad empirical picture of the education practices, patterns, and institutional outcomes possible.

Application of critical realism has been beneficial in social science research. For example, Yalvaç (2014) analysed Turkish foreign policy using a critical realist perspective to criticise positivist and post-positivist approaches<sup>2</sup>. Khazem (2018) outlined how critical realism would be beneficial in bridging the gap between the quantitative and qualitative divide of social science in the case of global learning. Sorrell (2018) advanced critical realism as an alternative to explain the multilevel perspectives of sociotechnical transitions<sup>3</sup> after assessing baseline philosophical assumptions underpinning the explanations especially the tendency to use theory as a heuristic device rather than causal explanation and Stevens (2020) explored common critiques, such as radical constructionist critique, used in drug policy analysis, highlighting their weaknesses and showing how critical realism allows for a more deeply explanatory, inclusive analysis of drug policy development and effects as an alternative. These studies outline the framing provided by critical realism when one looks at investigations that include qualitative and quantitative aspects as well as providing an environment for the assessment of different levels of perspectives of interactions, be it between society and technology or society and government. This favourable framing is suitable for this research.

Examples of use of critical realism in food, agriculture and or policy fields include Hoddy (2019), Fletcher (2016) and Koutsouris (2012) who explored the application of critical realism in relation to the agricultural sector. Fletcher's (2015) research focused on Canadian farm women's experiences with agriculture policy, using the situation as a way of illustrating an applied example of critical realism, both philosophical and methodological. Hoddy (2019) did the same but focused on rural labourers in Tunisia and went a step further demonstrating that grounded theory methodology can contribute to a study using critical realism as both the

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<sup>2</sup> Positivism is an approach that focuses on quantifiable observations only such as statistics with the researcher being independent of the study. Post-positivism succeeds positivism allowing for the inclusion of social realities surrounding the study (Fox 2008)

<sup>3</sup> Sociotechnical transitions are changes in systems that represent an interaction between social and technical entities (infrastructure, firms, supply chains) (Sorrell, 2018)

philosophical and method framework. Using critical realism to explore gaps in agricultural innovation systems and obstacles in participatory development by Koutsouris (2012) found that critical realism provided useful guidelines for interpreting the “world” in particular the importance and role of the emerging intermediation functions with agricultural innovation systems. Intermediation functions are those that may not be directly involved with the production or use of the innovation, an example being the brokers of the food chain who do not directly deal with food production or consumption, but their actions are important for the food chain.

The key finding from this body of literature is that critical realism allows the incorporation of different data sources to aid the identification of knowledge gaps. This research aims to assess the causes (factors) leading to the creation of sustainable food secure chains. Critical realism provides a philosophical frame for the analysis of the food chain and the interactions it has with society: looking at the interventions (policies) and their impact on society and stakeholder involvement from the point of formulation to implementation of policies.

Yang (2022) illustrated that critical realism coupled with institutional theory allowed the determination of how institutions in the “real” world affect individual practices in “actual” world. The key takeaway of the studies is that critical realism allows for structure (social relationship), institution and agency in policy change to exist as separate but intertwined entities. Vincent and O’Mahoney (2018) stated that institutional theory within critical realism makes clear causal dynamics within the policy environment. Involvement of multiple stakeholders in critical realism (North, 2013; Carlsson, 2005) lends credence to the use of stakeholder theory to contribute to the findings being made. The examination of interventions e.g., policies development and implementation and societal acceptance or rejection by society fits within institutional theory and stakeholder theory respectively providing the justification of the inclusion of these theories within the research.

Proceeding from this angle, Heeks and Wall (2018) articulated the methodology of critical realism: outlining that there is a need for “pluralism of methods to ensure validity of insights” such as a mixed method approach, using methods that will allow for a researcher to investigate an event in reverse to understand the causes of its occurrence and ensure reflection of the data and the questions to be answered. With these criteria, the use of CIS to understand how policies come to be, S-LCA and interviews to provide the inclusion of different perspectives on policies and the impact of the policies, link critical realism and the methods used for this research.

#### **4.2.2 Research aim and objectives**

The overall research aim was to explore the role of stakeholder involvement in food policymaking process. As seen in Chapter 2 and 3, both the literature and selected food chain provides questions for the research to investigate contributions to the formulation, such as culture or societal input, and the perceptions of stakeholders. Three objectives were developed to achieve the overall aim.

*Objective 1: To explore food policy in East Africa, including understanding the policy making process, the stakeholders involved and the interaction of the policies with the food system*

In relation to this objective, the research aimed to identify food related policies, their aim, which factors taken were into account when making the policies, and by whom.

Identification of stakeholders, their roles, their views, influence/power in policy making, understanding the dynamics between commercial and government interests or between producers, processors and consumers was assessed. Gender dynamics was also assessed. This can be summarized in four main questions (Table 4.1).

*Table 4.1: Guiding questions for the first objective*

<b>Questions</b>
Are the policies created to meet international or national initiatives?
What are the reasons for the formulation (preventing an issue, solving an issue, covering an area that was not regulated previously)
What are the stages of policymaking and where are stakeholders present?
What are the aims of food related policies (food security, sustainability, production)?

This objective was addressed in Chapter 5, with the approach used to answer the corresponding questions being critical synthesis of food related policies in East Africa with a focus on understanding the food policy making process, stakeholder involvement in policy development and implementation, interactions of policies with existing food value chains, and the effect on attaining food security as well as other pertinent factors such as emerging technology, and risk management. The synthesis enabled the identification of stakeholders for interview under objective 2.

## Objective 2: *Evaluating the effectiveness of policies in the selected value chain*

This objective sought to determine the effectiveness of the existing policies in meeting their targets, identifying any obstacles during implementation, and looking at the acceptance of the identified policies by society. This allowed for the determination of stakeholder inclusion in both the policy making process and policy implementation. By using the maize chain as a case study, the impacts of policy implementation were assessed in relation to a food crop considered important for food security in both Kenya and Tanzania. Research questions included for the objective are in Table 4.2.

*Table 4.2: Guiding questions for the second objective*

<b>Questions</b>
What is the impact of policy on the maize chain and relevant stakeholders?
Is the importance placed on maize appropriate with regards to food security?
What are the views and perceptions of the stakeholders concerning policy development and implementation?
What is the involvement of stakeholders in policymaking and implementation?

This objective was addressed in Chapters 6 and 7, with S-LCA methodology (using both primary and secondary data) and expert interviews. The focus being the evaluation of food related policies, the extent of stakeholder involvement and impact on effectiveness of policies, parameters, and dynamics of regulation such as is it local or national -led regulation, interactions between industry and government, as well as the effect of policies on achievement of food security goals.

## Objective 3: *Assessment of the findings against the Sustainable Development Goals*

The findings, from the assessment of the policies as well as the viewpoints of stakeholders, were assessed in relation to the Sustainable Development Goals (those specifically highlighted in Appendix F), initially within the two individual case study countries and subsequently within the wider regional bloc (the East Africa Community) specifically using the guiding questions (Table 4.3). Through integrating the results of the previous objectives, this step allowed for understanding of the impact the policies have on creating food security as well as the impact of stakeholder inclusion in policy making in the region and how this relates to sustainability. The findings are reported in Chapter 5 and finalised in Chapter 8.

Table 4.3: Guiding questions for the 3rd objective

Questions
Is sustainability included in policy documents in the region?
Are Sustainable Development Goals a target within the regulations?
Are there instruments and initiatives set out for the achievement of sustainability?
Is there prior involvement of sustainability prior to 2015?

Overall, the objectives provided results for the discussion on the effectiveness of food security policies, answering whether the effectiveness of food-related policies is dependent on the level of involvement / engagement of stakeholders in the process.

### 4.3. Case Study

A case study focused on the maize value chain was used to explore the interaction between policies and stakeholders. This was conducted in both Kenya and Tanzania to allow for a comparison of findings of two countries working as regional development partners under the East African Community.

Case studies allow for the exploration of events, offering additional insights into what and why gaps exist in the delivery of implementation strategies (Crowe *et al.*, 2011). They provide an in-depth, multi-faceted understanding of a complex issue in its real-life context (Crowe *et al.*, 2011). Sjoberg *et al.*, (1991) hypothesised that the case study approach is an essential feature of sociological inquiry with Johansson (2007) stating that they have the potential to further develop understanding of the issue under consideration by combining different methodologies and theories that can be used to understand the complexity of a case. Case studies can be intrinsic (to study a unique phenomenon), instrumental (to allow for a broader appreciation of an issue) or collective (looking at multiple cases at once) (Stake, 1995). Yin (2003) viewed case studies as exploratory (to explore a phenomenon with no clear set of outcomes), descriptive (describe a phenomenon) or explanatory (to understand causal links of why a phenomenon occurs). For this research, the case study is collective given the two countries and explanatory in nature as it seeks to understand stakeholder involvement.

Many researchers have used qualitative research within case studies with relevant methodologies published (Baxter & Jack, 2008; Stake, 1995; Yin, 2003; Hancock & Algozzine, 2006) and various adaptations made according to the research question. There are five generic stages of case study methodology (adapted from Crowe *et al.*, 2011; Baxter & Jack, 2008).

1. Defining the case: At this stage the research question is formulated together with “boundaries” for the case study. Boundaries may include the time range, the social group and geographical area of interest, type of evidence and data collection and analysis.
2. Selecting the case: The type of case selected is based on the research question identified. It is important to select cases that will allow access to the group of individuals or processes chosen for analysis.
3. Collection of the data: The advantage of the case study approach is the utilization of multiple sources of evidence, with the aid of a range of quantitative and qualitative techniques, which enhances data credibility.
4. Analysing and interpreting the data: Dependant on the type of case study being used, the analysis occurs as the same time as data collection.
5. Reporting the case study: The complexity of the case study approach requires the researcher to be able to report the entire study in a concise manner that is understandable to the reader.

According to the stages outlined by Crowe *et al.*, (2011) above, Table 4.4 indicates the adaptations for the case study approach applied in this thesis.

*Table 4.4: Parameters of the study according to the stages of the case study approach*

<b>Stages</b>	<b>Adaptations for research</b>
<b>Defining the case</b>	The research statement and questions are defined in section 4.2.2 with the geographical area of interest: Kenya and Tanzania. The case study will focus on the maize value chain (detailed outline in Chapter 3) using qualitative methodologies.
<b>Selecting the case</b>	Guided by the research aim, the availability of relevant secondary information such as statistics on the regional websites and obtaining research permission permits to conduct fieldwork (and enable the interaction with identified stakeholders of the maize chain) will aid in ensuring access to primary information.
<b>Collecting data</b>	As outlined in this Chapter sections 4.4 to 4.7, critical synthesis, social life cycle assessment and expert- based interviews will be used to collect the data relevant to the case study
<b>Analysis and interpretation</b>	This will explore food policies, evaluate their effectiveness and assessing these against the SDGs (see section 4.2.2.).
<b>Reporting the case</b>	Chapters. 5-7 will report findings from each of the three methodologies with an overarching discussion of findings in Chapter 8 in relation to the main research aim and corresponding objectives.

The case study approach has been used in research related to food and agriculture. Examples include case study analysis focused on understanding local food system infrastructure (Bloom *et al.*, 2011) and the influence of green/environmentally friendly practices on supply chains (Azevedo *et al.*, 2011).

Case studies, globally, have been used to increase understanding of the causes of food waste at various levels of the food chain (Liu, 2016), the farm level (Johnson *et al.*, 2018) and the composition of food waste (Lebersorger & Schneider, 2011). These studies contribute to the tailoring of measures for attaining sustainability by looking at food waste at different levels. The case study approach has also been applied to understanding the localization and globalization of food systems (Lang, 1999; Everett & Aitchison, 2008) in an effort to determine modern world consumption patterns.

There are case studies on agribusiness for sustainable development (Banson *et al.*, 2005), and food variety in an urban centre (Hatløy *et al.*, 1998). These case studies highlighted the value of the approach for providing detailed and important insights into a topic and the growing interest in the use of case study methodology within food and agriculture.

A key feature of these studies is that they utilised single case format for the research. In the research in this thesis, a multiple case format was used which examines a similar system in two different areas/ countries, in this case Kenya and Tanzania. Multiple-case food study format studies include Aschemann-Witzel *et al.*, (2017) who looked at tackling consumer related food waste, while Lindgreen (2003) looked at different types of trust that exist along the Danish-British bacon supply. Determination of factors and their impacts on lean manufacturing (maximising productivity while minimising waste) was another multiple case study with several small- and medium scale enterprises (Dora *et al.*, 2014) while Verdouw *et al.*, (2019) developed an architecture framework using Internet of Things for food and farm systems in 19 cases of farming. The multiple case study format allows for the generation of a common knowledge across multiple agricultural and food system applications (Verdouw *et al.*, 2019). Increasing knowledge is important in achieving food security goals. Gustafsson (2017) conducted comparative analysis between single case and multiple case study approaches and reported that the multiple case study approach allowed the researcher to draw out similarities and differences within and between contexts (see also Baxter & Jack, 2008). This approach is used in the research reported in this thesis, as comparative analysis of maize chain in two different countries and regulatory contexts.



A case study approach allows for research to be both critical (questioning) and/or interpretivist (understanding) (Crowe *et al.*, 2011), allowing alignment between the different methodologies utilised. Here, the case study selected was the maize value chain in two neighbouring countries making the investigation a multiple case study using three different methods.

#### **4.4 Introduction to the Methods**

##### **4.4.1 Overview**

Qualitative research methodology was applied to consider food security policies in Kenya and Tanzania and to evaluate their impact, particularly in relation to stakeholder participation in policy development and implementation. Qualitative methodology was appropriate as it allowed for an in-depth and exploratory impact analysis of the policies on stakeholders of the value chain to be conducted. Harris *et al.*, (2009) have noted that qualitative research can aid in determining participant perception of an issue and when it comes to policy. Tierney and Clemens (2011) have indicated that qualitative research provides context and depth to the analysis, which differentiates it from quantitative research. It is appropriate for this research which explores the context and reasoning for the views of stakeholders and the implications for subsequent actions with regards to policy development, therefore providing in-depth insights into the policymaking process.

Thus, three different methods were used within the multiple case study approach, with each being described together with the data collection procedure. Ethical approval was obtained from Newcastle University with reference 8640/2018 for the proposed research.

##### **4.4.2 Overview of Critical Interpretative Synthesis (CIS)**

Critical Interpretative Synthesis (CIS) designed by Dixon-Woods *et al.*, (2006) was used to understand the policy making process in relation to food policies in Kenya and Tanzania. The method was selected as it allowed the use of data collected from different data sources to identify what prompted the formulation and implementation of policies, what the policies said, what the policies aimed to achieve, and which stakeholders, if any, were involved in the formulation and implementation of policies.

A complete background on CIS and how it was adapted and used in the research is outlined in section 5.2. In brief, it enables the analysis of food related policies to determine themes and parameters of food policymaking process in the two countries.

Since its conception in 2006, CIS has been used in a broad range of studies covering a wide range of issues including in relation to food security. For example, McIntyre *et al.*, (2016) applied CIS in the analysis of food systems, in a particular value chain. CIS has been applied

by Stone and Rahimifard, (2018) in relation to the resilience of agri-food supply chains, with the synthesis enabling the generation of a novel resilience framework, similar to Ericksen (2008), who developed a framework that allows for the analysis of food systems interactions in the context of global environmental change. Carter *et al.*, (2014), focused on place and food insecurity.

Within the policy domain, CIS has been applied across a range of topics including understanding gun policy in the US (Morrall, 2018), workplace policies in Canada and US (Tuepah, 2016), EU policies on sexual violence (Keygnaert & Guieu, 2015) and public health policies in UK (Attree, 2006). Other papers include looking at waste management in Greece (Iakovou *et al.*, 2010) and integration of water footprint assessment as part of supply chain management (Aivazidou *et al.*, 2016). With regards to food policy, the use of CIS is limited. Of the studies related to food, Sheahan and Barrett (2017) provide a critique of the impact evaluation literature which considered interventions designed to reduce food waste in Sub-Saharan Africa. Love *et al.*, (2019) applied CIS to assess the applicability of measurement tools in the rural food environment to aid in designing effective interventions.

A common theme was the fact that the use of CIS allowed for the identification of research gaps and systematically informed future research requirements which may have not been possible using alternative approaches. In the research presented within this thesis, CIS enabled the identification of drivers of formulation and the inclusion of stakeholders in the policymaking process.

#### **4.4.3. Overview of Social Life Cycle Assessment (S-LCA)**

Maize is an important food product and the maize value chain in Kenya and Tanzania was used as a case study to show how policies have impacts when implemented. The method used was the S-LCA, an adapted version of the environmental based Life Cycle Assessment. S-LCA allowed for the assessment of food policies associated with the social life cycle of maize.

For the assessment, both primary and secondary data were utilised to understand the socio-economic impact of maize- and food-related policies. The introduction, adaptation for the research (section 6.2), analysis and findings are presented in Chapter 6.

The use of S-LCA as a tool has been studied critically (Iofrida *et al.*, 2018), including: the development of a methodological framework to standardise the method (Dreyer *et al.*, 2006); its application to case studies (Petti *et al.*, 2018); the selection of both indicators for assessment and stakeholders to be included in the assessment (Sureau *et al.*, 2018; Mathe, 2014); how to determine baselines and indicators (Jørgensen *et al.*, 2010; Kuhnen and Hahn, 2017), its

limitations (Wu *et al.*, 2014; Lehman *et al.*, 2013), and as a methodology appropriate for sustainability assessment (D'Eusiano *et al.*, 2018). This body of research indicates the suitability of the method to the objectives of this thesis as it will enable assessment of the results in the case study context.

In the case of food and food products, S-LCA has been used to understand the social impact of various products including pork (Zira *et al.*, 2020), wine (Arcese *et al.*, 2017), sugar (Prasara-A *et al.*, 2019), chicken (Tallentire *et al.*, 2019), and dairy (Chen and Holden *et al.*, 2017). A key finding is that S-LCA was able to assess the social issues surrounding the production systems, which were not covered by environmental LCA. The guidelines for conducting an S-LCA allow for the user to select which indicators of assessment to use. By selecting specific indicators and categories, S-LCA guides the data collection focus in terms of the sources of primary data (which stakeholders of value chain are of interest) and secondary data (what information is needed and where and how to obtain it) to supplement the primary data.

#### **4.4.4. Overview of Expert-Based Interviews**

Expert- interviews were used to gather information concerning food policy formulation and implementation, and how these policies impact food security in the region. The aim of the exercise was to obtain the opinions and perceptions of people with considerable experience in the food value chain and policy environment with regards to policy and food security. Initially envisioned and developed as a Delphi based study prior to Covid-19, Chapter 7 provides an overview of how the experts were recruited and interviews conducted. Conducting the interviews allowed for the information to be collected and more in-depth information derived from the participants. Interview methodologies has been used to assess the suitability of dyadic interviews compared to in-depth interviews to explore food choice (Kvalsik & Øgaard, 2021); motivational interviewing for prevention and treatment paediatric obesity (Resnicow *et al.*, 2006; Christie & Chabbon, 2014); computer assisted self-interviewing for dietary assessment (Kolhmeier *et al.*, 1997); and cognitive interviewing with regards to young children's intake (Zarnowiecki *et al.*, 2020) among others.

The method has been critiqued. For example, Hofisi *et al.*, (2014) have highlighted disadvantages, including the fact that they are potentially time-consuming, and financially costly, and that research participants are aware of being interviewed, which may influence their response or behaviour. However, advantages include collection of rich detailed data which may provide new insights to the issue of interest. Here, this allowed a comparison of "expert" perceptions to "broader society" perspectives with regards to the effectiveness of policies.

#### **4.5. Data collection**

Data collection was initiated in Kenya (the research permit was first to come out) in March 2021 and completed in April 2021. Delays in obtaining the Tanzanian research permit (it was issued in May 2021) resulted in the data collection spread out between June and July 2021. Conducting research in both countries is regulated by relevant research science committees and obtaining research is mandatory especially when planning on interacting with public officials. The permits are in Appendix A.

The researcher could not collect the data themselves due to the Covid-19 pandemic, which would have been the preferred approach. External personnel were recruited and trained to conduct the physical data collection. Once the data was collected, the physical data handover was done in July 2021 (Tanzania) and August 2021 (Kenya), and final remunerations disbursed. However, the data was of a high standard, with the steps followed according to the initial plan.

For the CIS, a total of 61 policies, 25 laws and 250 articles were analysed. These range from within the two countries and within the East African region. With the S-LCA, field visits resulted in seventy- four people participating from the different nodes of the value chain (farmers, processors, brokers). Thirty-seven people were in Tanzania and thirty-three in Kenya. Additionally, data was derived from national documents such agriculture reports demographic surveys and national census. The expert interviews had a total of eight participants (which was less than the target of 12).

#### **4.6. Summary**

The overview of the methodology is that there is a philosophical foundation based on critical realism that contains the conceptual framework of institutional and stakeholder theories and allows for data generation through the three identified methods. The research presented within this thesis aimed to understand the intricacies of food policy, including from the perspective of stakeholder involvement, and the roles stakeholders play in achieving sustainable food systems. To understand the impact on food security, the research considered the entire value chain (using maize as a case study) to identify stakeholder interactions with policies and policy impacts on society. There is a relationship between policies, stakeholders and sustainability that must be understood for development to occur. This chapter justified the case study approach, including the three planned methodologies and Covid-19 adaptations, case study regions and the use of the maize value chain.

The findings and analysis obtained through the application of these methods are outlined in the following chapters beginning with the CIS in chapter 5.

## CHAPTER 5: Critical interpretative synthesis of food and food related policies in Kenya and Tanzania

### 5.1. Overview

Chapter 2 discussed how food and food-related policies in Kenya and Tanzania are important due to the economic and cultural significance they have on regional development. Food-related policies impact the livelihoods of the people in the East African region either directly (people derive income from associated activities) or indirectly (through consumption of food products). The food product in this case is maize (Chapter 3). Governments, and organizations, recognize the necessity of achieving food security. The development of policies guides the conduct of subsequent actions. In the context of institutional theory, these policies can be viewed as the “institutions” (Amenta & Ramsey, 2010) through the regulatory pillar of the theory. It is therefore important to understand the role of policies with regards to achieving the goal of enhancing food security and sustainability.

This chapter outlines the method and presents the findings of a critical interpretative synthesis (CIS) of regional food policies that will foster an understanding of the policymaking process in relation to food security in general, and the maize value chain. Specifically, it will explore the extent to which sustainability has been incorporated within existing policies and will identify themes important for the attainment of regional food security.

### 5.2. Critical Interpretative Synthesis

#### 5.2.1. What is Critical Interpretative Synthesis?

CIS is a meta-ethnography method that combines systematic review techniques with qualitative methods of enquiry. It was initially proposed by Dixon-Wood *et al.*, in 2006 (Fleming, 2010). This type of meta-ethnography relies on three strategies: reciprocal translational analysis, refutational synthesis and line of argument (Table 5.1). These three strategies allow for the identification of key concepts and themes, characterisation of any contradictions, and interpretation based on the findings respectively (Dixon-Woods *et al.*, 2006).

Table 5.1: Characteristics of the strategies used for meta-ethnography (Source: Dixon-Woods *et al.*, 2006)

Strategies	Characteristics
Reciprocal Translational analysis	Translation of concepts of an individual study onto another
Refutational Synthesis	Exploration and explanation of contradictions between studies
Line of Argument Synthesis	Constructing a topic by studying the individual parts or each study?

The five steps of CIS are characterised by Dixon-Woods *et al.*, (2006) and presented in Table 5.2.

*Table 5.2: The steps for conducting a critical interpretative synthesis*

<b>Steps</b>	<b>Parameters</b>
<b>Review question</b>	At the beginning of the process, a “modifiable” question is formulated to guide the search criteria. A modifiable question does not tightly control the parameters of the data searched for in the review and is adaptable as data collection and review proceeds. This is because the review aims to interpret the data and not aggregate (summarize) it, allowing for the expansion of the search parameters
<b>Search strategy/criteria</b>	The guiding (modifiable) question is aided by a broadly defined strategy that allows for the purposive selection of material, allowing for the selection of material clearly associated with the topic in question, as well as material that may not be directly linked to the core sample materials but have contributions for the synthesis such as information from grey literature
<b>Data sampling</b>	Data collection is guided by the search strategy. Given that CIS aims to develop concepts and theory, the sampling is fluid, and is adapted as needed.
<b>Extraction</b>	A pro-forma is devised to systematically extract the required data from the collected literature in data sampling.
<b>Analysis and critique</b>	Focus is on the inspection of extracted data, identification of recurring themes and developing a critique of the data.

The searching, sampling, critiquing and analysis are all inter-connected. This is because as the critique develops through the process, additional sampling and analysis may occur. Critical orientation of the material is necessary and should be continuous, allowing for a dynamic and mutually informative process leading to the development of a robust critique. At the end of the process, a synthesising argument is developed from identification of recurring themes together with the subsequent critique to explain the phenomenon under investigation.

### **5.2.2. In relation to the study**

The overall aim of this synthesis was to identify emergent themes around food related policies in the East Africa region (Kenya and Tanzania), with regards to food security and sustainability. The targeted literature includes national and regional based policy documents or corresponding media coverage for the farm-fork maize chain in Kenya and Tanzania, from the 1980s to 2019.

The CIS aimed to:

1. Identify objectives, targets and the policy development processes operating in Kenya and Tanzania.

2. Assess whether the term “sustainability” is included within the identified policies in Kenya and Tanzania.
3. Identify and evaluate existing measures to assess if sustainability is improved by policies.
4. Determine the contemporary drivers that led to the formulation and/or implementation of the policy in Kenya and Tanzania.
5. Determine if stakeholder involvement with food policy making in Kenya and Tanzania occurred at the policy formulation stage.

### **5.3. Methods**

#### ***5.3.1. Protocol Development***

A protocol using reference points from the Centre of Reviews and Dissemination (2009)’ template was developed. The template was adapted and modified to align with the objectives of this investigation. The protocol guided the data collection process and allowed for reproducibility (Appendix B).

#### ***5.3.2. Search strategy***

The developed protocol guided the search strategy which was enhanced by the inclusion and exclusion section of the protocol.

The inclusion criteria are described in Table 5.3. A time period range was applied between 1980 to present day (2019), in order to exclude policies implemented immediately after independence (which occurred in 1961 for Tanzania and in 1963 for Kenya), when the region was going through changes that would impact on food security, such as economic changes, and breakdown of the East African Community in 1977. This time period also reflects the introduction of multipartyism in the political environment and more established development visions/blueprints.

Table 5.3: The developed inclusion and exclusion criteria used for data acceptance

<b>Criteria</b>	<b>Inclusion Parameters/Characteristics</b>	<b>Exclusion parameters/characteristics</b>
<b>National and regional based policies (making it specific, for Tanzania and Kenya)</b>	Recommendations or mandatory obligations for producers or retailers, active or future regulations Justification: It is important to see what the policies aim(ed) to achieve instead of basing the synthesis on research recommendations. By understanding policies, it is also easier to identify the stakeholders involved, and the process the policymakers followed whilst designing the policy.	Primary research into policies conducted in the East African region. Justification: The aim and analysis of the research identified may vary from the targeted objective of this synthesis. Also, the focus/scope of the research will differ. However, this research will be noted for synthesis discussion, if relevant.
<b>Time scale (39 years)</b>	Policies developed Between 1980-2019 Justification: The time scale allows for inclusion of policies that arose with the change in democratic conditions (one party state to multiparty state officially occurred in the 1990s) and economic liberalization (open market trading began around 1982 (Kenya) and 1988 (Tanzania). The time range will allow for the evolution of the policies to be mapped against changes in the political landscape.	Policies developed or implemented before 1980 in the East African region. Justification: Prior to the 1980s, both Kenya and Tanzania were in a transitional state following independence in the early 1960s.
<b>Any policy document that relates to food, spanning from production to consumption</b>	Covering all aspects of the food value chain; production to consumption. This includes policies that deal with access to land available for production, water regulations, production input regulations, production policies, and food safety standards among others. It is also important to include “overarching” documents on food security, and the economy and finance involved in the food chain (trade, investment). Justification: Examination of policy documents along the chain will enable the identification of stakeholders, the frequently targeted area for intervention and the effect of policy intervention on different outcomes (e.g., production versus consumption).	Policies that are not involved with or applied to the food chain such as those dealing with mining. Justification: The research is focusing on food security.
<b>Spatial focus</b>	Only policies applied in Kenya and Tanzania will be included. International policies will be included if ratified or adopted by Tanzania and Kenya.	Any policies that are not signed/accepted by Kenya and Tanzania.



	Justification: The two countries are members of various international organizations and as such would adopt certain global measures and policies into their national agenda	Justification: Some policies adopted internationally will not be applicable to Kenya and Tanzania and will not have effects within the region.
<b>Media sources</b>	<p>Articles published in the media published within the timeframe that specifically deal with food or mention food in their titles. Food synonyms will be included.</p> <p>Justification: By analysing newspaper articles within the specified time frame, it will help to establish the food situation the region was experiencing prior to and after the policy creation, thus enabling the identification of possible drivers of policy formulation.</p>	<p>Articles published in about food in the media published before 1980, and articles about food outside of Kenya and Tanzania NB. Published recipes are outside the scope of the synthesis.</p>

### ***5.3.3. Data retrieval***

The search terms used for data retrieval from online sources are presented Appendix C. These were derived from the research objectives and so focused on policy, food, maize and related terms (e.g., production, shortage etc.) within East Africa. Retrieval was conducted through online and in-person searches. The terms were adapted according to the websites visited. In the case of the in-person searches, the terms were visually located within the heading of the articles.

Both physical (library/archives) and online resources (websites) were used to collect the data (policy documents, newspaper articles). Several online databases, Government ministries and websites for Kenya and Tanzania (see Appendix C), the websites of non-governmental organizations, and online websites of regional and national newspapers were searched using combinations of the search terms in (see Appendix C). All online databases were searched between June 2019 and May 2020. Additional searches were conducted after five months (in October 2020) due to changing website addresses or site maintenance during the initial search period. Certain websites, particular the Tanzanian ones, changed domain names and some would not load on the internet browser. Documents were searched by topic, followed by the year and assessed according to the inclusion criteria provided. Documents that met the criteria were included for analysis.

Data (newspaper articles included) not readily available on the internet were collected by physically accessing archives and repositories. These include the archives (Kenya National Archives) and libraries (National Library in Dar es Salaam and McMillan library in Nairobi). The resources were hard copies of newspaper collections and previous policy documents. The search was conducted in person, by visually searching books and newspaper articles using the same search terms (Appendix C) and in relation to the inclusion/exclusion criteria. The searches were conducted between July 2019 and June 2020<sup>4</sup>.

### ***5.3.4. Data extraction***

The CIS was guided by the research questions outlines in Table 5.4 that were derived from the objectives in section 5.2.2.

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<sup>4</sup> The COVID-19 pandemic outbreak led to a suspension of fieldwork and travel to Kenya and Tanzania from the UK, which reduced access to some physical resources.

Table 5.4: Guiding questions used to conduct the CIS

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Guiding questions for the CIS
1. Are there any policies that focus on “sustainability” of food systems?
2. Is “sustainability” mentioned in the food-related policies that are in place?
3. Are there any measures outlined in the policies that will ensure sustainability?
4. What are the targets (e.g., society, specific stakeholder, production inputs) for the policy being implemented?
5. Is the policy preventative or reactive? If reactive, does it include future preventative measures?
6. What is the aim/ achieved goals of the policy?
7. Who are the target actors? National or local government authorities?
8. Has it superseded another policy?
9. Does it have linkage to other policies?

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To enable efficient data extraction, two proformas were developed, one for policies and the second for newspaper articles (Appendix B). The policy proforma included the date of policy enactment, justification, policy interrelatedness, emerging themes (including food sustainability), patterns to be established and timelines for implementation. Patterns included policy coherence, indicators, the objectives of the policy, and sustainability considerations. Data extracted from newspaper articles included how situations were “presented” to society, drivers of policy formulation, and impact of policies on food and society.

### **5.3.5. Analysis**

The included policies and articles were analysed using the guiding questions (Table 5.4) as well as using the two proformas. Extracted data from both proformas were collated in an Excel sheet. The findings were used to give an overview of the policies, the policy making process, and to identify drivers of policy development. In addition, several different themes such as policy coherence were identified.

## **5.4. Results**

### **5.4.1. Overview**

One of the objectives of the CIS was to identify the themes in food related policies so as to determine the factors highlighted by policies in the bid to ensure food security. Themes identified included the (way in which) policy formulation (occurred), drivers of policymaking, policy coherence and food security.

#### ***5.4.2 Summary of policies and strategies***

The online and physical search strategies resulted in the collection of data outlined in Table 5.5. Based on the pre-determined criteria (section 5.3.2), only data relevant to the research objectives were retained.

*Table 5.5: Number of documents retrieved*

<b>Documents</b>	<b>Initial</b>	<b>Final</b>
<b>Policies</b>	95	61
<b>Bills/Laws</b>	85	25
<b>Newspaper articles</b>	320	250

An overview of the key policies, strategies, development visions and current legislation within Kenya and Tanzania is provided in Table 5.6, with a descriptive summary of the policies in Appendix D. The policies are grouped into those relating to food and nutrition, agriculture, resources, technology and economics and consumption, with Figures 5.1 to 5.6 outlining the policy timelines for each grouping. Many policies had objectives which related to the food value chain in addition to their primary focus (see Appendix D). When describing the policies, the abbreviations Ke and Tz will be used to refer to Kenya and Tanzania respectively.

Table 5.6: Table showing policies collected in different categories

<b>Category</b>	<b>Policy (Year-Country)</b>	<b>Description</b>
<b>Food and Nutrition</b>	Food policy (1986-Ke), Food Policy (1981-Ke), Food and Nutrition Policy (1992-Tz), Food policy (1994-Ke), Food and Nutrition Security Policy (2011- Ke)	Concerned with the availability of food for the people.
<b>Agriculture</b>	Agriculture Policy (1983, 1997, 2013- Tz)	Focus on the development of the sector so as to ensure food security and economic development.
<b>Resources</b>	Environment Policy (1997-Tz), Environment and Development Policy (1999-Ke), Environment Policy (2013-Ke); Land policy (1995-Tz), Land policy (1997-Tanzania), Land policy (2007- Ke), Land Use Policy (2016-Ke), Land Policy (2016 Draft- Tz); Water Policy (1991- Tz), Water Policy (1999- Ke), Water Policy (2002-Tz)	Covers the physical resources needed for food cultivation, environment, land and water.
<b>Technology</b>	Science and Technology (1985- Tz), Science and Technology (1996- Tz), National Biotechnology Development (2006- Ke), Biotechnology Policy (2010-Tz), National Research and Development (2010-Tz); National Science, Technology and Innovation Development (2015-Tz), Science, Technology and Innovation Policy (2006-Ke); Innovation policy (2016-Ke), Innovation Policy (2015-Tz)	Incorporation and utilization of scientific advances in the agriculture sector.
<b>Labour</b>	Women in Development (1992-Tz), Women and Gender Policy (2000-Tz), Gender and Development Policy (2001-Ke), Youth Development (2007-Tz), Gender and Development (2019-Ke)	To encourage women and younger people into the sectoral labour market.
<b>Input</b>	Seed Policy (Ke-2010).	Concerned with the inputs for cultivation, however more are laws and regulations rather than policies.
<b>Economics</b>	Trade policy (2003-Tz), National Industrialization (2012-Ke); National Microfinance Policy (2000-Tz), National microfinance policy (2017-Tz)	Due to the importance of agriculture as a tool for development, policies that deal with trade, finances and industrial development are important.
<b>Consumption</b>	Health Policy (1994, 2014-Ke), Health policy (90,07, 17), Food Safety policy (2013-Ke)	Consumption of food is interlinked with the health of the population and their productivity.

The identified policies have the following characteristics: they deal with the food chain; they are not the first of their kind (with the exception of the technology-related policies) and have associated strategies with guidelines to meet policy goals.

There are five policies that deal with food and nutrition security (Fig 5.1) covering the production and consumption of food by people within both countries, and six policies concerned with food production (two agriculture; four in technology). Given that food security and agriculture, including that of local production, tend to be linked in both Tanzania and Kenya (Mkonda & He, 2018), the policies also tend to be linked, although it should be noted that Tanzania has distinct agriculture policies. Natural resources, such as land, and water needed for food production, are covered in eight resource related policies (Fig 5.2). Connected to access is the labour force covered by gender equality policies (four) and youth (four), as the governments are aiming to encourage increased youth participation in agriculture (Fig 5.3). Additionally, the governments' aim to ensure the necessary inputs (such as seeds, fertilizers, pesticides) is seen in the Seed policy and associated strategies. Economy-related policies (four) emphasise higher production and output of food products, encourage cross border official trade and the development of the support systems for the stakeholders essential for economic sustainability (and nutrition security) (Fig 5.5). As science progress, the need to incorporate new technologies into food production is guided by a set of technology policies (four) (Fig 5.4). Seven policies influence food consumption aimed at ensuring the quality of people's health so that they are able participate in economic activities (Fig 5.6). These policies have associated strategies that allow for their implementation (see Table 5.7).

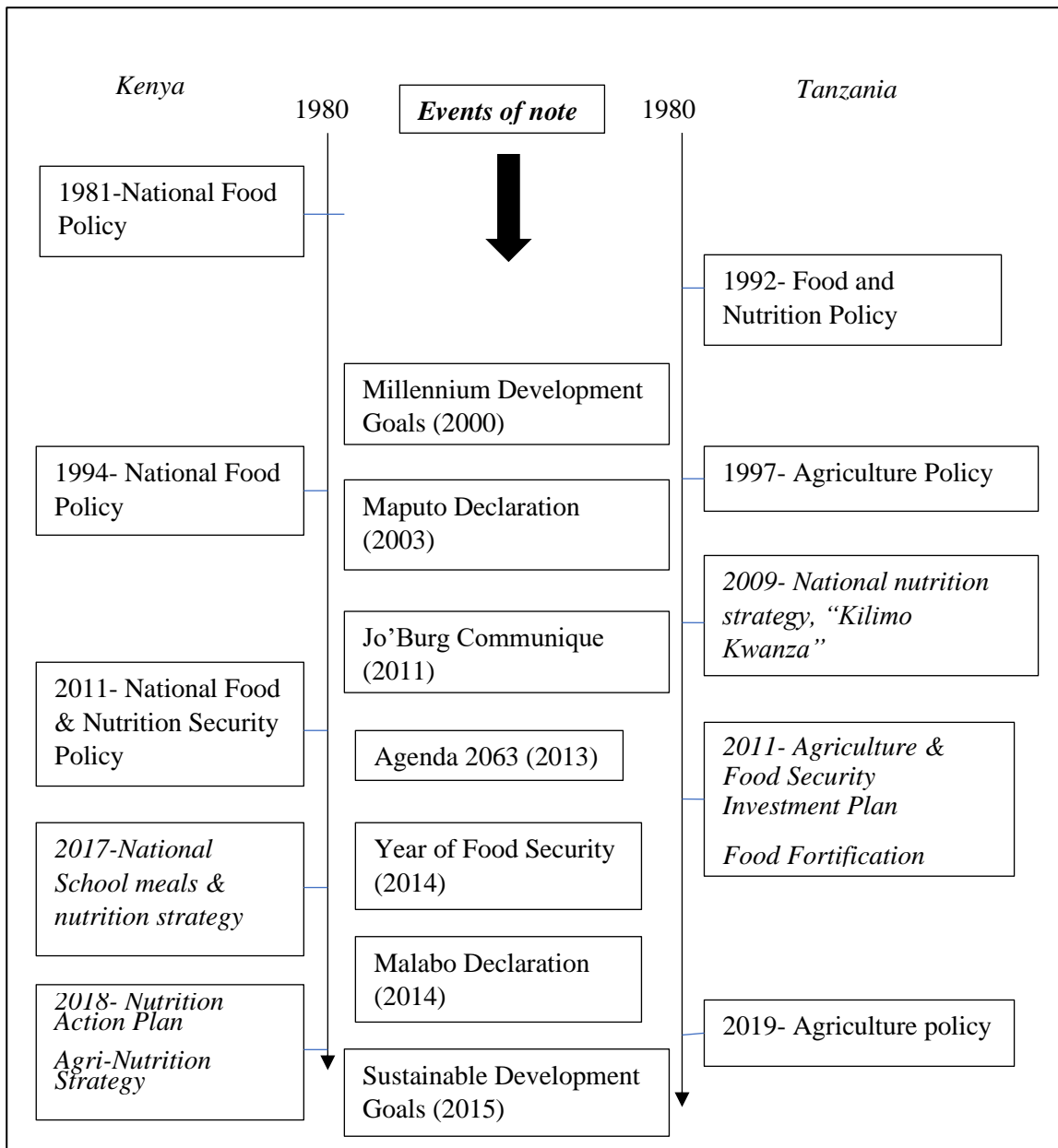


Figure 5.1: Food related policies in East Africa implemented between 1980 and 2020. While Kenya has had a series of food security policies, Tanzania still operates under the one developed in 1992. The two countries have participated in regional objectives such as Jo'Burg Communique.

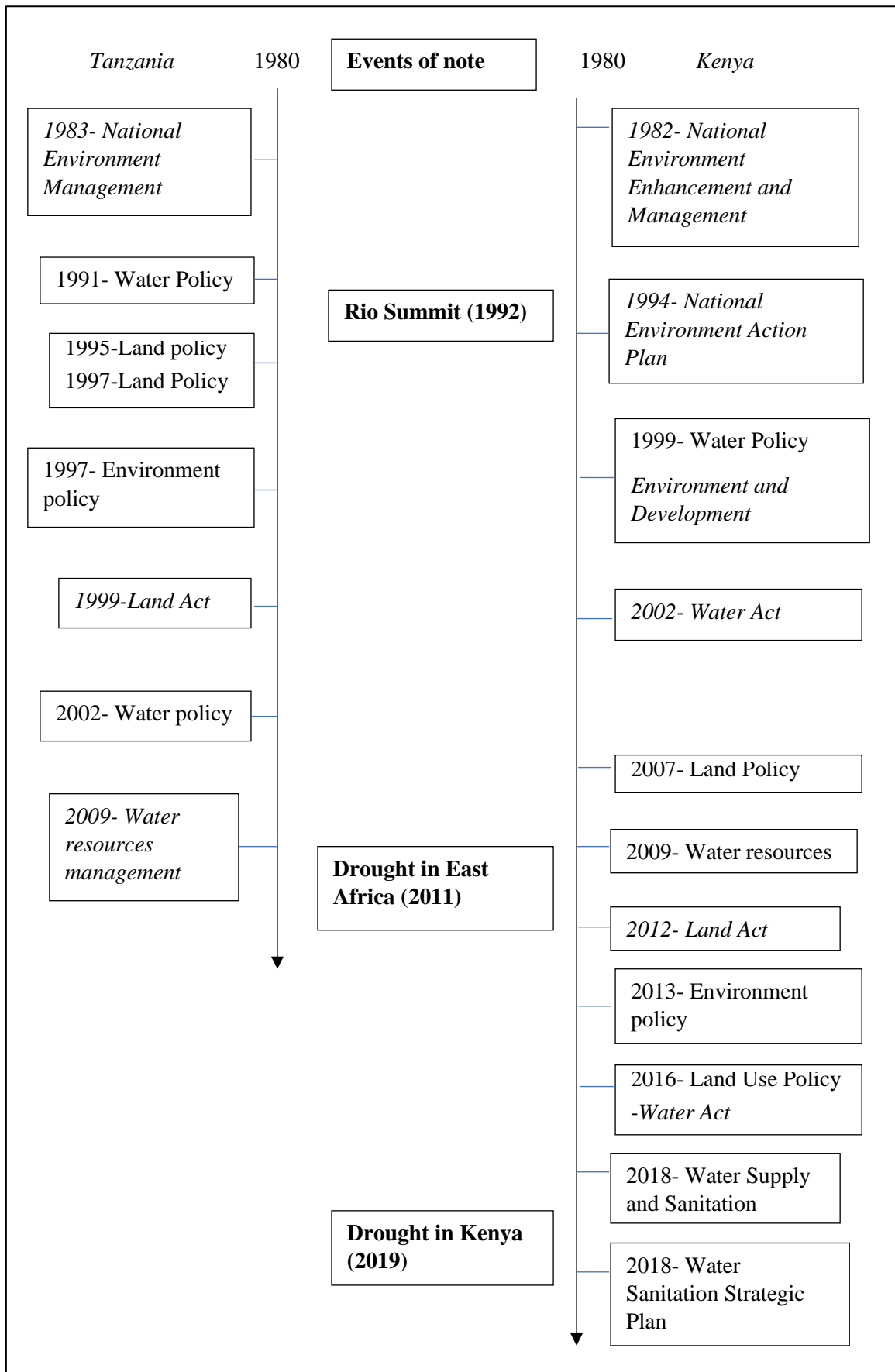


Figure 5.2: Resources related policies and strategies in both countries between 1980-2020. Resources refer to land, environment, water. The key point in that diagram is that the region is focused on managing the water resources available.



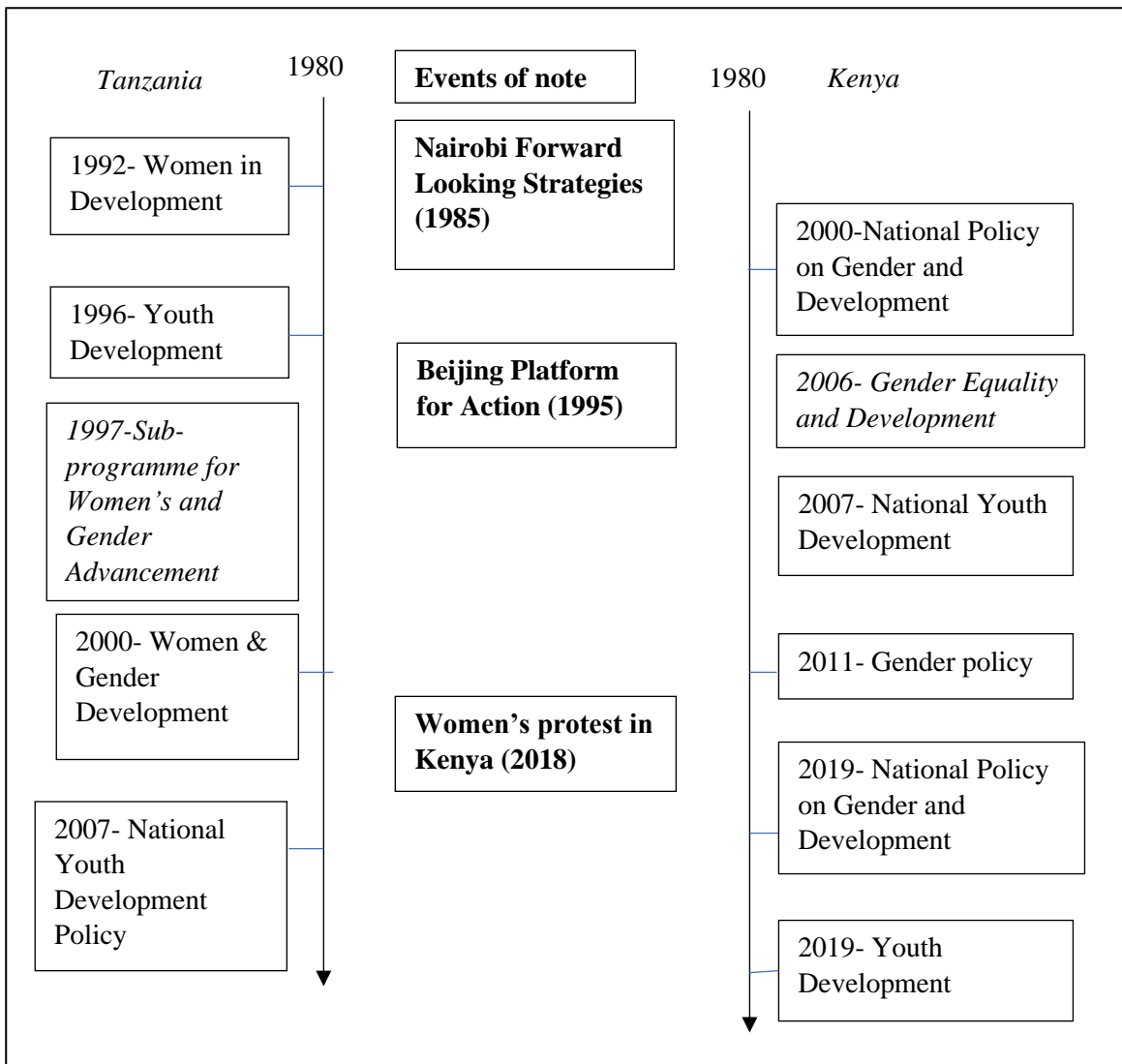


Figure 5.3: Labour related policies specifically gender and youth policies in operation in both countries.

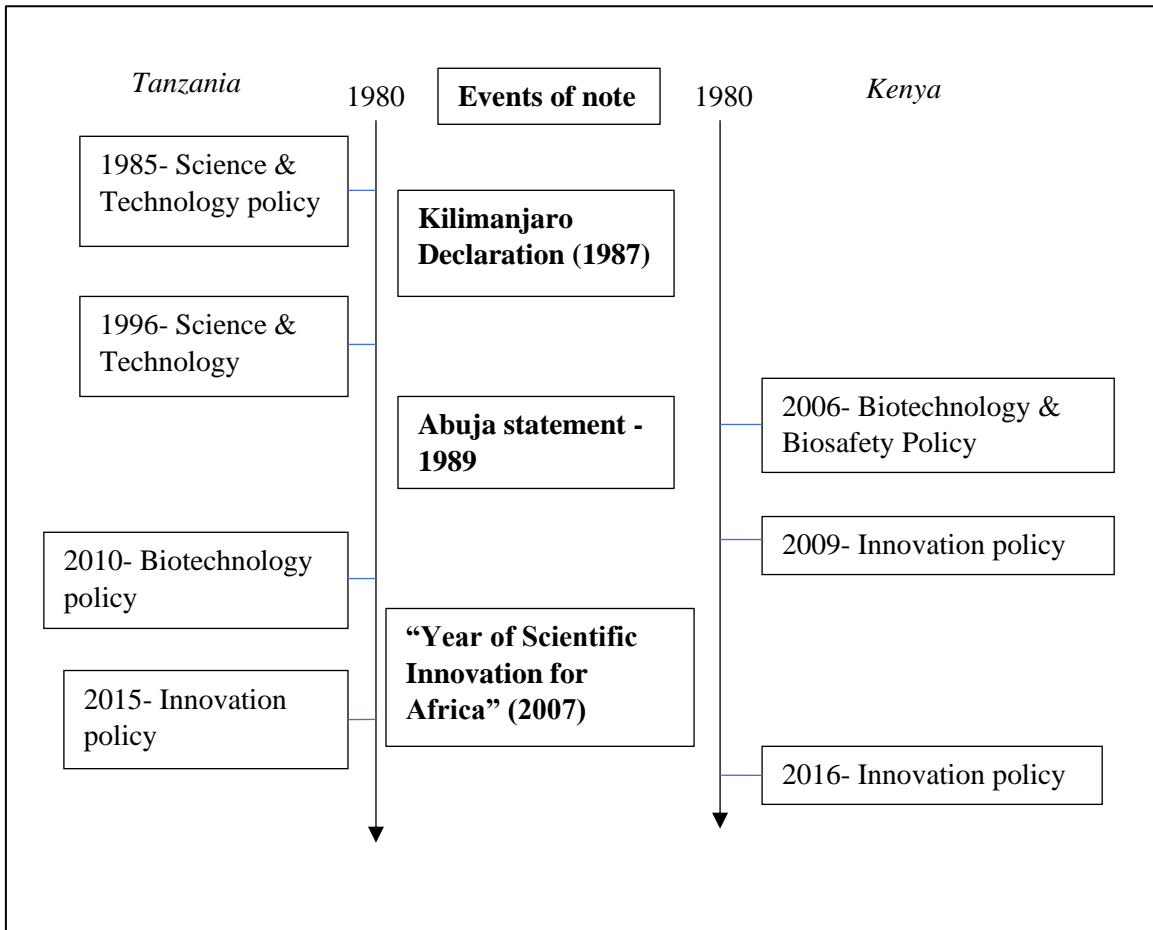


Figure 5.4: Technology based policies in the region, it is noted that the science and technology guidelines increased in the 2000s

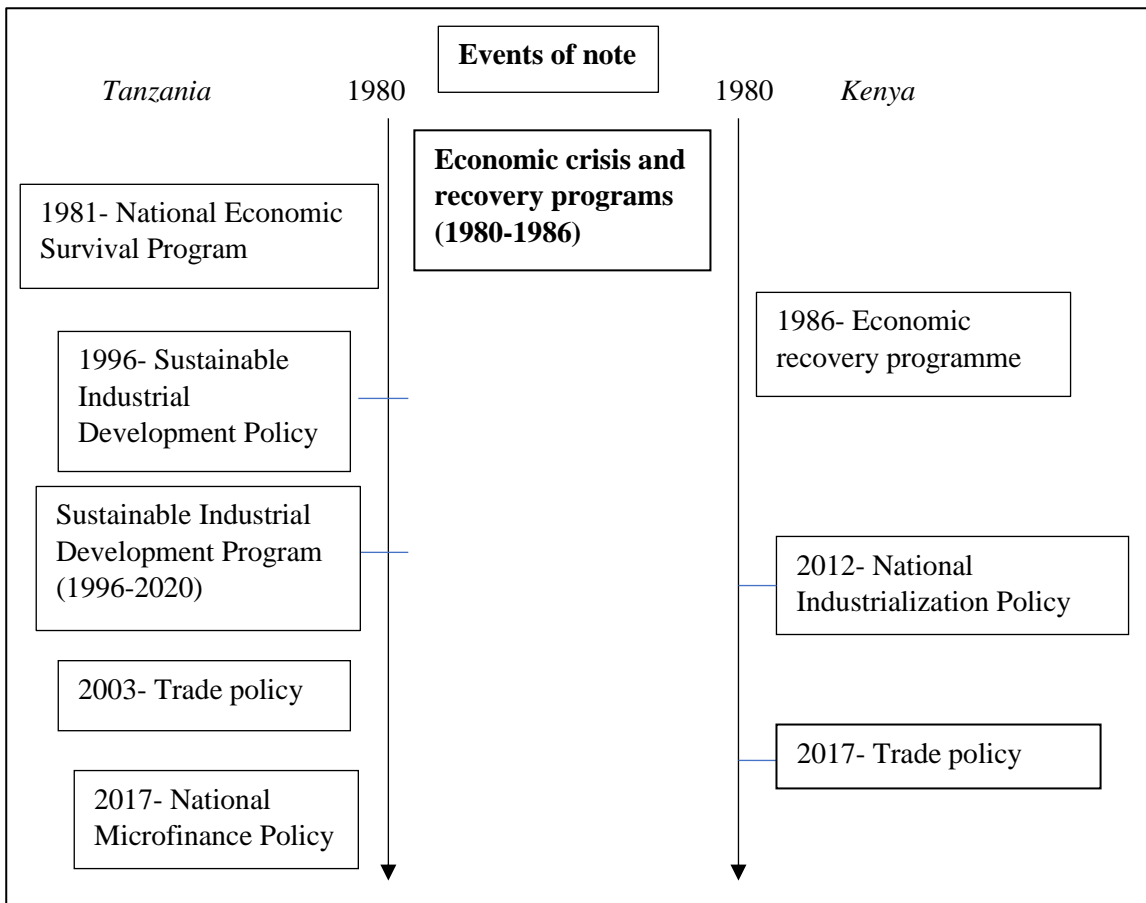


Figure 5.5: Policies that deal with the economic aspects of food security such as processing, trade and financing. It is notable that during the 80s both countries employed economic recovery programs under the guidance of the IMF and World Bank.

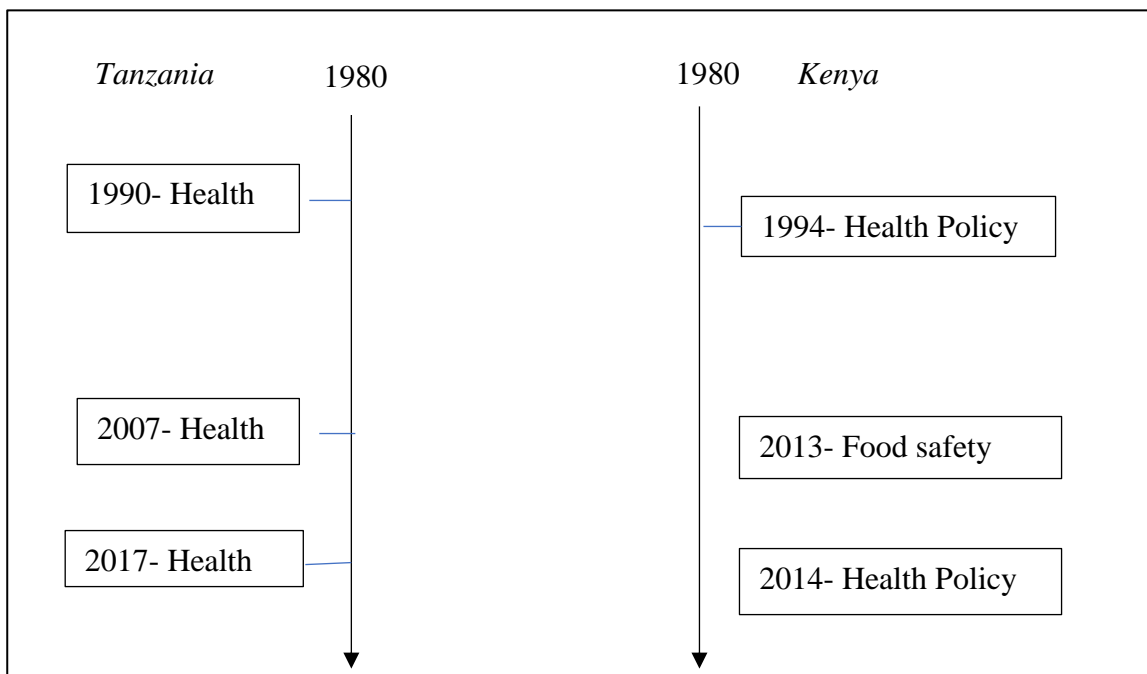


Figure 5.6: Policies that touch on the consumption and effect of food on the society. Within the policies, health and nutrition are linked.

Table 5.7: Related strategies and plans for the identified policies

Area	Strategies	
	Kenya	Tanzania
<b>Food</b>	National School meals and Nutrition Strategy (Ke- 2017), Agriculture and Nutrition Strategy (Ke-2020), Nutrition Action Plan (Ke-2018), National Plan of Action for Nutrition (Ke)	Food Fortification Strategy (Tz- 2012), National Nutrition Strategy (Tz- 2009), Agriculture and Food Security Investment Plan (Tz-2011),
<b>Agriculture</b>	Agriculture Sector Development Strategy (Ke-2001), Climate Smart Agri Strategy (Ke- 2017-2026)	Agriculture Sector Development Plan I&II (Tz- 2006 to present), Kilimo Kwanza (Tz- 2009-2025), Post-harvest Management Strategy (Tz),
<b>Resources</b>	National Environmental Action Plan (Ke), Strategic plan for gender affairs (Ke- 2018-2022)	National Conservation Strategy for Sustainable Development (Tz), Water Development Programme (Tz- 2005-2025), National Strategy for Gender Development (Tz),
<b>Economic</b>	Export Development Strategy (Ke- 2007), National Development Plan (Ke 2006-2011),	National Strategy for Growth and Reduction of Poverty (Tz), TAFSIP (Tz-2011-2021), MUVI & MIVARF (Tz), Tanzania Trade Integration Strategy (2009-2013)

Both countries also have regulations in place (Table 5.8). With regards to these regulations, both parliaments pass into law legislative Bills/Acts that aid in ensuring development of the country. Bills may be a result of a policy or may lead to the creation of a policy. Acts of Parliaments enacted into law aid in the implementation of policies or in some cases are in place of the policies, like the Seed Law (TZ) and the Agriculture Act (Chap. 318), which is used to govern and develop the agriculture industry. Bills that have direct links with these policies are a result of them being implemented, including the Food Security Bill of 2017 (Kenya) and the Land Act of Tanzania. They may also lead to the formation of policies such as the Water Act of Kenya which laid the groundwork for the development of the National Water Policy.

*Table 5.8: Acts of parliaments or laws used to govern the food sector in the region*

<b>ACTS</b>	<b>COUNTRY</b>
Food, Drugs & Substances (Cap 254)	KE
Food, Drugs and Cosmetics Act (2003)	TZ
Agriculture Act (Cap 318))	KE
Water Act 2016	KE
Seed Law	TZ
Seeds Act 2003	TZ
Seed and Plant variety (Cap 326)	KE
Fertilizer & Animal Feedstuff (Cap 345)	KE
Plant protection (Cap 324)	KE
Plant protection 1997	TZ
Protection of new plant varieties (2002)	TZ
Control Products Act (346)	KE
Agri produce (Cap 319)	KE
Suppression of noxious weeds (Cap 325)	KE
Crops Law 2009	TZ
Biosafety Act (2009)	KE
Science and Technology Act (Cap 256)	KE
Standards Act (Cap 496)	KE
Micro & Small Enterprises Act 2012	KE
Cereal and other produce 2009	TZ
Finance Act 2015	TZ
Value added tax (2015)	TZ

### 5.4.3. Policymaking process

The policymaking process in the region follows the process as outlined in Chapter 2 (Section 2.2) and the Kenya specific process is diagrammatically represented (Fig. 5.7) illustrates the process which is similar in both countries. Tanzania follows this process on the national level, of note is that local governments are provided with power to generate by-laws to seek out issues that affect a particular area, mostly villages. Findings focused on formulation, timelines, stakeholder inclusion and implementation. Each stage is described in the following paragraphs.



Figure 5.7: Illustration depicting the policy making process in Kenya

**Formulation stage-** The formulation process in both Kenya and Tanzania involves the identification of a problem or issue that is under consideration, and potential solutions discussed within technical workshops and stakeholder interactions (Kenya Institute of Public Policy Research and Analysis, 2018; Mattee 2007).

*“The policy was generated from reports produced by thematic groups comprising of state and non-state actors, consultative workshops with stakeholders, expert inputs (research, academia), submissions from individuals, groups and organizations”- Land use policy (Kenya)*

*“The new national land policy is introduced as the results of extensive consultation and deliberation, incorporation of views from government, national workshops and comments from the public and mass media”- Land policy (Tanzania)*

In both countries, a given division within the interested ministry is tasked with initiating the process. For example, land policy formulation starts with the policy unit in the Ministry of Lands.

For earlier policies (1980-1990), and those that are the first of their kind (e.g., Biotechnology policy in both countries), policy formulation arose from the identified need for a framework to govern a particular issue. Relevant policies were formulated in the early 1990s (Tanzania) and 2007 (Kenya) and are the first which have addressed land use allocation in line with expanding population demands. For policies which supersede previous policies, the formulation is headed by a change or emerging issue within the policy sector either nationally (e.g., Women and Gender policy of Tanzania) or internationally (e.g., climate change prompting the National Adaptation Plans for both countries). In some situations, there have been Acts of Parliament or strategies that have governed the sector, but a need to have an overarching framework has been identified e.g., the Environment Policy (2013) in Kenya which was developed to consolidate environmental concerns and actions previously spread across various policy documents with different objectives, or the legislation has called for the formulation of the policy such as the Land Act (Kenya).

The policies and their formulation are linked to the fulfilment of constitutionally based objectives, especially in Kenya. such as the right to food, or the right to live in a safe and clean environment. The difference between Kenya and Tanzania is that in the latter the Constitution does not explicitly state that there is a right to food; rather that is it is covered under other national directives.

***Timelines-*** From the determination of the problem to the enactment of a policy into law, there is no set/given timeline, i.e., no fixed “speed of passage”. Some policies can be passed in short timespans, for example the Youth policy was deliberated for two years and arrived at the 2<sup>nd</sup> draft stage in 2018, perhaps due to the urgency of the situation or the political will at the time of enactment. Other policies take longer such as the agriculture policy in Tanzania, which was

initially drafted in 2013, and subsequently debated in 2019. Other factors may also come into play impacting the timeline. For example, in the case of the Environmental policy of Kenya, the process was interrupted by the promulgation of the 2010 Constitution of Kenya, which prompted the Ministry formulating the policy to revise the draft taking into account relevant changes. For the analysed policies the “speed of passage” therefore varied (Table 5.9).

*Table 5.9: Examples of the different timelines for a sample of policies*

<b>Policy</b>	<b>1<sup>st</sup> Draft</b>	<b>Enactment</b>
<b>Agriculture -Tanzania</b>	2013	2019
<b>Water -Tanzania</b>	2000	2002
<b>Environment- Kenya</b>	2008	2013
<b>Youth-Kenya</b>	2016	2018
<b>Gender-Kenya</b>	2013	2019

In some rare cases, a policy is modified in a short time span. This was the case of the Land Policy (Tanzania), which was initially enacted in 1995. Following consultative stakeholder workshop comments, which highlighted some issues with the policy, a second edition was released two years later in 1997.

**Stakeholder inclusion-** Stakeholder participation within the formulation process is identified in steps 2 and 6 in Fig 5.7. Stakeholder inclusion in policy making is considered a Constitutional right, one that is constantly upheld in all amendments

*“Every citizen is an integral part of the nation and has the right to take an equal part in the government at local, regional and national level”- Arusha Declaration (1967)*

*“Every citizen is entitled to take part in matters pertaining to the governance of the country”- Clause 21, Constitution of Tanzania (1997)*

*“To encourage people to participate in the preparation of different national policies”- Clause 176 (I) e), Draft Constitution of Tanzania (2014)*

*“Involvement of people in the process of policymaking”- Clause 232 (I)(d) Constitution of Kenya (2010)*

Stakeholder representation is indicated using the phrase “consultative workshops” within the policy documents in both countries. Table 5.10 lists the range of phrases used to indicate



stakeholder involvement within the policies, although further participant details (i.e., gender and numbers) are rarely mentioned.

Table 5.10: Phrases used to indicate stakeholder inclusion in policies

Phrases used to indicate stakeholder inclusion	Prior to 2000	After 2000
Special interest groups	Yes	
Research institutions	Yes	
Technical groups		Yes
Consultative workshops	Yes	
Public forums		
Grassroots workshops	Yes	
Expert groups		Yes

The use of public forums and workshops is the main way to ensure that the wider population have the opportunity to take part in the policy development process, with Kenya currently developing regulations and procedures to allow for better inclusion of stakeholders, considering devolution (see *implementation section*, pg.79). Recently the media has been used to encourage participation, announcing the opportunity to participate (Fig 5.8).

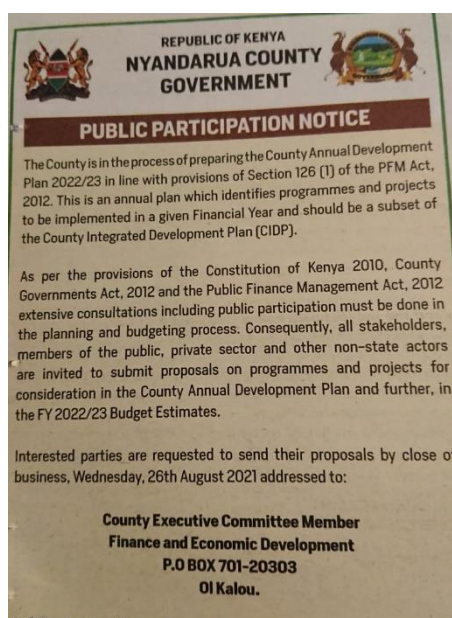


Figure 5.8: An example of an announcement printed in the local newspaper calling for public participation. (Source- Author's own)

The importance of stakeholder inclusion is raised in a series of policies,

*“If sustainable development is truly to be our common goal, it must engage the interests and actions, not only of government experts but of all Tanzanians in all walks of life”*- Environment Policy, Tanzania (1997).

*“Broad public participation in decision making processes is one of the fundamental pre-conditions for sustainable development”*- Environment policy, Kenya (2013)

Interventions may have the greatest impact if there is support, commitment and genuine involvement (Environment Policy-Tanzania). Lessons over stakeholder inclusion have been learnt from previous policies, for example the 2002 Water Policy (Tanzania) states that one of the lessons learnt from earlier 1991 policy is a need to include participation of the local governments, the affected communities and the private sector.

The inclusion of stakeholders in the policy formulation process has potential to create a sense of public ownership in the solutions developed, which in turn contributes to sustainable development.

**Implementation process-** In order to implement policy, it is important to consider the requirements for local adaptations, mechanisms for policy implementation, and financing (Hudson *et al.*, 2019; Mthethwa, 2012). Both Kenya and Tanzania operate with devolution governance, whereby there is a decentralized system of governance with local governments in place within different regions, in addition to the national government. Policies developed nationally must be adapted to the needs of specific regions. Policies in Tanzania mention the inclusion of local governments e.g., the Agriculture Sector Development Strategy outlines an instrument known as the District Agricultural Sector Investment Project which further outlines the Village Agricultural Development Funds. Kenya is working towards this framework with the establishment of County governments outlining their efforts to adapt and implement national policies.

The implementation of policies is conducted using policy instruments such as frameworks/strategies which outline the targets of the policies, milestones and projected timelines. Policy instruments aid in the implementation process and may include the establishment of overseeing committees, legislations and legal reforms, capacity building initiatives, education and awareness creation.

Funding of the implementation is important as it determines the initial steps taken. Financing of targets/action plans is heavily dependent on the country's finances. Some finance plans are

ambitious e.g., advocating for the allocation of 1% of the GDP to be attributed to Science and Technology, or 10% GDP allocated to agriculture development, as outlined in the Kenyan Science, Technology and Innovation policy and the EAC vision 2050 respectively. In most cases, these aims are not achieved in reality (through the National Budgets). Other sources of funding include development partners, donor aid and private sector investments are needed. There is a trend to include external funding from development partners within the national budgets which increases risk to policy implementation if the external funding is not subsequently provided. Some strategies, (e.g., agriculture), prioritise the implementation of steps that have either earmarked funds already or do not rely on substantial capital to implement such as awareness raising efforts and harmonization of legislations. Current development visions of both countries outline the need for “*special budgeting*<sup>5</sup>” and the need to “*build and support an effective administrative system that would actively follow up and manage the implementation process*”.

In line with the government’s annual development goals, the implementation strategies tend to be organized into different stages to enable the goals to be attained. The format is in medium- and long- term achievable stages with monitoring and evaluation, seen with policies having 3- to 5- year plans and in some cases 10-year phased implementation timelines.

***Monitoring and Evaluation***- Policy monitoring and evaluation is deemed the responsibility of the ministry with oversight of the policy issue. Given the multi-dimensionality of food related policies, if there is no specified set-up (such as a dedicated committee) to handle the monitoring and evaluation of the various policies, then there is lack of follow through and accountability and an overall failure to meet goals and targets.

Monitoring and evaluation measures may be detailed in the strategy aspects of the policies or within the policy documents themselves. These measures include comprehensive frameworks with performance indicators, delivery outputs and rely on adequate handling of data generated and collected. Another measure is the establishment of committees and councils to monitor the implementation of the strategies using the set targets/goals as guidelines, an example being National Agriculture Investment Plan (Kenya). These organizations require co-ordination and communication to be effective, with an additional characteristic being that they should be ideally formed with representatives from both society and government. However, in some cases the monitoring and evaluation instrument is not adequately detailed in the policy document, creating a situation where the implementation of the policy cannot be assessed efficiently.

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<sup>5</sup> Changing from low, dispersed investments to high, concentrated investments

Evidence of monitoring and evaluation having occurred include the existence of evaluation reports such as the Mid-Term Health Strategy report (Tanzania) and the wording of succeeding policies/strategies such as “*this policy is based on the lessons learnt during the implementation of...*” as seen in the Tanzanian National Science and Technology Policy (1996, pg. 4).

In addition to inadequately detailed monitoring and evaluation plans, other challenges include the lack of support for the monitoring and evaluation aspects of implementation, weak management information systems that lead to substandard data and lack of stakeholder involvement in conducting monitoring and evaluation.

#### **5.4.4. Drivers of policymaking**

Policy formulation in the East African region is driven by different factors such as development, and the need to deal with challenges. These tend to be outlined in justification section of the policy documents. Five of these are discussed in more detail.

**Development Visions-** Key policy drivers for both Kenya and Tanzania from independence have been in the form of “Development visions”, which outline plans and targets for the overall development and growth (Table 5.11). Between 1980 to the present time (2020) there have been a total of six development visions launched within Kenya and Tanzania, which indicate the progression from focusing on economically improving the people’s lives, to improving their quality of life overall.

*Table 5.11. Development visions in the East Africa region as well as the continental development region to which Kenya and Tanzania are signatories*

<b>REGION</b>	<b>TITLE</b>	<b>GOAL</b>	<b>TIME</b>
<b>Africa</b>	Agenda 2063	Inclusive and sustainable development	2013-2063
<b>East Africa</b>	Vision 2050	Improve the quality of life for the people of East Africa	2016-2050
<b>Tanzania</b>	Arusha Declaration	More food, more development	1967-1999
	Vision 2025	High quality of life at middle income level with high human development	1999-2025
<b>Kenya</b>	Economic Management for Renewed Growth	Provision of jobs for the growing labour force, prosperity for the mass of people in the rural areas, an equitable sharing of benefits of growth and provision of basic needs for all	1986-2007
	Vision 2030	Competitive and prosperous Kenya with high quality of life	2007-2030

Other policy drivers are external. This may include the ratification of international agreements, or changes in the political regime. The three main contemporary regional drivers for food related policies are as follows.

***Change in political regime-*** Between the 1980s and 2000s, governing regimes in Kenya and Tanzania have been similar. Political regime changes were few in this period, the most significant being the changes from one-party states to multipartyism which occurred in the early 90s within both countries. Whilst changes in policies are not directly linked to the changes occurring in the region, the establishment of multipartyism enhanced the incorporation of differing views into policymaking. An example of a situation where this didn't occur, and where this resulted in repercussions, is the ICT policy in Kenya, which initially saw the development of a policy by a select committee without consultations with other arms of the government, resulting in objections from various stakeholders (Waema, 2005).

***Ratification of external agreements*** - An important driver of potential changes in policy development is the ratification of international agreements by the national governments. Both Kenya and Tanzania have pledged support to food related goals such as the CAADP Pillar III, EAC Vision 2050, Millennium Development Goals and the latter's more recent successor, the SDGs for more recent policies. The advent of these Goals is indicated by their inclusion in policies enacted after 2000. Others have been voluntary, such as joining ISIC (International Standard Industrial Activities), which has enabled Kenya joining the World Trade Organization. Agreeing to implement or work towards achieving the goals of these agreements has led to the changes in national policies and plans. However, the inclusion of these targets is done before adequately exploring the capacity and capability of the region (see Chapter 7) to meet these targets.

***Lack of appropriate guidelines-*** In some instances, policies are formulated because there is a notable lack of guidelines in place or that the parties involved with implementation are numerous with limited coordination. Examples include the Biotechnology policy in Tanzania where the previous non-existence of relevant policies, and recent scientific progress in the area of technology under consideration, was justification for its formulation.

***Arising challenges-*** Global and regional challenges are additional drivers for policy formulation. These challenges include growing populations and dwindling natural resources. Examples of this include Environment policy which outlines how the overpopulation, the need for living space, places pressure on resources such as land and water. And highlights the importance of guiding policies and regulations on use of resources.

#### **5.4.5. Policy coherence for food and nutrition security**

The many facets of the food system require multiple dimensions to be taken into consideration. Overall, regional development is the primary objective identified in Development Visions and it is in this environment that the various policies operate,

*“It is envisaged that ultimately, there shall be accelerated, harmonious and balanced development and sustained expansion of economic activities, the benefits of which shall be equitably shared”- EAC Vision (2050)*

*An active and competitive player in the regional and world markets, with the capacity to articulate and promote national interests and to adjust quickly to regional and global market shifts. – Tz Development Vision (2025)*

Food and Nutrition Security policies work to achieve food security to bolster a working society. The food policies ultimately work to enable the development of the country by ensuring the development of society.

Food and Nutrition policies in the two countries also address various sectors, in addition to the food and agriculture sectors, such as environmental, health and gender. The multidimensional characteristics of the food system are addressed in policies (Fig 5.9) and emphasises the need for policy co-ordination so that the goals and objectives of the food and nutrition security policies are met. The following quote indicates this.

*“...diffuse system of environmental laws and policies, some of whose provisions are not in harmony making them ill-suited to aid the pursuit of sustainable development objectives...”- Environment Policy 2013 (Kenya)*

A recurring theme in the policies, particularly food, agriculture and environment, is the lack of harmonization or co-ordination leading to duplication of activities and over extension of resources.

Figures 5.9 and 5.10 highlight how the Food and Nutrition policies are connected to other policies in Tanzania and Kenya. Some of these connections are two-way: e.g., women are producers of foodstuff at the same time representing an at-risk population from nutrition-related issues. Given that food policy aims to ensure regional food security, there are six major policies, in addition to the food security specific policies, which need to be taken into consideration when considering policy coherence. These are Agriculture, Environment, Health, Gender, Trade policies and Biotechnology (as an example of technology).

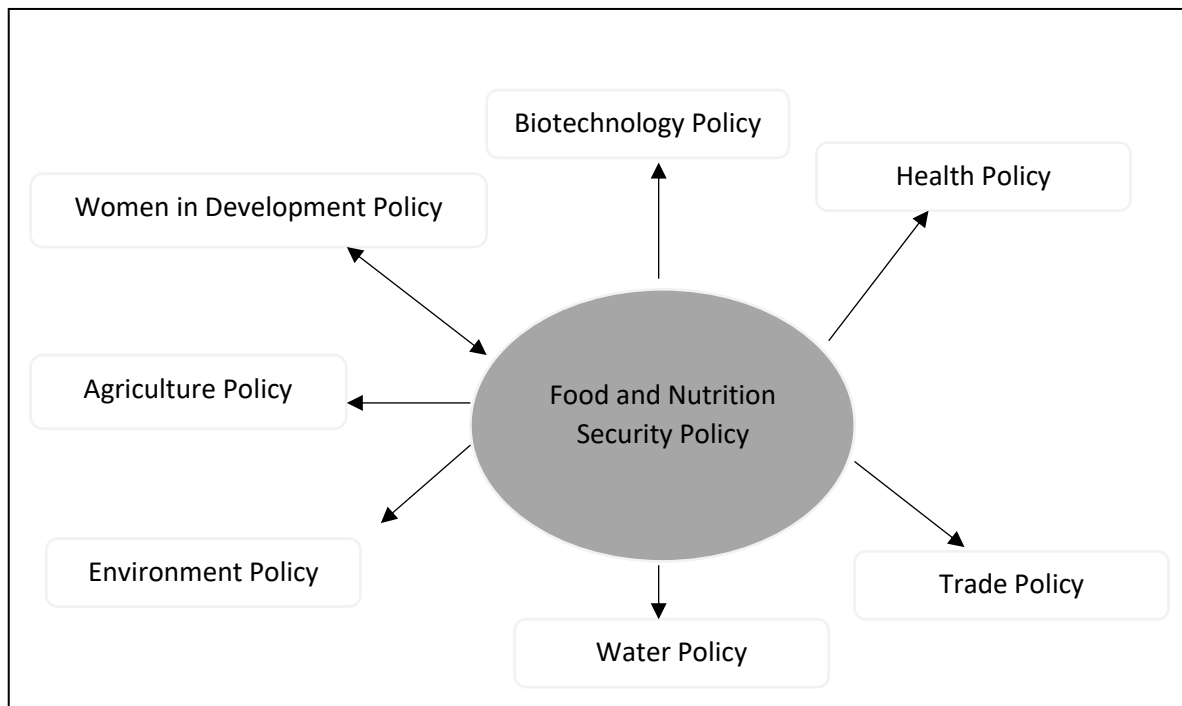


Figure 5.9: Different policies as related to food and nutrition policy. Based on the Tanzanian policies

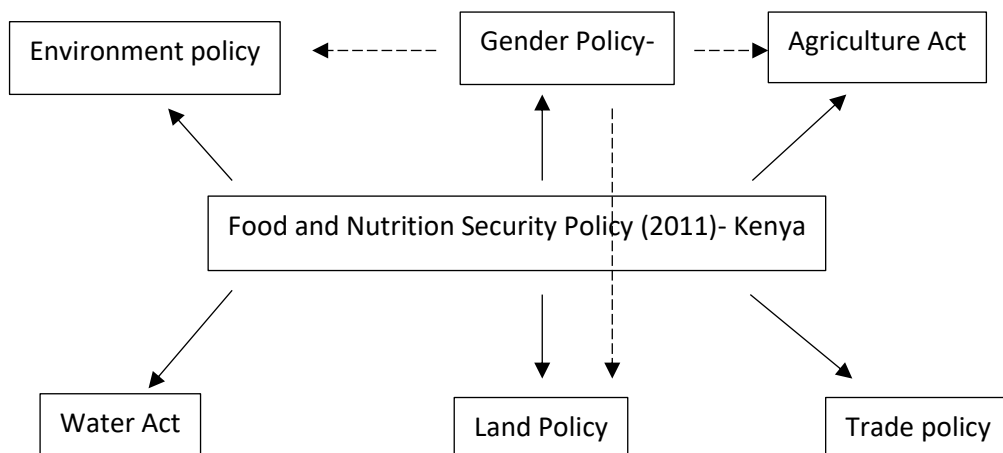


Figure 5.10: Interlinkages between food security policies and other policies (straight line) and interlinkages between other policies outside the spectre of food (dotted lines) based on the Kenyan policies

This does not mean that the other policies outlined in section 5.4.2, such as industrialization and land, are not of importance to food security. However, the six identified policies (Fig 5.10), interact in a manner that takes into account matters such as economic and environmental well-being, health and physical well-being and, importantly, sustainability. The interrelationships between the policies are discussed.

***Agriculture and Food policies:*** given that Kenya does not have a working Agriculture policy, the Agriculture Act (Cap. 318) is used to govern and develop the agriculture industry.

In Tanzania, the current and draft versions of the agriculture policy call for the collaboration between the different ministries and policies that interact within the food chain (see Text Box 6).

*“Any changes in the rules for the use of basic resources means that the rules of agriculture must follow suit”- Agriculture and Livestock Policy, Tanzania (1997)*

Targets are specific to increased production to enhance food security. The enacted/drafted policies have the main objective to increase productivity of the agriculture sector.

***Trade and Food policies:*** Kenya’s recent Trade policy (2016) focuses on strengthening the supply chain and having accurate records of the available agriculture produce for both trade and food security purposes. In terms of food security, the Trade policy aids in ensuring that measures are in place to allow for importation of food products to ensure the availability of foodstuffs. Tanzania’s policy emphasises higher production and output of food products and encourages cross border official trade while advocating for the continued existence of state trading enterprises<sup>6</sup> for the import and export of select products, of which food is one.

***Environment and Food policies:*** Sustainable use of resources and protection of the environment link the two policies. Environmental policies acknowledge the burden caused by the production of food using unsustainable and unsuitable practices, emphasising the need to control land use (due to the common practice of expansion of farming land to increase productivity), indicating that policies must find a way to work synchronously. Kenya’s Environment policy (2013) states that one of the main threats to arid and semi-arid lands (ASALs) is expanding agriculture, while at the same time the increased use of chemicals to increase agricultural productivity increases the rate of pollution of the environment. Tanzania’s

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<sup>6</sup> State trading enterprises are defined by World Trade Organization



Environment (1997) policy outlines that there is conflict between agriculture and the environment, especially in the case of ensuring economic growth.

*“The Government is aware that by promoting agriculture as the engine of growth, the sector could also bring forth significant adverse impacts on natural resources and the environment” (pg.6).*

Expansion of agricultural lands, which is the main way of improving economic contribution of agriculture, means taking land from conserved areas such as forests, and draining wetlands.

**Biotechnology and Food policies:** Advances in science and technology have resulted in the national governments developing guidelines to aid the implementation of technology in a safe and controlled manner to achieve benefits such as increased food production through yield improvement and quality.

*“Enhancing agriculture biotechnology can substantially reverse the fast-deteriorating food security and nutrition” – National Biotechnology Policy, Kenya (2006)*

The Biotechnology policy (2006) in Kenya states that biotechnology will be adopted for the purpose of improving the quality of human welfare, in three areas of which agriculture is one. This is in line with Tanzania’s policy (2010) that views science and technology to be central in improving the quality of life.

**Health and Food policies:** The nutritional status of vulnerable members of population is a policy issue. Tanzania’s food policy mentions that the health of pregnant/lactating women influences the health of the babies and their development. Kenya’s Food and Nutrition Security policy (2011) identifies that inadequate access to proper, nutritious diets may have a negative effect on the abilities of the working population. This corresponds with the respective countries’ health policies and strategies that aim to improve health by reducing the occurrence of nutrition related ailments such as malnutrition and diabetes.

**Gender and Food policies:** The relationship between gender equality and food is important in this region given the role that women play in the production and consumption of food. Gender policies in the region are aimed at improving women’s status and increase their access to resources and technology that aid them in improving their agro-based livelihood.

*“The patriarchal social order supported by statutory, religious and customary laws and practices; and the administrative and procedural mechanisms for accessing rights have continued to hamper the goal of attaining gender equality and women’s empowerment”-*  
National policy on Gender & Development, Kenya (2019)

“Social relations that exist between men and women in the society are patriarchal. These have influenced the division of gender roles, which are influenced by socialization, cultural and traditional practices. They have impact on income, resource allocation and opportunities to participate in politics, leadership, education and training”- National Strategy on Gender, Tanzania (2005)

Additionally, women are classified in the food policies as part of the vulnerable population as their individual food security status has consequences on their children’s development.

#### 5.4.6. Additional themes

Aside from identifying the policymaking process, exploring policy coherence, and identifying drivers of policy formulation, several additional themes were identified during the CIS process (Table 5.12). Each are described in more detail.

Table 5.12: Theme categories identified within the policies

Theme	Summary/Description	Examples of policies mentioned in
<b>Food security</b>	Policies which are aimed at improving and maintaining national food security	Seed policy (2010), Agriculture (2013) Food and Nutrition (1992)-Tanzania Food and Nutrition (2011)-Kenya
<b>Sustainability</b>	Focusing on both the utilization of resources and progress of the population	Water (2002), Seed (2010) - Tanzania  Food and Nutrition (2011-Ke)
<b>Development</b>	Encompassing economic and individual development	All assessed policies
<b>Women and Youth</b>	The two groups are highlighted as vulnerable and essential aspects of the population with regards to food security	Food and Nutrition (2011)-Kenya Water (1999), Food and nutrition (1992)- Tanzania
<b>Use of technology</b>	Exploiting technological innovation to promote food security.	Biotechnology (2006-Ke), Agriculture (2013-Tz),
<b>Increase in food production</b>	Contribution to achieving food security	Food and Nutrition (1992), Agriculture (2013)- Tanzania Food and Nutrition (2011)-Kenya

**Food security-** The issue of food security is included in a range of policies concerning the Environment (both countries), Biotechnology (2006-Kenya), Agriculture (both countries), Water (1999-Tanzania), Seed (2010-Kenya), Science and Technology (2012-Kenya) at the

country level and the EAC-ARDP (2006) at a regional level, in addition to the specific food and nutrition security policies.

Availability and access to food are the predominant food security pillars within the food-related policies. These two pillars, together with utilization, are featured or impacted upon by the various policies analysed in the study either directly (land) or indirectly (biotechnology). Stability is not prominently covered as a separate aspect in the policies but is interwoven within the three other pillars.

*Availability* is mentioned in resource and food policies,

*“High productivity agriculture which ensures food security”*- Biotechnology policy, Tanzania (2010)

*“Recognize the need to enhance agri-output and therefore encourages the use of biotech”*- Biotechnology policy, Kenya (2006)

*“To enable Tanzanians to produce food and use food...”*, *“To rectify the state of food availability”*- Food and Nutrition policy, Tanzania (1992)

*“To increase the quantity and quality of food available-* Food and Nutrition Security policy, Kenya (2011).

Use of the phrase “increased productivity” within the policies links increased production and hence availability of food, connecting it to the stability pillar, as increased availability means improved ability to withstand food system shocks. However, some of the ways to increase availability (e.g., expanding agricultural land) may be in certain policies, specifically environment and land policies. The Kenyan Land policy (2007) states that expansion places ASALs at risk, while in Tanzania, the Environment policy (1997) states that government policies since 1967 have, in prioritising agriculture, lead to encroachment of agriculture on marginalised land. Kenya’s Environment policy is in line with this, stating that unsuitable agriculture land use contributes to land degradation. *Access* to resources that aid in the production for food, indicates the need to balance the needs of the population (space to live, work, produce food) and maintaining/sustaining these resources for the future. Examples include Tanzania’s Water policy (2002) and Kenya’s Land policy (2007).

*“Sustainability is threatened by human induced activities. Plus, an increase in population and concurrent growth of economic activities requiring water as an input. There is a need to ensure that water for food security is readily available”*. Water policy, Tanzania (2002)

*“Rapid urbanization with a general disregard for land use planning”*-Land policy, Kenya (2007)

*“Strengthen the procedures of obtaining and supplying foods...”* - Food and Nutrition, Tanzania (1992)

*“Ensuring equitable access to and uptake of high quality and high impact nutrition...”*,  
*“To increase the quantity and quality of food available, accessible and affordable...”*-  
Food and Nutrition Security (2011)

Additionally, access and control of these resources is deemed unfavourable; land and gender policies mention the limited control of assets/resources by women, which may have negative impacts on food production and ensuring household food security. Subsequently the policies aim to improve access of resources, in particular by women, as stated by the Research and Development policy (2010-Tanzania) and the Agriculture policy (2013- Tanzania). Control of the resources such as land are mainly under governmental authority which may result in a level of uncertainty among the population. In Tanzania, according to the land policy, the land is the legal right of the President, owned by the office of the President, and as such can be claimed for public interest. There are measures outlined that ensure fairness and compensation of the process to the affected party. Kenya’s policies are still in the draft phases but the prevailing legislation, the Land Act, determines what products can be produced and where.

Access to food is also dependent on infrastructure, addressed in the trade and food policies. For example, Kenya’s Trade policy identifies a need for the improvement and development of infrastructure especially physical infrastructure (roads, markets, storage areas). Tanzania’s food policy outlined “the need for integration between the systems of transportation, trade, markets, food prices and people’s incomes”. The people’s ability to meet their food needs is covered in the food and nutrition security policies while the ease of access to food contributes to the stability pillar. The *utilization* pillar is dependent on the pillars of availability and access to food. This is recognised in the constitutions of both countries outlining the rights of people with regards to food, and their right to safe and nutritious food. The consumption policies come into play here with Food Safety policy (Kenya), the National Biotechnology policy (Kenya and Tanzania) as well as the overarching food and nutrition policy. These policies aim to ensure that the food being consumed is of nutritious value and in no way harmful to the consumer. Also included are the health policies focusing on the reduction of non-communicable diseases and emphasising the need for nutrition guidelines. The *stability* pillar is primarily a combination of availability and access elements. In addition, environmental policies play a role as the use of

environmental resources has been mentioned with regards to agriculture. The ability to produce food increases the availability and access status and the ability is dependent on having the environmental resources.

**Sustainability**-Assessment of the policies in relation to sustainability measures indicated that awareness for the need for adoption of sustainability practices has occurred as early as 1992. However, the ratification of the SDGs enhanced the incorporation of sustainability of the policies. Table 5.13 shows sustainability and associated words that appear in the assessed policies while Appendix F shows the interlink between policy statements and the SDGs. Sustainability may occur as both a policy goal and an instrument to attain other goals in the different policies.

*Table 5.13: Sustainability phrases and the policies they are mentioned in*

Sustainability phrases	Policies mentioned in	Specific (Policy and year)	
		Tanzania	Kenya
Sustainability	Resource	Environment (1997, 2013)	Environment 2013
Sustainable development	Technology		Biotechnology (2006)
Sustainable	Food, resource		Food and Nutrition security (2011)
Sustainable resource use	Resource	Land Environment (1997)	1997, Land 2007
Sustainable management	Resource		Environment (2013)
Sustainable environment	Economic	Trade (2016)	
Sustainable growth	Economic, technology	STI (1996)	
Sustainable production	Agriculture	Agriculture (2013)	Food and Nutrition (2011)

In the case of policies that concern resources, sustainability is both a goal and an instrument to achieve goals,

*“Sustainable management of resources...”* - Environment policy, Kenya (2013)

*“Sustainable management of these natural resources...”* - Land policy, Kenya (2007)

*“Right to development will be exercised taking into consideration sustainability”*- Environment policy, Kenya (2013)

In both countries' current environmental policies (1997 & 2014), sustainable management of resources is noted as being essential for development. As a policy instrument, sustainable use/sustainable management of resources, is outlined in actions such as land use planning, especially with agricultural lands. It is mentioned in the Agriculture policy (2013) of Tanzania, and the Environment policy of Kenya (2013) (Table 5.14). As a goal, phrases such as “*ensure sustainability, security and equitable use of resources*” in the Environment policy of Tanzania (1997) and “*protect land resources from degradation for sustainable development*” in the Tanzanian Land policy of 1997 are indicative of this. The Food Safety policy of Kenya (2013) aims to create a framework that leads to safe, sustainable, and ethical food production. Sustainable development is the goal for policies such as the Biotechnology policy of Tanzania (2010), as the regions seek to advance economically but in a way that is inclusive of the nature of production in the area. Trade policies outline the need to ensure sustainable agricultural development within their measures. Within the policies is enshrined the concept that a sustainable environment (created through sustainable use and management of resources) will ensure sustainable production leading to sustainable development of food systems.

***Development-*** Development appears in terms of economic (trade policies), advancement (technology policies) and societal (food policies). As is the case with sustainability, the term can be viewed as a policy instrument and as a policy goal.

*Development of irrigation systems is deemed important-* Agriculture and Livestock policy, Tanzania (1997)

*Development control has not been extensively used to regulate...*”- Land policy, Kenya (2007)

*“Ensure sustainable agricultural development and foster...”*- EAC- ARDP

*“Successful application of science and technology for sustainable national development”*- Science and Technology, Tanzania

As an instrument, development is noted in policies that deal with resources and technology aimed at creating environments or systems that contribute to the development of the country or the population. Within the policies, development as a goal comes across in the utilization of resources to ensure development and the provision of necessary tools to enable the people to be active contributors to the economy.

With regards to food production, resource management and supportive technology are seen by the government as key to meeting national development goals, and as such there are specific

policies to facilitate their use. Technology adaptation to local context and development are deemed essential by stakeholders for the overall development of the region. In relation to food production, biotechnology is seen as one of the solutions to food insufficiency while climate resilient techniques and technologies are needed to solve current food shortages,

*“High productivity agriculture which ensures food security and food self-sufficiency. To realize this vision, Tanzania considers science and technology to be central”-*

Biotechnology policy- Tanzania (2010)

*“Technology has potential to increase food production through yield improvement...”-*

Biotechnology policy- Kenya (2006)

It should be noted that embracing some of the newer technology solutions may be viewed as a last resort, especially with regards to genetic modification of food and cash crops for both countries, as exemplified in the biotechnology policy (Kenya) “...where alternatives are not available...” and “promotion of indigenous research and development”. There is an emphasis on promoting alternative techniques and technologies as alternatives to of the biotechnological ones.

Kenya’s Industrialization policy (2012) assumes that agriculture sector resources are responsible for providing the raw material for further processing and as such can be exploited for value addition into commercial products. This is echoed in the Kenyan trade policy, which aims to “create an enabling environment, sustained agriculture development, and targeting moving agricultural products up the value chain”. The industrialization policies, both in Kenya and Tanzania, indicate that there is a need to invest in the labour force to achieve development, through skills training.

**Women and Youth**-Within the policies, recognition is given to potentially disadvantaged population groups (Table 5.14). Women and younger people make an important contribution to the labour force working in the food commodity value chain within both countries.

*Table 5.14: Policies that mention women and youth and the context*

<b>Policies</b>	<b>Mention</b>	<b>Context</b>
Resource- land	Women & Youth	Limited control
Consumption - health	Women	Inadequate nutrient intake
Resource-gender	Women	Labour (Overworked/underpaid)
Consumption- food	Women- youth	Limited availability

In these policies women are referred to as disadvantaged in matters concerning land, specifically land ownership and agency, inheritance and decision making (Land policy-Kenya), accessing sufficient quantities of food (food and nutrition policies).

*“Removal of impediments to equal access to economic and employment opportunities for men and women”- Gender plan action, (2015) - Kenya*

*“For example, women are denied their right to access and control over resources especially after the death of their legitimate husbands.”- National Gender policy (2000, Tanzania)*

Other mentions of women are in regard to access to markets (Trade and inputs policy 2016, Kenya), and the need to promote technologies that reduce the chores and drudgery life of women (STI policy 2015, Tanzania).

*“Facilitate access to land and other production resources especially for youth and women”; “Enhance access to technology and promote adoption by vulnerable groups especially women and youth”- Implementation framework-Gender, Kenya*

The policies outline statements concerning the improvement of women’s’ rights, which in relation to food production is important as they form a large portion (approximately 70%) of the smallholder farmers who produce food. In relation to food security, national nutrient deficiencies and food sufficiency are identified as problematic for women (Health policy 2017-Kenya).

Youth are also specifically identified in the resource policies especially land policies, with specific statements along the lines of aiding them to gain or improve their access to resources to enable their development as farmers. Labour-related policies (Gender and Youth) have identified the need to include youth in both decision-making processes and activities concerned with raising awareness of the sustainable use of resources.

**Productivity-** Policy coherence is important in the productivity theme, including the need to balance increased productivity of food whilst respecting the fact that there are finite resources available to produce it (Environmental policy 1997-Tanzania), Land (1997-Tanzania) and Water (2002-Tanzania)), and risk management (Biotechnology (2006- Kenya)/Biosafety (2010-Kenya) policies). Innovation in relation to productivity was included in policies in relation to agricultural inputs and resources, with policies advocating for the development of new varieties of high quality and high yielding pest resistant plants and animals, (Science and technology policy, 1996-Tanzania).



The findings of the CIS provided a picture of the different food-related policies in the East Africa region as well as the formulation process and reasoning for the formulation among others. The relation between these findings and the research is discussed in the next section.

## **5.5. Discussion**

### ***5.5.1. Overview***

For food security to be established and maintained, there is a need for an enabling system to be in place, created by appropriate policies. The objectives of this CIS were to enable the understanding of the food related policies in Kenya and Tanzania by first identifying them, and then exploring how they were formed, including stakeholder engagement, and implemented as well as the predominant themes that emerged during the data extraction process. Identified themes were categorised around policymaking, policy coherence, drivers of formulation and sub themes such as gender, sustainability, development, food production, food security and technological use.

The policymaking process has been made as transparent as possible within the policy documents and there are efforts to make members of society aware of the opportunities to participate and efforts to improve stakeholder inclusion however there is still a need for improvement. Resulting policies indicate that there is an awareness of the need for sustainable use of resources to ensure continued development for society and the nation as well as the importance of coordination in any implementation measures and strategies to achieve the desired objectives. The policy coherence findings indicated awareness of this issue, in the form of potential redundancies in duties and responsibilities. The lack of harmonization contributes to a lack of accountability and the achievement of goals. In light of strategies being split into years, for example the Tanzania Trade Integration Strategy of 2009-2013 and the existence of over-arching goals such as the Development visions play a role in ensuring sustainable development and continuation especially given the potential turnovers of the governments every 5 years (General elections).

### ***5.5.2. Policymaking***

With the policymaking process following the previously established procedure, participation, monitoring and evaluation in policy development and implementation are of interest.

A common thread within the policy making process is the required presence of stakeholders, taking part in formulation, implementation and even the monitoring and evaluation, of policies to ensure their effectiveness. Unconscious bias may occur with invitation of previously known

representatives of society. One of the ways to counteract this is to increase participation of other members of society.

Stakeholder participation in policy making, that is stakeholder inclusion, is important as successful policies are those that are created with and by the people who will be directly and indirectly affected by the policies (Glass & Newig, 2019; Mulyaningrum *et al.*, 2013). Society is more likely to accept and work towards the implementation of policies about which they feel “a sense of ownership” to from their participation. Wordings in government documents such as the Development Visions and the Constitutions advocate for stakeholders, including citizens, participating in the decision making, while within the policies stakeholder participation is seen as important for sustainable development to occur. It is important to strengthen measures to increase stakeholder participation in development and implementation of the policies, in particular when the national policies are implemented at county and district levels.

There are different levels and classifications of public participation in decision making (O’Faircheallaigh, 2010; EPA, 2021) and care must be taken to ensure that whichever instruments are used for public participation are suitable so not to alienate the public (Bryson *et al.*, 2013). There is a reliance on workshops to include stakeholders in the policy formulation process in both countries. While the exact process for the selection of the stakeholders was not outlined explicitly in available policy documentation, both countries seek to understand the viewpoints of relevant stakeholders; researchers, special interest groups, and academics are specifically mentioned. At the same time, these participants are those identified by the relevant ministries. This means that there is a possibility for the introduction of selection bias during the stakeholder selection process. Additionally, the selected parties may inadvertently eliminate or overpower the voice of the people who will be impacted by the policy. Colli (2021) advocated for the use of different outreach strategies to ensure that the people affected by a particular policy made aware of opportunities to be involved. Awareness about opportunities for citizen participation is currently through announcements made by the government in newspapers and media as well as local authority representatives. In recent times, utilisation of social media is also becoming common to ask for public viewpoints on policies and awareness raising about policies. While this is the quickest way to spread information, some of the targeted population (such as those in the rural population who may not have access to ICT technology) may be unaware of these participatory opportunities and thus fail to participate. The effectiveness of these measures will be explored further under the social life cycle assessment in Chapter 6.

Participatory approaches in policy formulation extends the time taken between formulation and implementation (Smith & Montgomery, 2001). An example of this is the review of the Gender

and Development policy of Kenya which was based on a review of the previous Gender policy (2001) started in 2013 and finalised in 2018. However, within that same period, there were a series protests (in 2014 & 2018) by women for their rights (including the #MyDressMyChoice protest which led to establishment of other gender related laws). Such situations do provide an opportunity for the policymakers to incorporate the new viewpoints in their regulations as seen in this example. Identification of these opportunities is enhanced by the existence of a monitoring and evaluation system or procedure.

Monitoring and evaluation are key in ensuring successful policy implementation which enables the incorporation of lessons learnt into future policies. Several of the policies and strategies identified in the CIS, especially those for institutional reform (gender mainstreaming as an example), outline the monitoring and evaluation of the policies to measure changes and success. They include frameworks and schedules and, in some cases, specific organizations or committees are stated to be responsible for the evaluation. Existence of implementation plans with outlined goals and measures within the document are designed to aid in monitoring and evaluation.

However, the outlining of the process/ intention of monitoring and evaluation within the documents does not translate into reality in some cases. Limited co-ordination between the various activities and limited involvement of stakeholders in providing information may be problematic. This is another area where stakeholder participation is essential in collecting accurate data to assess the effectiveness of the policies. The challenges facing monitoring and evaluation results in ineffective reporting procedures and monitoring systems, reducing the availability of information needed for future policy adjustment and assessment of policy effectiveness (Kusek & Rist, 2004).

Overall, implementation and the subsequent monitoring and evaluation measures are reliant on the government's commitment, especially with regards to funding. Funding obtained from development partners or donor aid initially came with sets of conditions on expenditure, and introduction of a new set of conditions that must be met. In some cases, there were tangential to the objectives of the policies. An example of this was the backing of the structural adjustment programs that both countries focused on in the 1980s (Clift, 1988) with countries accepting aid with guided expenditure from the World Bank. However, the Paris Declaration (2005) and the following Accra Agenda for Action (2008) allowed for aid to be provided based on the recipient country's own assessment of their needs (Colclough and Webb, 2012). While this is meant to have improved and aided development, there has been noted aid fungibility (Njeru, 2003; Cooksey, 2012) in the countries with funds diverted which may lead to a lack of

implementation. Additionally, this ties in with the need to enhance the monitoring and evaluation of previous policies so that when it comes to implementing follow-up policies, the policy makers have accurate information to base their next steps on.

Policymaking in the region therefore still requires improvement from the aspects of stakeholder engagement, implementation, monitoring and evaluation.

### ***5.5.3. Policy coherence***

Assessing the implementation of the identified policies also led to the identification of the importance of policy coherence, both nationally and regionally. Food policies were used as the focal point (see Figures 5.9 and 5.10) and their relationships with other policies explored in Section 5.4.5. with increased productivity linking policies with regard to development of the people and the region. Whilst there is adequate policy coherence in the primary documents themselves, during the implementation stage there are concerns regarding duplication of efforts due to limited policy harmonization, resulting in different entities performing similar duties or having responsibilities scattered. The need for harmonization is still a source of concern, as noted as in the 2017 Food Safety policy (Kenya). Another source of concern is the impact of culture and customs acting as a barrier to effective, implementation especially with regards to gender-based rights (e.g., in relation to Land policies). The successful coordination of policies is exemplified in the banning of trade in aflatoxin tainted maize from Tanzania to Kenya (Trade and Food safety policies), emphasising the importance of collaborations between the various sectors involved in the food value chain. Achieving policy coherence, requires increasing the governmental capacities in merging national and international objectives, and identifying trade-offs between the different policies (OECD, 2015).

There is evidence within the policies about the need to realign policy objectives and activities with other sectors especially under the development visions for both the countries. Through policy coherence, development (economic and societal) is seen as an important factor within the food related policies and linked to sustainability. OECD have a dedicated platform, Policy Coherence for Sustainable Development, which places policy coherence as a target of the SDGs, particularly SDG 17.4 (OECD, 2016). The link between the development of the agriculture sector and regional development is outlined in the various policies, including the EAC-ARDP that stated the need to ensure sustainable agricultural development and foster economic growth on the community. Agriculture and food policies are also inter-linked but may conflict with conservation or resources regulation policies.

Furthermore, trade policies and associated legislations aim to improve availability and access to food. Marketing of agricultural and food products is of importance not only domestically but internationally, as the industry is a major contributor to economic advancement. With Kenya being a net importer and Tanzania a net supplier of maize (FEWS NET, 2018; GAIN, 2017), there is also a need for a reliable system of marketing between the two countries, with the aim of increasing trade. The trade policies call for increased trade between the regional blocs (EAC and COMESA) and increased exportation of value-added agricultural products. This objective ties in with the objective of increasing access to, and availability of, food by the populace outlined in food security policies, contributing to SDGs 1, 8 and 12. Efforts under the EAC banner have made improvements, however there are still some issues to be addressed, as seen as during the banning of aflatoxin maize from Tanzania to Kenya and reciprocal trade actions between the two countries (Ng'wanakilala, 2017). This indicates a need to harmonize the regulations with the regional bloc and adherence to the commitment to free trade.

The balance between resources and the population (policy tension between resource use and productivity) is acknowledged within the policies. Using food balance sheets and the demographic health surveys, the countries are able to determine the level of food insecurity in the region as well as identify the balance between food production, ownership and utilisation of resources (see the EAC-ARDP plan, the Land policy of 2007 (Kenya) and the Environmental policy of 1997(Tanzania)) With agricultural development seen as a way of ensuring food security it can be considered as a driver of the policy formulation, which assumes the actions of a number of policies are harmonious.

It is important to ensure policy coherence between the various policies as it contributes to their implementation, achievement of the goals in the policies and in turn to regional development.

#### ***5.5.4. Drivers of formulation***

Aside from agricultural development, drivers of policy formulation include the need to integrate external (global) agreements, lack of previous regulations, changes in development visions and changing governing regimes. Additionally, some identified themes such as sustainability and food security can be considered as drivers. Policies, especially in the period after 1990, state that international, continental and regional agreements and associated goals have been taken into account when being developed. This is to ensure that the regional development is not only progressing within national borders but aligns with the global measures. However, this requires that the regional/international agreements are modified and adapted to suit the country's capabilities and requirements. This ties in with the need for policy coherence and institutional capacities to cater to the merging of the different goals.

However, other drivers come into play including the need to tackle arising issues within the border such as the impact of climate change on food productivity, changes in technology and response to societal concerns. These drivers may also place pressure on current systems inadvertently negatively affecting policy objectives although their ultimate goals are to positively impact the situation. An example is the advent of Climate Smart Agriculture strategies that require significant initial funding and commitment but results in the farmers being more capable of dealing with the climatic changes. It shows that there is a constant need to adapt to changing circumstances and this is aided by knowledge gained through monitoring and evaluation exercises.

Drivers of formulation are dependent on knowledge which emphasises the importance of stakeholder inclusion in policy formulation.

#### ***5.5.5. Vulnerable populations and technology***

Within the food and nutrition policies, vulnerable populations at risk of food insecurity have been identified. Women, (pregnant women), elderly people and children are identified as vulnerable. The distinction of women is important as they are also mentioned in other policies e.g., land policy where they have limited rights or health policies where they are likely to suffer from malnutrition. Women are the key producers of food according to policies such as the Agriculture policy and Food policy, hampered by cultural and traditional customs in acquiring land (acknowledged and targeted for rectification within policies) water, training and credit to improve productivity (technology, finance, agriculture policies). The land policies of both countries seek to improve the access and ownership of lands by women while the water policies aim to bring water sources closer to the homesteads. A key feature in the agriculture development strategy is the emphasis on providing resources that will aid women and youth to access credit and better technologies, this will contribute to their economic standing and contribute to SDG 15. The theme “women and youth” within the policies contribute to the SDG 5a indicator which seeks to end all forms of discriminations against all women and girls everywhere by enacting reforms that give women equal rights to economic resources as well as access to ownership and control over land and other forms of property and financial services. These findings show that on the formulation aspect, challenges facing the vulnerable populations are understood and measures are outlined. However, policy implementation challenges may hinder these efforts.

Land and agriculture policies emphasise on the role that women in the region play in food production and the challenges that they still meet when it comes to acquiring and controlling resources that will aid them in their activities. Tackling these challenges will enable women to

increase and stabilise their access to food (Fletscher and Kenney, 2014; Quisumbing & Pandofelli, 2009). In the case of maize, this proportion of women is of importance as they are the farmers. Enabling them to own and control the resources, i.e., land contributes to their and their household' food security. Women are also the responsible party when it comes to consumption and household security making it important that their rights are understood, adhered to and efforts are made to make their economic status suitable. Youth attraction to agriculture is targeted in auxiliary policies such as the Youth Policy of 2017 and in development visions in the case of reducing unemployment. These are seen as steps that will aid in contributing to SDG 8. Importance of this is that economic independence increases food security as it means people have the ability to access food.

The focus of the policies on ensuring women's rights shows the impact of culture and customs on the role of women and is reminiscent of the African proverb, "if you educate a man, you educate an individual but if you educate a woman, you educate a nation" by Dr Kwegyir-Aggrey which places the responsible of development on women but does not provide the necessary environment to allow them to grow and achieve (Suen, 2013).

#### ***5.5.6. Inclusion of sustainability within policies***

Sustainability can be viewed as a driver for policy formulation, but also as an aim of policy implementation. Analysis of the policies indicated that the governing bodies do take sustainability into consideration when composing and implementing the policies such as the factors mentioned previously. Awareness of the changes in climate, noted population growth and the limited natural resources prompted calls for sustainable use of resources as noted by the establishment and ratification of global goals such as the SDGs (2015) and MDGs (2000) and development of policies in line with these targets nationally. Sustainability mentions within policies can be allocated according to the SDGs (see Appendix F) and shows that both countries work towards achieving sustainability in their national development.

Sustainability is noted in policies after 1992 within the region, which may be an impact of the Rio summit that was held in the same year, with the policies and associated strategies indicating an awareness among the policymakers on the need to create an environment that fosters sustainability. Sustainability is mentioned in relation to the sustainable use of resources, sustainable management and sustainable development, with the sustainable production and consumption of food in the region as a primary aim of the food related policies. This aim is seen as essential due to the implications to health and productivity of the society. There is a notable understanding for the need for sustainable resource use to lead to sustainable food systems however there are issues in achievement of the measures set out to ensure this. As

mentioned under policy coherence, there is a need for a balancing act, for example, how to increase productivity without the destruction of the environment. Sustainable consumption of food is highlighted within the food policies and health policies with regards to consumption of nutritional food especially for the vulnerable members of population including women and children.

As both countries have pledged to achieve the SDGs within their borders, inclusion within the policies is a significant step forward and there is a need to improve the monitoring and evaluation so that it is easier to determine progress.

#### ***5.5.7. Conceptual framing***

Stated in the overview and throughout the chapter, policies can be viewed as institutions and indicates that the regulative pillar of institutional theory is represented in the CIS. The policies indicate potential factors which may improve efficiency within the value chain. However, the normative and cognitive pillars of the theory are also represented in the policies and implementation strategies.

The assessment of the policies shows that they place the pressure on the value chain whether it is by directing the actions of the chain, or taking into account the culture characteristics when formulating, such as in the gender policies, or in amendments of policies to ease the implementation. Policy coherence indicates the interaction that arises from the different institutions for example between strategies for gender development and those of water usage and conservation.

One of the key shortcomings of institutional theory is the limited portrayal of power dynamics which in the CIS presents itself in the policy formulation in the form of biased selection of stakeholders to participate. This gap is explored in Chapter 6. Ultimately, the CIS indicates that the policies work towards altering the food value chain and lending to societal development but also indicates the inclusion of societal challenges in forming the policies and solutions.

#### **5.6. Summary**

A range of policies were identified in relation to the food value chain in Kenya and Tanzania. The synthesis provided an overview of the policymaking process and several drivers of this, including development and the need to have guiding regulations. Also identified was the status of stakeholder inclusion within the policy making process, the importance of women and their access to resources, the driving force of development, especially economic development, in the food sector and awareness of the policymakers' concerning sustainability. Conclusions based on the objectives include the fact that policies do take into account sustainability challenges



such as climate change, growing population and subsequently seek ways to meet the challenges. There is awareness of better technologies being developed, however there is also emphasis on optimization of indigenous based techniques which may be more easily accepted. This is reliant on stakeholder acceptance which may be enhanced by stakeholder involvement in the policymaking process which occurs according to the policy documents. Sustainability is incorporated within the policies as a driver, measure and a goal in policies developed before and after the setup of the SDGs. Assessing the contribution of the policies to SDGs is difficult with challenges to the monitoring and evaluation aspects.

The understanding of the formulation of policies and their implementation strategies is the first step in determining the level of stakeholder participation in policymaking and can be followed up with perception of stakeholders (in society) of the policies, understanding how the implementation of these policies affect the value chain and society, and if and how stakeholders are engaging with the mechanisms for policy involvement, such as workshops. This will be explored in the next chapter.

## **Chapter 6: Social -Life Cycle Assessment of the Maize Chain**

### **6.1. Overview**

The importance of stakeholder involvement, including engagement of citizens and consumers, in policy development was identified in Chapter 5. The need to ensure that a wide range of stakeholders are involved was also identified. However, there is a need to assess the extent to which stakeholders are, in reality, involved in developing and implementing food security policies in Kenya and Tanzania (see also Chapter 2).

In this chapter, the maize value chain in four areas of East Africa (see Chapter 3), is used as a case study to assess levels of stakeholder perceptions of the policy making process, the extent to which stakeholders perceive they are engaged in policy development and perception of relevant policies.

The chapter initially provides the rationale underpinning the need for the Social Life Cycle Assessment (S-LCA). It then outlines the S-LCA methodology applied in detail, presents the results and analysis, before providing the final discussion of the implications for policy development and implementation.

#### ***6.1.1. Need for assessment***

The importance of maize in Kenya and Tanzania cannot be underestimated. The crop, considered a staple product, is commonly used as the metric to assess regional food security (Mohajan, 2014; Magrini & Vigani, 2016). On average, a Kenyan individual may consume 64.1 kg of maize annually, with maize contributing to 56% and 59% of the dietary energy supply daily in Kenya and Tanzania respectively (Kenya Bureau of Statistics, 2019). Consumer access to maize, and its contribution to food security, is, however, not assured. The prevalence of moderate or severe food insecurity is at 56.5% for Kenya (DHS, 2014) and 55.0% in Tanzania (DHS, 2016) of the population. On a more positive note, the DHS 2016 findings established that nutritional status of children and women in the region is improving, as rates of stunting and wasting are decreasing.

Employment in agriculture increased in both countries between 2000 and 2018 in terms of the number of people employed. However, in terms of the share of total employment, Tanzania saw a drop from 83% to 65.3% within the agricultural sector, (Census, 2012) while Kenya saw an increase from 48.8% to 54.4% (Census, 2010). The increase in Kenya may be due to increased investment in agriculture within both public and private sectors, and increased motivation within the Kenyan population for self-employment. The decrease in Tanzania may be the result of people seeking formal employment in non-agricultural sectors. The number of women

employed in agriculture dropped in Tanzania, from 50.9% to 49.5% (DHS, 2014) and in Kenya from 58.2% to 54.4% (DHS, 2016), an indication of improving conditions for women in other employment options (GOT, 2019).

Agriculture contributes 25.5% of Tanzania's GDP a decrease from 36.5% (Census, 2012), and in Kenya contributes to 29.0%, a significant drop from 37.5% in 2000 (Census, 2010). The drop in contribution to GDP may be attributed to the region's drive towards industrialization and the impact of trade tariffs such as the export bans. The production of maize accounts for between 5.5 to 21% of household income in the East Africa region. The range of statistics indicate the importance of maize economically and nutrition wise as well as contributions to gender development.

A summary of the different channels for maize production and consumption in Africa is provided (Fig 3.2.). The first and second channels of production includes the smallholders who are responsible for the production of a large percentage of maize. These channels are relevant to understanding the interaction between policies and society, in particular in relation to engagement. The objective of this research is to understand the maize value chain from farm to fork, relating policies to socio-economic impacts occurring along the value chain using S-LCA methodology. S-LCA focuses on the social/socio-economic impacts of the product under study (Andrews, 2009). It is a method for assessing the positive and negative impacts of a product's life cycle upon society, for example as Nemarumane and Mbohwa (2015) did with the sugar industry in South Africa.

The chapter uses S-LCA to examine the impact of food-related policies on the maize value chain in order to understand the awareness and perception of policies, including the extent with which society engages with the policies, among stakeholders, including citizens/consumers. The analysis will contribute to understanding if maize is a food security indicator, and the impact that implementation of policies will have on this status.

The S-LCA was conducted through the analysis of both primary data (interviews with representative stakeholders of the maize value chain) and secondary data (literature on national statistics). Particular attention is paid to engagement of smallholder farmers. Combination of primary and secondary data enables the framing of primary data with the contextual framework provided by secondary data (Norris, 2014).

## **6.2. Social Life Cycle Assessment**

Life cycle assessment (LCA) assesses the environmental impact of a product from "cradle to the grave" (Sala, 2014). However, a shift in consumers' awareness of the effect of the choices

they make on the environment and their economies requires that the impacts of changes in choices also need to be assessed (Paragahawewa *et al.*, 2009). S-LCA is an extension of LCA that can take into account the social and socio-economic effects of a product through its life cycle. Social impacts are the consequences on human populations of any public or private actions that alter the ways in which people live, work, play relate to one another, and organise themselves to meet their needs and generally cope as members of society (Vanclay, (2002); Burdge & Vanclay, (1996)). This differentiates S-LCA from LCA, as the latter focuses primarily on the environmental impacts of a product (Roy *et al.*, 2009). To attain sustainable development, the environmental, social, and economic impacts of (agricultural) production must be considered (Du *et al.*, 2014) and S-LCA contributes to this more holistic approach.

S-LCA has been used to study the social impacts of various products such as fertilizers and building materials (Martinez-Blanco *et al.*, 2014; Hosseinijou *et al.*, 2014). In the case of food and food products, S-LCA has been used to assess the social impacts of pork (Zira *et al.*, 2020), wine (Arcese *et al.*, 2017), and sugar production (Prasara-A *et al.*, 2019). Application of S-LCA considers the social impacts linked to the different value chains investigated, which were not included in the “environmental” LCA. However, there are disparities in the methodologies used suggesting that there is also a need to develop a consistent (or “standardized”) framework for carrying out S-LCA. Use of S-LCA as a tool has been studied critically (Iofrida *et al.*, 2017) and in relation to its limitations or challenges (Wu *et al.*, 2014; Lehman *et al.*, 2013). For example, there is still a need for develop robust and appropriate methodology. It has also been observed that a comprehensive S-LCA is expensive to conduct. Human behaviour, and how this varies, also represents a barrier to systematic comparative analyses within an S-LCA framework (Paragahawewa *et al.*, 2009). Regardless of the challenges, S-LCA has been used as an appropriate tool to provide evidence for decision-making in relation to sustainable development and associated policies

The United Nations Environment Programme-Society for Environment Toxicology and Chemistry (Andrews, 2009; Benoît *et al.*, 2016) has developed methodological approaches to facilitate the conduct of S-LCA. The assessment process can be categorised into four major steps: goal and scope, inventory analysis, impact assessment and interpretation (Table 6.1).

Table 6.1: Steps for S-LCA (Adapted from Benoit and Mazijin, 2009)

Step	Characteristics
<b>Goal and scope</b>	The scope involves identifying and defining the object of the research. It may follow two approaches, identifying the causal link between the product and social impact or between the company (who makes the product) and the impact (Jorgensen <i>et al.</i> , 2008). Determining the scope aids in establishing the socio-economic indicators that will be used to carry out the assessment.
<b>Life cycle inventory analysis</b>	This step concerns the collection of relevant qualitative and quantitative information for the assessment. Based on the scope, the data needed may be generic (e.g., generalized statistics for a continent) or site-specific (e.g., national statistics). The guidelines for conducting the assessment states that interpretive assessment is appropriate.
<b>Life cycle impact assessment</b>	Clarification and characterisation are carried out according to ISO14044. Clarification involves identification of the selected stakeholder categories. Characterisation assesses the impacts across different stakeholder groups. The collected data/information is translated to impacts that are classified, characterised and evaluated.
<b>Interpretation</b>	The societal impacts of the product along the chain are assessed, including whether the impacts are positive or negative, the significance of these impacts, and the identification of significant issues. The S-LCA results in recommendations based on the findings, which will enable companies/governments to strategize for sustainable development.

Benoit and Mazijin (2009) has suggested that there are five stakeholder categories: community, value chain actors, workers, consumers, and society. The categories and their indicators can be identified using with secondary or primary data, and in some cases both (Table 6.2). There is an emphasis on identifying relationships within and between categories. Some categories may be emphasised more than others (Wu *et al.*, 2014). The guidelines for conducting an S-LCA allows for the user to pick which indicators to use and not all indicators must be applied.

### 6.2.1. In context of the research

S-LCA has the potential to contribute significantly to the policymaking process as it helps to define better policy options towards sustainable development (Andrews, 2009), given that it

can aid in identifying societal challenges along the product's life cycle. As is the case for policymakers, citizens need to know where externalities<sup>7</sup> occur and how significant they are in relation to their daily lives. In addition, the method allows for the collection of the different perspectives of stakeholders within the maize value chain, which can be combined with the projected impact of policies on regional level, to formulate the impact of the policy on society. The application of S-LCA will allow expansion on findings of stakeholder involvement in Chapter 5.

The objectives of applying S-LCA are to:

- i) Determine the relation of policy changes in the maize chain to changes in society.
- ii) Allow for the determination of the importance of maize production and consumption in Kenya and Tanzania
- iii) Assess whether maize is the appropriate food for assessing food security in the region.
- iv) Assess how the existing policies being implemented will have impact the stakeholders identified and society as a whole.

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<sup>7</sup> Social externalities are the positive or negative consequences of an economic activity on the quality of life of another (Costanza *et al.*, 2007)

Table 6.2: Stakeholder categories with respective indicators and the potential sources for the information required (Source: Author's own)

<b>Category (Sub-categories)</b>	<b>Indicator</b>	<b>Secondary data</b>	<b>Primary data</b>
<b>Community (Community engagement, cultural heritage, local employment, access to resources and living conditions)</b>	Associations	Registrar of societies	Farmers, processors, consumers
	Diversity		Farmers, processors
	Relationship		Extension officers, farmers, brokers, academia
	Designated roles in food production	Census	Farmers,
	Local employment	Regional data	Farmers, Processors, Suppliers
	Land ownership	World bank/ Census	Farmers
	Access to water supply	World Economic Forum	
	Use of environment; fertilizers, pesticides		
	Infrastructure (markets, roads, milling stations, storage)		Farmers, processors, brokers,
	Community education awareness	NGO/Government. data	Farmers, processors, consumers
Access to technology		Farmers, Processors	
Well-being (Illness, nutrition)	Country stats/ World Bank	Farmers, processors, academia	

<b>Category (Sub-categories)</b>	<b>Indicator</b>	<b>Secondary data</b>	<b>Primary data</b>
<b>Value chain actors (fair competition, supplier relationship)</b>	Relationships	World trade org/OECD/UNCTAD	Farmers, brokers, processors, consumers
	Supply chain		Farmers, brokers, processors, consumers
	Social responsibility		Brokers, processors
<b>Consumers (health and safety, end of life responsibility, feedback mechanism and transparency)</b>	Consumer complaints	Consumer associations reports	Consumers, extension officers
	Systems for consumer health and safety	Regional data	Consumers, processors, farmers
	Information access for consumers		Processors, consumers
	System for communicating compliments, complaints and concerns		Processors, consumers, consumer organization
	Transparency		Processors
<b>Worker (freedom of association and collected bargaining, child labour, salary, hours of work, equal)</b>	Product disposal and recycling		Farmers, consumers, processors
	Presence of unions	ILO	Farmers, processors
	Children in the value chain	ILO, World Bank	Farmers
	Income generation	ILO	Farmers, processors
	Working hours		Farmers
Discrimination by gender	Gender stats, World Bank	Farmers, processors	



<b>opportunities, health and safety)</b>	Health & Safety (accidents and illnesses)		Farmers, processors
<b>Society (commitment to sustainability, economic development, technology development)</b>	Awareness of sustainability	Ratification of SDGs	Farmers, consumers
	Economic contribution	World Bank, GDP country report, Economic statistics	Farmers, consumers, extension officers
	Involvement in technology transfer programs		Farmers, processors

### **6.3. Methodology**

Four rural areas were selected in East Africa on the basis that they were medium to small-scale producers of maize. Four areas were considered appropriate with regards to available project resources (time and budget) and for the purposes of comparison (two sites in each country).

The S-LCA was carried out through collection of secondary data such as economic and demographic information of the population within the case study areas (Kenya and Tanzania) and combined with primary data collected through interviewing value chain participants (farmers, brokers, processors, extension officers, consumers). Benoit and Mazijin's (2010) guidelines allow for the use of both secondary and primary data with an S-LCA. This approach was helpful given the limitations imposed by the Covid-19 pandemic, which restricted the collection of primary data.

#### **6.3.1. Methods**

Primary data collection was conducted through semi-structured interviews using an interview guide tailored to the different stakeholder categories (See Appendix E). The interview guide was developed following the objectives and research questions outlined in Section 6.2.1 and Chapter 4 (4.2.2.). Face-to-face interviews allowed the interviewer to consider the respondents' availability and the limited communication measures in the study areas, such as intermittent phone and internet connections.

#### **6.3.2. Sample selection and areas**

In Kenya, the study areas were Nakuru and Nyeri while in Tanzania, the study areas were Kagera and Kilimanjaro (See section 3.1.3.).

The S-LCA scope is confined to the maize value chain within these four regions in East Africa. Food-related policies are meant to benefit of the entire population, and analysis of these areas using S-LCA will allow for sampling of small-scale stakeholders and the determination of their viewpoints and integration of these into policy formulation, as well as the collection of the impact of policy in localised settings, where the entire value chain in one area is assessed from farmer to consumer (*the impact assessment step*). Additionally, the research will help understand the appropriateness of using maize to assess food security in the region in areas where it is not the main food staple or source of livelihood (*interpretation step*). The research considers both secondary data (in the *inventory analysis step*) and primary data.

Given the premise of collecting viewpoints of the representatives along the maize chain, the same logic applied for organizing the policies in Chapter 5 (production-processing-consumption) was used to identify potential respondents: farmers, brokers, processors and

consumers. The initial step of introducing the research to the local authorities, as required by the research permit regulations, brought the interviewer in contact with local authorities, who hold official records of different stakeholders within the region, allowing for initial identification of potential participants. However, there may be other relevant stakeholders not known to the authorities. Stakeholder inclusivity was increased through the utilisation of the snowballing technique, where the initial participants were asked if they knew other stakeholders who are involved in the same activities. Snowballing techniques have been used in other studies such as Saint Ville *et al.*, (2017).

The researcher provided letters of introduction to the interviewers to use at the local authority offices. Once introduced, interviewers requested assistance in identifying a number of key informants and participants in the region. The initial participants were asked to identify other potential respondents based on their knowledge and experience of working in the maize value chain. Sample size varied in each area due to the need to limit interactions with participants during the Covid-19 pandemic. In addition, given that the villages had relatively small populations, care was taken to avoid neighbouring farmers who might provide very similar responses. This was not the case with other stakeholders as they were geographically separated from each other.

### 6.3.3 Data

Primary data were collected in the four case study areas (Table 6.3) along the value chain, with views and opinions were sought from farmers, brokers, processors, and consumers. The details of the respondents are outlined in Appendix G.

*Table 6.3: Number of respondents in each category and case study area*

<b>Category</b>	<b>Kagera (Tz)</b>	<b>Kilimanjaro (Tz)</b>	<b>Nakuru (Ke)</b>	<b>Nyeri (Ke)</b>	<b>Total</b>
<b>Farmers</b>	7	7	6	6	26
<b>Brokers</b>	3	3	5	6	17
<b>Processors</b>	4	3	2	2	11
<b>Consumers</b>	5	5	5	1	16
<b>Total</b>	20	19	19	16	74

Secondary data consisted of statistics sourced from the national databases including the Demographic and Housing Surveys (DHS) within both countries and the census data from the last two census collection exercises. Other databases, and derived data, are outlined in Table

6.4. The data collected aided in determining the impact of input (fertilizers) regulations/policies in terms of statistics and economic importance of agriculture on society (number of people involved, income generated, national importance).

Table 6.4: Different databases used for secondary data collection

Category	Region (International/national)	Specifics of data
Participation in policy making	OECD (International)	Government at a glance 2021
Gender dynamics	National	Genderstats/DHS/Census Women and Men statistics
Food production	FAO (international/national)/ National food balance sheets	Food balance sheets- Tanzania and Kenya Tanzania- <a href="https://www.nbs.go.tz/index.php/en/census-surveys/agriculture-statistics/442-tanzania-food-balance-sheets-report-2014-2017">https://www.nbs.go.tz/index.php/en/census-surveys/agriculture-statistics/442-tanzania-food-balance-sheets-report-2014-2017</a> Kenya- <a href="https://www.knbs.or.ke/download-category/enhanced-food-balance-sheets-for-kenya/">https://www.knbs.or.ke/download-category/enhanced-food-balance-sheets-for-kenya/</a>

#### 6.4. Analysis

The interviews were conducted in both English and Swahili, depending on the interviewee's preference. The information was collated, transcribed with consecutive translation into English and uploaded onto an Excel sheet by the researcher. Notes were taken and added to the respective respondent response. For the secondary data, the reports were read, information was derived and compiled into an Excel sheet. Most of the information was numerical in nature with additional text explaining context as needed.

The compiled primary data were coded for analysis. The coding technique used in the analysis was a hybrid coding approach, allowing for the combination of inductive and deductive coding. A hybrid coding approach is common in qualitative analysis as it allows for discovery of new codes potentially not covered by existing literature while ensuring the scope is wide enough with distinctive parameters (Minero *et al.*, 2015).

Fereday and Muir-Cochrane (2006) demonstrated the validity of the hybrid approach in thematic analysis; outlining the use of a “codebook” developed *a priori* based on the research questions. Such a code book was developed. Table 6.5 outlines the themes and categories of codes generated from the data. The data underwent two main rounds of coding; initial coding, combining both descriptive and structural techniques, as well as *in-vivo* coding that allowed for the participant’s words to be used to develop the codes. The second round involved line-by-line coding to aid in identifying additional codes. Following Fereday and Muir-Cochrane’s (2006) outline, the identified codes were grouped into categories (“code categorisation”) which aided the identification of themes for analysis. The final step of the coding approach was the “corroborating and legitimizing of the coded themes” (Fereday and Muir-Cochrane, 2006; pg. 90) by identifying overarching themes.

Figure 6.1 illustrates the process using production as the *a priori* theme, with categorised codes such as inputs for maize production, challenges with production of maize, gender and size of cultivated land. Themes developed from the data include labour size within the farms, women, finances for starting and operating their activities and access to resources among others. One theme, women under gender dynamics, represents an additional code resulting from the thematic analysis (see Appendix G as well).

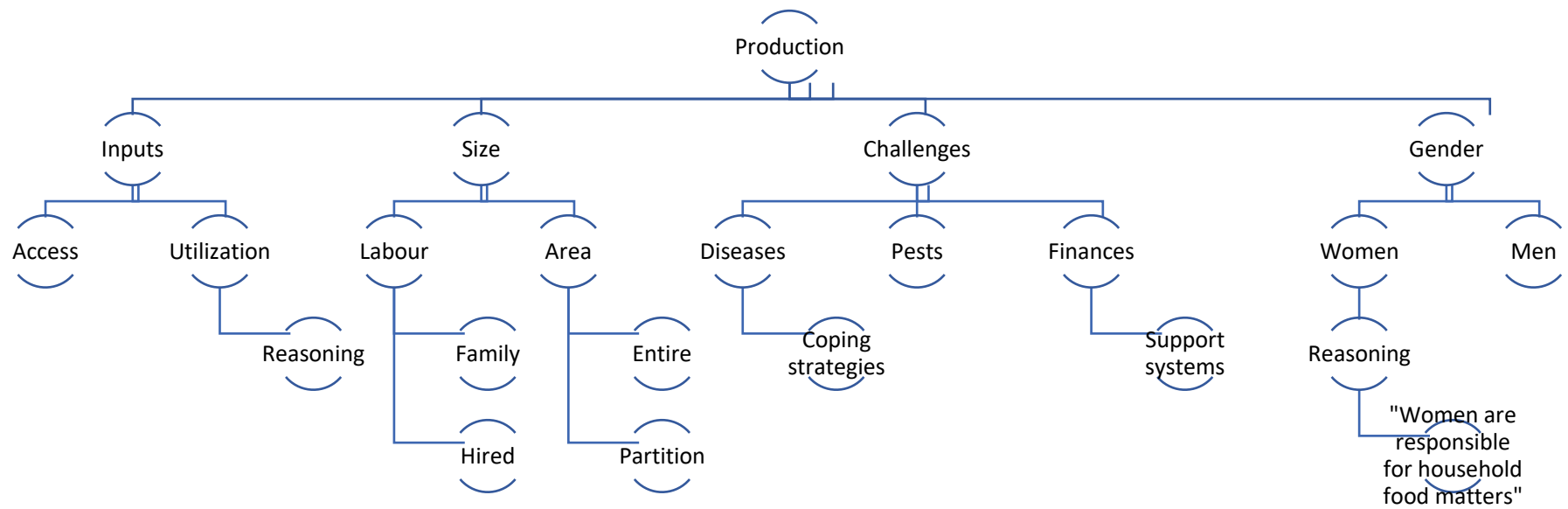


Figure 9.1: Diagrammatic representation of the coding activities using a priori theme-production; showing code categorisation-inputs, size; challenges, gender, codes

Table 6.5: The coding framework used for the analysis

Themes (Pre-defined from objectives and <i>a priori</i> themes)	Categories of codes	Themes identified (from data, empirically identified themes)	Empirically identified Sub-themes	Examples of codes
<b>Awareness</b>	Awareness of policies	Types of policies Perception of policies Attitude	Means of awareness Policy programs	Implementation, Impact, participation
	Awareness of sustainability	Sustainability measures Perception	Means of awareness, perception	Sources of information, measures known
<b>Production/Operations/Consumption</b>	Available resources	Resources, Access, Seasons Support systems Maize dependency, Communication	Inputs, land allocation, output, market, availability, preferences, reasoning for maize/importance in the region	Bags harvested, income generated, input sources and use
	Challenges	Environmental challenges, financial challenges	Pests and diseases, market issues,	Impact, forms of challenges
	Coping strategies	Diversification Preventative measures	Farm based diversification, Product diversification, other business diversification	Cultivation of other food crops/cash crops, utilization of pesticides
<b>Relationships</b>	Financial	Availability of financial services	Loans, financial support (cooperatives)	Utilization (non-utilization)
	Regulatory	Availability and nature of relationships	Advisory, licensing, educational	Positive-Negative interactions,
<b>Economics</b>	Finances	Income generation,	Dynamics of the market	Purchasing price, earnings

		capital availability		along the chain, buying standards,
<b>Gender dynamics</b>	Gender presentation	Decision-making, culture	Perceptions, attitudes to working with specific gender	Women as farmers/consumers

## 6.5. Findings: Stakeholder Categories

According to the S-LCA guidelines, the findings can be organised according to stakeholder categories and impact categories. Stakeholder categories in this case were farmers, consumers, processors, and brokers while impact categories are defined as “*logical groupings of S-LCA results, related to social issues of interest to stakeholders... stakeholder categories and subcategories are the basis on which to build*” (Benoit and Mazijin, 2009; pg. 70), in this case includes policymaking and awareness among others.

The data, once collected and analysed, were organized in two sections; initially according to stakeholder categories, then cross cutting themes from the stakeholder categories were used for the second section under the step of impact categories.

The following sections are arranged according to the S-LCA stakeholder categories, from farmers to brokers to processors and consumers, with the data further arranged according to identified underlying themes.

### 6.5.1. Farmers

The following results are organised under the themes as identified in Table 6.6.

Policies, awareness and impact: Farmers were unevenly split with most of them indicating that they were aware of policies but a significant portion unaware. When asked to mention the policies of which they were aware, responses could be classed as those that are financial in nature (such as tax regulations), operational (business licenses and permits), health and safety (sanitation, worker safety) and in some cases, food specific (such as food safety, quality control). Farmers reported being aware of regulations such as those that deal with seeds of good quality, utilization of pesticides among others.

“Yes, I am aware [of regulations and policies] and I do fully understand them such as maize hygiene with regards to aflatoxins. I find them effective for example delivering maize that is not clean will lead to lower prices.”- M15 (Man, Farmer, Kenya)



The means by which they became aware of policies included education (formal), interactions with other farmers, neighbours, extension officers and media. The majority of the farmers were aware that there are regulations that they are meant to follow, even if they did not provide examples. However, a select number among the respondents in both countries (less than four) stated that there are no regulations to follow even though they have relationships with agriculture officers.

*Table 6.6: Themes identified in the farmers category*

<b>A prior</b>	<b>Codes from data</b>	<b>Code categories</b>	<b>Themes</b>
<b>Awareness</b>	Education, extension officers, knowledge, pest control, crop rotation, loans, sustainability measures, policies, “Kilimo Uhai”, “Kilimo kwanza”, changes in production, no impact, beneficial, positive, willingness	Awareness programs, financial services, regulations, awareness, sustainability, means of awareness, impact awareness, participation, perception, types of policies, attitude	Awareness of policies Awareness of programs/support systems Awareness of sustainability Perceptions of policies, Perceptions of sustainability measures
<b>Operations</b>	Seed varieties, bags harvested, acres/ha, decision-making, size of household, labour, inputs, knowledge, capital, income, loans, use of harvest, marketing, weather conditions, pests, use of specialised bags, diseases, drought resistant seeds, advice, diversification, planting techniques, poor markets,	Inputs, access, utilization, means of awareness, challenges, coping strategies, finances, support systems, knowledge,	Access to resources Awareness Knowledge routes Cultivation techniques Economics Challenges Coping strategies

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	input sources, neighbours, time spent, commitment to farming	marketing, resources	
<b>Relationships</b>	Decision making, men/women roles, knowledge, sharing, education, extension officers, input dealers, farmers as a source, brokers, extension officers, existence of a relationship, regulatory, advisory, supportive, non-supportive, agri-finance, NGOs, challenges, gender, beneficial, favourable	Gender divide, awareness, parameters of the relationships, types of relationships, participants of the relationship, challenges	Parameters Perceptions Gender Challenges Coping strategies
<b>Economics</b>	Costs, income, marketing, purchasing/ selling locations, imports-exports	Marketing, Operational capital Income	Marketing, Income power
<b>Gender dynamics</b>	Perception on roles and presence	Perceptions Consumers, labourers	Perceptions of stakeholders

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When asked about any noted impacts/effects of the policies on their activities, farmers stated that it was either positive (increased productivity, increased adherence to regulations, ensured food safety and quality) or non-impactful (no change in operations, no direct effect on production).

Sustainability awareness and measures: Farmers showed the highest level of awareness perhaps due to measures that they take to ensure that their productivity levels are constant and increasing every season. Measures that are undertaken include crop rotations/fallowing/replenishment of soil nutrients.

Access to resources: For the maize chain, resources of importance include land and inputs such as seeds, fertilizers and water. Farmers in the study area have the ability to allocate land portions for the cultivation of maize. The farms fit the classification of smallholder farms ranging between 1 to 4 acres in Tanzania, with one outlier of 30 acres, while in Kenya, size allocated range from 0.5 acre to 1 acre (see Table 6.7).

Table 6.7 Sample of land area used to cultivate maize

Country	Farmer	Tanzania (acres)
<b>Tanzania</b>	M1	2
	M5	1
	M14	30
<b>Kenya</b>	M15	1
	M21	1.8
	M22	0.5

Understanding the importance of seeds for optimum production is linked to the variety of cultivated seeds (see Table 6.8) and changing these plant varieties by the farmers. The farmers stated that they had changed varieties of seeds as the new varieties possessed more desirable agronomic characteristics compared to those they had planted previously. Characteristics such as high yield and short growing duration are common reasons within both Kenya and Tanzania for the selection of the different varieties. For instance, a woman farmer in Kagera observed that

*“I plant an improved variety (Seedgro) and I have been planting it for 3 yrs. I planted another variety (Nyonda), however I changed because that variety took long to grow.”*-M6, (Woman, Farmer, Tanzania

In Kenya, respondents also attribute their acceptance of certain varieties, or the reasons behind decisions for change in variety to the “adaptability of the variety” to the region (such as the seed variety H6213) and its resistance to disease and pests like the fall armyworm<sup>8</sup> (change from H6213 variety to H628 variety). This is important for one area as the use of pesticides is prohibited in the region, as noted by the farmer in Nakuru.

*“I do not use pesticides as they are not allowed in the region, but I used chemical-based fertilizers as I have no other option.”- M15 (Man, Farmer, Kenya)*

Other reasons include the number of uses a product can be put to, such as the long stalks being used as feed (H629 variety), while other farmers changed varieties due to the fact that the previous variety did not have a market.

*Table 6.8: Seed varieties and characteristics that farmers find favourable*

<b>Country</b>	<b>Variety</b>	<b>Characteristic</b>	<b>according to Respondent farmers</b>
<b>Kenya</b>	H629	High yielding	M15
	H6213	High yielding	M18
	H628	High yielding	M21
	H513	Adapted to the local environment	M23
	Nyandarua	High yielding and disease resistant	M19
<b>Tanzania</b>	Seedgro	Short growth	M2
	DR 777	Better quality	M10
	Meru	High yielding	M12
	Agrovet		
	Panna	Short growth & high yielding	M14

A few farmers reported using farm sourced seeds, which are seeds from previous crops or traditional varieties, indicative of culture persistence and economic preference.

*“I use traditional (kienyeji), I planted other varieties before, but the cost of purchasing was too high. I noticed that the variety was of good characteristics”-M4 (Man, Farmer, Tanzania)*

Sourcing of the seeds is through input stores, the farms (where seeds are saved from the previous harvest), government and private seed dealers. It is rare for farmers to use seeds retained from

<sup>8</sup> Fall armyworm, a lepidopteran pest, with the capabilities of affecting maize production on all stages of growth.

the previous harvest but there were a few respondents in both countries who stated that they do so,

*“Planting material is sourced from the farm as it is a high yielding variant and is also disease resistant”*-M19, (Man, Farmer, Kenya)

*“I obtain the seeds from the farm, and I plant them because they are the ones that I have.”* -M9, (Man, Farmer, Tanzania)

Table 6.9: Fertilizer quantities in the region (FAO, 2019)

<b>Component</b>	<b>Africa (%)</b>	<b>Kenya (kg/ha)</b>	<b>Tanzania (kg/ha)</b>
<b>Nitrogen</b>	3.5	10-30	0-10
<b>Phosphate</b>	3.5	20-35	0-5
<b>Potassium</b>	2	2-5	0-2

African countries have used inorganic fertilizers at a lower rate than the rest of the world and this was also found in the individual countries considered in this research (Table 6.9). FAO’s yearbook statistics put chemical fertilizer use in Kenya and Tanzania at 91 thousand and 214.1 thousand tonnes in 2018, an increase from 2000 where use was at 69.9 thousand and 22.4 thousand tonnes respectively (FAO, 2019). Programs running at the time such as “Kilimo Kwanza” may have been a contributing factor to the increase as well the relative ease of access of the chemical fertilizers. On the side of pesticide usage on the continent, the average range between 1990 and 2018 was 0-0.5 kg/ha with 30% of pesticide use attributed to insecticides. In the individual countries, pesticide use in 2018, was at 1578 tonnes and 1 tonne for Kenya and Tanzania respectively (FAO, 2018).

Responses from the interviewed respondents indicate the use of fertilizers prior to planting with “top-ups” during the growing period and pesticides during the growing season. There is a trend for using organic inputs more than inorganic: out of the 26 farmers interviewed only five used chemical-based inputs with the reasoning that:

*“I am an organic farmer, so I use natural based pesticides, traditional means of pest control. I do this to ensure that my produce is organic and sold as such in the market. Yes, I use fertilizers, traditional natural forms of fertilizer.”*-M1, (Man, Farmer, Tanzania)

In Kenya, pesticides/inorganic fertilizer was used because “it is readily available”. In Tanzania, some of the farmers reported not using chemical-based inputs as they practised organic farming.

Instead, they sought alternatives such as specially formulated bags/sacks to combat pest induced loss. There is a reliance on traditional/natural based forms of fertilizers and pesticides in the region prompted by a lack of access and a preference for culturally based techniques such as the use of ash.

Access to, and use of, pesticides and fertilizers is governed by the acts of parliament that fall under the purview of the agriculture ministry in both countries. Use of chemical pesticides is a source of concern for the stakeholders as there are cases of improper use of the chemicals, introducing into the value chain a risk/hazard to food safety as raised by a broker:

*“Policies that increase awareness among the stakeholders especially the farmers are necessary. Also following up to make sure that the policies are being implemented and followed so that food safety and security are ensured.”* - D2, (Man, Broker, Tanzania)

Awareness of the sources of the varieties (and associated inputs) vary with the input (seed) dealer, extension officers and advertisements being the main means. Experience and shared knowledge between the farmers were also influential. Access to and utilization of inputs such as fertilizers and pesticides is controlled by several factors. Organic farm produce is one such factor, with farmers outlining the usage of the traditional preservation methods as one way to eliminate chemical/non-organic preservatives and allow them to market their goods as organic. Cost of inputs and the ease of obtaining them are additional factors relevant to usage of the inputs. In Kenya, access to organic inputs is limited, with inorganic fertilizers being easily attainable thus encouraging use in the region. There is also substantial use of composite fertilizers, farmers mix the fertilizers (organic and inorganic) while in the case of pesticides, farmers vary from not using any to mixing organic and inorganic pesticides to only using herbicides.

The presence of input stores/or seed and other farm inputs contribute to access to inputs: the closer the stores, the closer the relationship between the farmers and dealers and knowledge sharing.

Marketing and utilization: Depending on the allocated land (plus other factors), output for the farms ranged from 150 kgs on 1 acre to 300 sacks (128kgs each) on 30 acres in Tanzania. In Kenya the range is 3 bags from 0.5 acre to 65 bags from 1.8 acres. The route taken by farmers in terms of marketing their harvest is direct as most of them go straight to the market or sell their crop through a broker. They did not sell to processors directly. In some instances, fellow farmers are their customers. The market for the farmers is therefore non-specific, as (e.g.) they sell to whoever wants the produce (Tanzania) or the ones who offer the higher price (Kenya).

For farmers, relevant economic factors influencing decision-making include the cost of producing maize, and the associated income generated. Basic production (the minimum) costs are 1800 Kshs (\$16.70) or 20,000 Tshs (\$8.65). Based on farmer responses, the cost of production varies with factors such as utilization of machinery, hired help and availability of the necessary inputs. Obtaining capital to fund production is through various means, as farmers in the region would sell their harvest or have diverse income streams.

Access to financial institutions to supplement this is deemed to be difficult but available through institutions such as “VIKOBAs”, agri-finance institutes or acquaintances. Farmers stated that loans were for emergencies and in some cases difficult to obtain due to size of farms (they are small) and perceptions that it is difficult to pay back the loans.

Farmers’ earnings are based on the market conditions which determine the price of the produce. The income generated is dependent on the quantity of maize sold by the farmers (Table 6.10). In Tanzania, if a farmer sells 4-8 sacks @ \$21 each (50,000 Tshs), they generate about \$168 (400,000 Tshs). In Kenya, a farmer may sell one bag @ between \$ 18-28 (2000-3000 Kshs). Earnings increase during times of low production/productivity. (NB. *Using the rate of \$1=2,312 TZS and \$1= 108 Kshs*).

*Table 6.10: Projected income returns for sample farmers based on their responses*

<b>Respondent</b>	<b>Quantity and price of each</b>	<b>Income generated</b>
<b>M12</b>	8 sacks @ \$21 (50,000 Tshs)	\$ 168 (400,000 Tshs)
<b>M15</b>	10 sacks @ \$ 23 (55,000 Tshs)	\$ 230 (555000 Tshs)
<b>M19</b>	20 bags @ \$18 (2000 Kshs)	\$360 (40,000 Kshs)
<b>M23</b>	3 bags @ \$ 29 (3200 Kshs)	\$ 87 (9,600 Kshs)

There is a disparity in earnings between the regions but not a large one. An example is that Nakuru farmers sold one bag between \$18-28 (2000-3000 Kshs) while Nyeri farmers’ earnings were between \$18-29 (2000-3200 Kshs). Tanzanian traders operate on the “Debe” system, with mainly brokers purchasing Debe 5 or Debe<sup>9</sup> 6 which is 10 sacks with each sack weighing 128 kgs. Debe 5 in Bukoba goes for \$8 (20,000 Tshs) but it sells for \$ 21 (50,000 Tshs) in Moshi. When all the prices are converted to dollars, Kenyan farmers seem to earn more than the Tanzanian farmers. This may be attributable to greater supply in Tanzania, which reduces prices compared to the higher demand/lower supply dynamics in Kenya.

<sup>9</sup> A locally made container, commonly metal in nature, resembling a bucket

In relation to the harvest, options exercised by the farmers are to retain it, sell it or a mix of both (Table 6.11). Majority of the interviewed farmers sell a portion of the harvest while retaining portions for domestic consumption. The amount sold varies, as farmers aim to sell either the excess harvest (retaining the larger portion) or *vice versa*. Exceptions were noted where some respondents sold their entire harvest, while others retained all of the harvest for domestic consumption,

*“I cultivate maize on 1 acre obtaining a harvest of 10 bags for domestic consumption.”* -M19, (Man, Farmer, Kenya)

The maize harvest retained by farmers is processed/milled at the available milling stations/centres in the areas. Occasionally farmers (1 in Tanzania, 1 in Kenya) have their own milling centres. In Nyeri (Kenya), farmers outlined the challenge of accessing the milling stations stating that they are few and far necessitating travel.

*Table 6.11: Options followed by farmers with regards to maize harvests*

<b>Respondent</b>	<b>Harvest</b>	<b>Land size</b>	<b>Output</b>	<b>Market Options</b>
<b>M1</b>	Retains all	2 acres	20 sacks	No selling
<b>M4</b>	Retains 100kg	3 acres	800 kgs	Broker/Consumer
<b>M10</b>	Retains ½ of the yield	1 acre	10 to 12 sacks	Market
<b>M21</b>	Retains 2 bags	1 acre	8 bags	Broker
<b>M26</b>	Retains 2 bags	1 acre	10 bags	Broker

*Challenges and coping strategies:* Farmers listed pests, diseases and animals consuming the crop followed by climate change and low prices as important challenges. To deal with these, the farmers use coping strategies such as seeking advice from extension services, using chemicals (pesticides), starting the production process early (planting early, purchasing and storing inputs such as fertilizers early and harvesting early),

*“Drought, pests and animals are my main challenges. I cope by planting seeds that are drought resistant, planting early to take advantage of the rain and using pesticides to cope with the pests.”*-M8, (Man, Farmer, Tanzania)

Other strategies include hoarding harvest to get better prices, diversifying their production and income generated activities, changing seed varieties and in some cases reverting to traditional



methods of production, such as the utilization of ash and treated cement. Seeking aid from neighbours in the form of obtaining seeds and advice is another coping strategy.

*Support systems:* Extension offices and neighbours form part of the support system for the farmers. However, when asked about the existence of support systems, the response was negative for many respondents. In Tanzania, some respondents answered positively, emphasising on the availability of extension services as the support system. In Kenya, a few of the farming respondents stated that there was support in the form of training offered by various people (extension officers, agri-finance organisation). The remaining respondents stated that there is no support system that helps them in conducting their activities such as sourcing inputs and learning of better production techniques. One respondent stated that they received help, in the form of knowledge, from students conducting their field research<sup>10</sup>.

### **6.5.2. Brokers**

Having assessed the themes that emerged for farmers at the first stage of the maize life cycle, a similar analysis was conducted for the next category of stakeholders – the brokers. Table 6.12 shows the themes identified for these brokers.

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<sup>10</sup> Undergraduate students conducting final year research projects in the field

Table 6.12: Themes identified for the brokers category

<b>A priori</b>	<b>Codes</b>	<b>Categories</b>	<b>Themes</b>
<b>Awareness</b>	Means of awareness Policy programs Implementation, Impact, participation Sources of information, measures known	Types of policies Perception of policies Attitude Sustainability measures,	Awareness of policies Awareness of sustainability
<b>Operations</b>	Capital, Bags purchased, income generated, capacity, availability, preferences, reasoning for maize/importance in the region, Pests and diseases, market issues, Impact, forms of challenges, Farm based diversification, Product diversification, other business diversification, Cultivation of other food crops/cash crops, utilization of pesticides	Available resources, Challenges, Coping strategies	Resources, Access Support systems, Maize dependency, Communication Diversification Preventative measures
<b>Relationships</b>	Utilization (or non-utilization) Positive-Negative interactions, Loans, financial support (cooperatives) Advisory, licensing, educational	Financial, Regulatory	Availability of financial services Availability and nature of relationships
<b>Economics</b>	Purchasing price, earnings along the chain, buying standards, finances	Income generation, capital availability	Dynamics of the market

Based on the identified themes, brokers' opinions and perceptions are outlined.

Awareness of policies: Policies or regulations of which the brokers are aware include those that concern price setting measures, licenses from regulatory authorities such as Business Regulation and Licensing Authority (BRELA), and those concerning food safety and quality assurance, especially those focusing on aflatoxin levels, moisture content, and standards of measurement. Policy instruments mentioned by brokers included taxation, planting high yield varieties and licenses/permits for trading. Sources that contributed to them becoming aware of the policies include meetings at the town centre, media sources, and interactions with other traders.

The perceived impact or effect of the policies is varied. Those who stated that the effects are negative indicated that the policies are restrictive, while those who perceived the effects are positive said that the policies ensured that trust was built between the participants in the value chain.

When asked specifically about the food security policy, some respondents indicated they were unaware of the existence of national food security policies. Tanzanian brokers were unaware of the policies, while four of the Kenyan brokers were aware of policies to varying extents,

*I have noted a few effects, although I am not that much informed about the entire policy document” -D12, (Woman, Broker, Kenya)*

For those respondents who were aware of food security policies, the perceived impacts of the policy ranged from increased costs of production to reduction in demand, to making respondents more aware of maize quality.

Awareness of sustainability: Brokers are aware of sustainability issues, because of the different geographical characteristics and needs in the areas they in which they operate. Some of the measures reported include adoption of hybrid varieties to increase productivity, and provision of capital to aid the stakeholders. There is a belief that maize production “never truly stops”

*“No, I do not know. I see that maize production is continuous, it has not stopped”-D3, (Woman, Broker, Tanzania)*

They also view any measures towards attaining sustainability as ideal as sustainable systems will ensure continuity of production, improve maize varieties and keep trade ongoing.

*“A sustainable system will be beneficial as it ensures continuity in business and income generation.” - D8, (Woman, Broker, Kenya)*

Resources: Brokers are the main conduit between farmers and processors/markets. Interviewed brokers had varying operations with some were strictly involved in receiving and selling while others also stored, processed and packaged maize products. When starting their brokering activities, all stated that they needed capital, and some packaging materials, storage locations and equipment in the form of weighing scales.

*“I needed capital and obtained a loan from the financial institutions. - D2, (Man, Broker, Tanzania)*

*“Since 2002. I needed weight balances, a place for storage and equipment to measure certain quality standards such as moisture content. There is no help at all.”-D5, (Man, Broker, Tanzania)*

Operation capacity of the brokers varied and were dependant on market conditions and ranged from two (2) bags a week to 30 tonnes with farmers contributing four (4) bags a month to 60 tonnes a week depending on their sources. Demand in that period ranged between 2 bags a week to 80 tonnes. When asked to describe their supply chain characteristics, some brokers stated that they purchased from farmers directly, and farmers on village market days and to a certain extent (especially in Kenya) large scale brokers or brokers from other regions,

*“I obtain my products in two ways; Large scale/Medium scale farmers bring their produce to the market, and I visit the farms of the small-scale farmers.”-D1, (Man, Broker, Tanzania)*

The key characteristic is the broad sourcing of the product from different areas especially in light of inconsistent supply and quality. Procurement is not uniformly guided by set standards even between brokers within the same area. Brokers rely on experience and physical checks e.g., inspection for colourisation, cleanliness and moisture content, which are all covered by national and regional maize quality standards. Brokers who described the utilisation of standards went further, outlining measures such as requirements for the maize to be aflatoxin free and in relation to weight measurements. A recurring comment is that the interactions are built on trust, in particular in relation to price negotiations.

*“I buy from local producers and spread out the purchasing among different farmers. Standards are there to aid with the sale but mostly we base a lot on trust.”-D11, (Man, Broker, Kenya)*

With regards to location (working area), many brokers did not limit themselves to the area in which the interviews were conducted, as they procured and sold their products within and outside this area. Some of the brokers crossed country borders between Kenya, Uganda and Tanzania, in particular under conditions of high demand and limited supply.

Support systems/Challenges: Stakeholders disagreed about access to support services. Some brokers stated there were forms of support in relation to financial assistance, access to extension services and prior access to resources such as access to an existing building. Other brokers (four) stated that there was no form of support available to them.

*“I have two main challenges: policies and the market. But I am unable to combat them individually.”* - D1, (Man, Broker, Tanzania)

Brokers reported that their challenges were financial, transactional and structural in nature. Financial challenges took the form of high taxes, unfavourable markets, operational costs (taxes, lack of capital, debts, storage costs), price fluctuations and in some cases bankruptcy which resulted in limited income generation. Conducting the transactions that are part of their activities was hindered by lack of trust between the participants, together with limited knowledge and education, for example in relation to policies resulting in substandard quality products. Transportation and limited awareness of markets are examples of the structural challenges faced,

*“Price fluctuation and high transport costs are challenges. Need to be informed and speculative on price changes by observing the market trends.”* - D9, Broker, Kenya

Coping strategies employed by brokers included product diversification, obtaining loans from banks, hoarding of the commodities (in this case maize), and increased inspection of products at point of purchase and importation.

Diversification: Inconsistent supply of maize has led to the brokers diversifying the range of products that they sell and deal. Beans were one of the commodities that the brokers in the 4 areas dealt. Other products included rice, cassava, millet, sorghum (in Tanzania); wheat, mung beans, potatoes, and sorghum (in Kenya). Only one broker stated that they dealt with maize exclusively. Reasons for diversification, in addition to inconsistency of the maize supply, was that seasonal products (such as beans) brought in higher profits and that higher taxation on maize lowered profits, yet as the demand is constant, they continue with it as a product. Additionally, they diversified their economic activities, for example in relation to engaging in farming, processing, and running small businesses that may be food related (e.g., retail shops).

Dynamics of the market: “The market dictates the price” is the common phrase used by the brokers when asked what prices they buy and sell their maize commodity. Discussions between the broker and producer, or between brokers, may also set the price. There is no set guiding price,

*“I purchase at KShs 2200 per bag. Market prices are set by forces of demand and supply. I earn Kshs2500 per bag (300Kshs profit)”-D17 (Man, Broker, Kenya)*

As part of the market conditions, brokers stated that the prices tended to be low during periods of peak availability, and high during low production periods. Price ranges from \$ 6-\$8 (Tshs 15,000 – Tshs 20, 000) for “Debe 5” in Tanzania and \$ 26- \$32 (Kshs 2800- 3500) for 90 kgs in Kenya.

When providing their reasoning for participating in the economic activity of brokerage, the brokers gave responses linked to the high demand for maize, and the fact that they perceived friends/other traders earning high levels of income from maize, as well the need to consider, customer demand. One broker in Nyeri stated that

*“I learnt of high profit margins and great potential in the maize value chain.”-D14 (Woman, Broker, Kenya)*

The customer base for the brokers includes the open markets, local communities (schools, consumers from the reserve), processors and buyers from other districts. Customers for the brokers are within and outside case study areas. The brokers agreed that there is a constant demand for maize from the society. Building up customer loyalty and trust is seen as a distinct advantage especially when one has to transport the product outside the region to limit loss of the market and incur losses. There are challenges such as language barriers between brokers and customers from a different area, price fluctuations, and accumulation of debts due to costs of production and loans to customers.

### **6.5.3. Processors**

Themes identified from the processors’ responses are outlined in Table 6.13. Processing of the maize product occurs in milling centres within the case study areas.

*Table 6.13: Themes identified in the processors category*

<b>A priori</b>	<b>Codes</b>	<b>Categories</b>	<b>Themes</b>
<b>Awareness</b>	Implementation, challenges, impact, sustainability, benefit, opinions, rights of processors, price standardization/ regulations, import-export policies, understanding,	Policy awareness, types of policies, perceptions, sources of information, participation, perception, sustainability	Awareness of policies Perception of the policy making process, Awareness of sustainability,

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	information, policy formulation	awareness, measures of sustainability	
<b>Economics</b>	Marketing, income, costs, supply and demand, conditions, maize dependency, competition, government presence, set price	Marketing, Income generation, Importance of maize	Markets Importance of maize Coping strategies
<b>Operations</b>	Extent, capacity, competition, market dependency, customers, meeting demand, husking, milling, local suppliers, external regions, other cereals, time, electricity shortage, health and safety, unification of processors, cleanliness and hygiene	Operational capacity, customer base, marketing, diversification, sources, challenges, coping strategies, regulations, costs	Capacity, Market parameters, Regulations Diversification Challenges and coping strategies
<b>Relationships</b>	Interactions, parameters, regulatory, advisory, awareness, beneficial, limited, consistent, ease, challenges, existence of policies	Means of interactions, Awareness, parameters, challenges, coping strategies	Awareness, Challenges and coping strategies

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Awareness: All processors were “aware” of the existing policies providing examples such as quality control, food safety, cleanliness, workplace safety and permits. Perceptions concerning the policies were that they are beneficial for the majority of processors, although some associated challenges were identified. Sources that contributed to the respondents’ awareness of policies ranged from experience gained by working in the industry (see quote below) to interactions with regulatory authorities such as the health official “Bwana Afya” or district officers, among others.

*“From prior experience, in 1995 I worked at a coffee factory in Bukoba- Bucorp and obtained the knowledge on such policies there. Training/raising awareness of new policies is limited. I rely on experience. Training from government officials is sometimes helpful in becoming aware of these policies”- P1, (Man, Processor, Tanzania)*

Interactions with other millers/processors also served as routes for awareness raising regarding policies. Respondents indicated that there are limited awareness creation measures in place and the lack of official announcements plays a significant role,

*“There is inadequate sensitization among the society on the policies. They are beneficial”- P12 (Man, Processor, Kenya)*

The majority of processors stated that they understood the aims of food security policies, and that that they contributed to food security. They perceived that the policies ensured food safety,

*“Yes, I am aware of those that concern food safety. I do understand the aims of these policies and yes, I think that they contribute to ensuring food security. Though it is dependent on whether the processor follows the law or not”- P3 (Man, Processor, Tanzania)*

Processors had the view that that promotion of food security policies would increase policy understanding, implementation and monitoring to ensure that people adhere to them.

Sustainability: The responses of processors showed that they considered utilization of better inputs and farming techniques as contribution to sustainability. Most of the respondents indicated that they were “unaware” of sustainability measures in the region,

*“No, I am not aware, but I am willing to implement them if I get to know them. A sustainable system will be of benefit to me and also nationally.”- P9 (Man, Processor, Kenya)*

Further discussion revealed that processors were willing to implement any measures that concerned their position in the value chain. However, this was dependent on them being aware



of these measures. The respondents indicated that sustainable food systems are beneficial to them and the nation in general,

*“Yes, I am aware of sustainability measures. For example, those that concern field preparation (fallow the land, fertilizing the land) to use of better inputs such as seeds and limiting seed storage for planting a different season, better farming techniques. Yes, they are beneficial to me and the nation”- P2 (Man, Processor, Tanzania)*

Marketing: Given the small size of the stakeholders processing operations, their customer bases are localised to case study areas. This was perceived as an advantage for the processors as they were able to discern their customers’ needs and meet them. Customer loyalty was perceived to be important for future income generation. In some cases, the customers are also the suppliers in that they bring their product for processing and leave with the processed product. Other customers may represent local schools, the marketplace, and wholesalers.

For processors whose activities include selling, the raw product is bought from local farms, at the market and in some exceptional cases, from neighbouring regions. When sourcing the maize themselves, respondents indicated that they were guided by the cleanliness of the product, evidence of pest/disease infestation, the quality of the product in terms of moisture content and colourisation, demand for the product and the price of the product. Most of these factors can be identified through physical assessment or visual inspection.

Processors determined their prices for offering processing services based on the market conditions and their customers’ characteristics. There is no set price for maize processing. In some circumstances, processors set the price by accounting for the cost of production and the desired end-product. An alternative approach was to negotiate price with the customers. All respondents agreed that the prices are not set by the government. Changes in pricing could be due to cereal shortages, changes in the price of electricity, taxation, increased competition by entry of new millers and the availability of other food stuffs.

*“We base the price for processing on the cost of production and what the flour is for (animal feed or human consumption), different services are available. We aim to balance the price but cost of electricity may contribute to the changes in price”- P2 (Man, Processor, Tanzania)*

With the pricing conditions, there is a variation in the income earned by the processors. Income changes can be attributed to level of competition, cost of production and the season. In monetary terms, income ranges from less than \$1-\$21 (3000 Tshs to 50,000 Tshs) or \$23 (2500 Kshs) per day.

Capacity: The milling centres are medium in scale, with capacities for maize processing ranging from 25kgs to 10 tonnes per day during a good season and less than 25 kgs during a bad season. Perceptions of the variations in capacity includes the availability of other products, competition from other millers (in 3 out of the 4 areas), operating challenges such as unstable electricity, storage costs and fluctuating supply of maize. Activities in the milling centres range from de-husking and milling to milling only and in some areas included storage prior and after processing as well. Some of the milling centres also package and sell the product.

Some of the interviewed processors have been in operation since the late 1990s, while others began to operate in the 2000s, implying that processing was seen as a viable economic option. Starting up their operations mostly required an enabling environment and capital. An enabling environment included the acquisition of the necessary permits, stable utilities such as electricity and existing markets for the product. Machinery such as weighing scale and milling machine as well as the area and buildings to conduct the activities are also necessary when starting.

Challenges and coping strategies: Challenges faced by the processors include unstable utilities and limited supply, which compromised their income generation.

Coping strategies to ensure consistent income is limited with processors, who also engage in packaging and selling, being able to store cereals to ensure their supply is not compromised or sourcing from other regions/countries or government reserves when allowed. Processors who are dependent on product brought in by the customer saw a reduction in their customers as supply reduces, reducing their income. For this, diversification was the coping strategy. There are no strategies currently employed to adjust for unstable utilities.

Diversification: Processors in the two countries rarely dealt with maize only. In Tanzania, only two processors worked exclusively with maize, and three processors in the case of Kenya. Millet, rice, sunflower, sorghum and wheat are the other products handled by the processors. With operational capacities that are dependent on whether it is a “good” or “bad” season, mainly in terms of yield, diversification is an understandable business activity.

Support systems: When processors were asked if there was a support system or a form of support that aided them when they started, many of the responses were negative, citing limited capital as a main challenge and unawareness of markets as another.

#### **6.5.4. Consumers**

Table 6.14 outlines the identified themes under the consumers’ categories and assessed in similar ways as previous categories.

Table 6.14: Consumer category themes

A priori	Codes	Categories	Themes
<b>Awareness</b>	Knowledge, policies, food, consumer protection, value chain, maize, import-export, roles, effect, shortcomings, sustainability measures,	Means of awareness, perceived impact, challenges, policies, sustainability, knowledge	Awareness of policies Awareness of sustainability Awareness of availability of maize Challenges Impacts
<b>Relationships</b>	Support system, regulatory, advisory, beneficial, limited, transactional, utilization	Existence of a support system, perceptions of interactions	Interactions and impact Support systems
<b>Importance of maize</b>	Availability, utilization, variety, quantity, purchase price, impact, justification, desire to know, value chain, promotion, uncertainty	Justification for consumption, value chain awareness, influence, choices, knowledge, food shortage	Consumption characteristics Awareness Crisis and coping strategies

It is important to note that several of the respondents included (n=4) were also farmers, although not of maize, as their farming activities focused on vegetables and root tubers, which may have influenced their responses.

Awareness of the maize chain/policies/sustainability: Awareness of the maize value chain among the consumer respondents was high. Three Tanzanian consumers stated that they were unaware of the value chain. For those who were aware of the value chain, respondents indicated that that it is useful and important as it connected farmers to the market and to suppliers of

inputs. Kenyan respondents indicated that it is important to understand the farm to fork chain especially for matters concerning food safety.

Following questions as to whether the awareness of the chain plays a role in decision-making when purchasing food elicited positive responses:

*“Yes, it helps to ensure purchase of products that have attained the quality and safety standards”*  
– C10 (Man, Consumer, Tanzania)

*“It reduces the amount of money spent on purchasing”*-C12 (Man, Consumer, Kenya)

And negative responses included

*“No, because it is difficult to follow up on it”* -C7 (Woman, Consumer, Tanzania)

*“It does not have much influence in purchasing”*-C14 (Man, Consumer, Kenya)

Awareness of the chain contributed to understanding if there were interactions between the other stakeholders and the consumers:

*“It links farmers to the market”*-C13 (Man, Consumer, Kenya)

Awareness of policies by the consumers was low. Nine out of the eleven Tanzanian respondents stated that they were unaware of food related policies enacted in their country. The two who were aware mentioned national food security policy, trade policy and health policy as examples. Kenyan respondents were all aware of national policies providing examples that focused on health policy, food fortification and food safety standards:

*“...aware of one dealing with the consumption of aflatoxin free maize”*- C14 (Man, Consumer, Kenya)

When asked, most of the respondents were unaware of policies relevant to maize, in particular the Tanzanian respondents. The Kenyan respondents stated that the policies such as the Pest and Disease Control Policy and Food Safety Policy may be effective in the short term, but have not been fully implemented, and they did not fully understand them.

Responses concerning food security measures followed the same pattern, with limited awareness. Eight of the Tanzanian respondents and only one Kenyan respondent indicated that they were unaware of any food security measures being implemented in the country. Examples, from the respondents who were aware of such measures included programmes such as community programmes aimed at improving food productivity

*“Yes, WFP and Action against Hunger in Kenya. They are often mentioned during food security related news stories”- C15 (Man, Consumer, Kenya)*

*“Yes, Tanzania Agriculture and Food Security Investment Plan. Through reading the relevant publications”- C10 (Man, Consumer, Tanzania)*

Their means of awareness was through access to relevant publications, news reports, social media, interactions with students from the nutrition department of various universities and participation in relevant training. Overall, opinions with regards to these measures were that they are beneficial in securing the quality and safety of the food produced for consumption, and this contribute to food security.

*Awareness of sustainability:* Consumers’ awareness of sustainability in general and with regards to food sustainability as well as their perceptions regarding sustainability measures varied. More than half of the consumers interviewed indicated that they perceived sustainability measures have the potential to be effective if they are managed efficiently and linked to awareness raising campaigns. Adoption of sustainability measures were thought to increase food production sustainability and hence food security.

*Consumption:* The percentage of undernourished people has been identified as being 25.1% in Tanzania and 24.8% in Kenya in 2019 (World Bank, 2020). Consumption of maize is high in all regions. Consumption of maize is widespread among the countries with most consumers stating that maize represents/ a staple food, which is easily available (reasonable prices and constant in the market) and fulfils their nutritional objectives. Another factor that played a role was culture/tradition, with maize incorporated into various food and feed preparations (see Chapter 3). For consumers, purchasing maize commonly occurs in the open market or shops/supermarkets for pre-packaged maize products. Consumers also indicated that they buy maize cereal from the farmer or a broker and have it processed at one of the milling centres, in this case the small-scale processors covered earlier. Consumers buy the maize, clean, and dry it and take it to the processing centre where it is processed into ground maize flour. Occasionally consumers purchase the product straight from the processors.

As more people become aware of food value chains, the production process and composition of the food they are consuming, purchasing unprocessed cereal is increasing, with individuals drying and processing the seeds themselves, at least in urban areas. For the rural consumers, it is normal to purchase minimally processed maize.

Preferences for different varieties of maize were not clearly expressed by consumers. It was dependent on their awareness of and level of exposure to the different varieties, and availability of these varieties in their regions. For the consumer respondents, varieties consumed ranged from hybrid varieties to fortified ones, or varieties that were differentiated by colour (red or yellow/ “mahindi lishe”). In the case of quantity, consumers’ consumption ranged from 1kg per week to 3 sacks a year with their willingness to spend between \$0.22 - \$20 depending on the quantity.

Market forces (demand & supply) were perceived to determine the price that consumers pay normally. Advisory pricing of maize products for consumers is sometimes set by the government. Secondary data indicates that the respective national cereal boards in the country have the authority and do intervene in price setting, leading to uncertainty in the industry (Ariga & Jayne, 2010; Baffes *et al.*, 2015).

Support systems: Consumers indicated that lack of satisfaction/concerns about maize products could be conveyed to the government, and other stakeholders, through certain organizations.

*“Yes, the presence of the National Cereal Product Board gives a chance for farmer to launch their complaints on issues touching on food safety.”-C12, (Man, consumer, Kenya)*

Many consumers are not aware of the existence of consumer associations in Kenya and Tanzania. Those consumers who are aware indicated that they were not likely to have utilized the services or system offered by the associations stating:

*“Yes, there is, and I am aware of it. In light of a complaint, I will use it”- C16, (Man, Consumer, Kenya)*

Across the stakeholder categories, there is limited awareness of food security policies. In the next section, interlinkages between themes raised by respondents will be discussed.

## **6.6. Findings: Cross cutting Themes**

Given the *a priori* themes that guided the questions development, the responses generated across the different stakeholder groups could be used to understand the impact that maize production and consumption have on society. These responses can be analysed as impact categories and categorised according to participation in policy making, awareness of policies, challenges in carrying out their activities, their dependent/independent relationships, limited awareness on sustainability and the importance of maize among others. This section expands on these themes.

### **6.6.1. Participation in the policymaking process**

Most respondents indicated that they had not been involved in policy development, but were interested in doing so with one respondent stating that

*“I think it is best for us to be involved as we are the ones affected”* -P4 (Man, Processor, Tanzania)

The viewpoint of participants is that their participation in policy would allow for some issues that are overlooked to be considered by the policymaker. For example, the 2011 export ban in Tanzania, implemented due to unregulated trading that caused food shortages, had a side effect of leaving traders with substantial quantities of maize, without an internal market to sell all their maize, creating a surplus situation. With the next harvest coming in, stores were at maximum capacity with an increased incidence of product spoilage, coupled with a saturated domestic market or the taxation rate<sup>11</sup> increasing the costs of operation,

*“No, I was not involved in the formulation of this or any other policies. Yes, I would like to be involved in policy formulation. I do think that the policies that the government has placed with regards to food security are ideal. Yes, I am aware of some of the policies. On my side, the policies that deal with tax are prohibitive, taxes are high for example we used to pay \$0.01 (Tshs 25) for a 125kg bag, but now we pay \$ 0.86 (Tshs 2000) for a 98 kg bag”*-D3 (Woman, Broker, Tanzania)

Some consumer respondents had participated in policy formulation. However, they worked for research institutes and universities, which represent special interest groups (as identified in Chapter 5) that take part in policymaking. There was concern that the process is politicised, meaning that the system is biased towards the people who know the policymakers, but the respondents would still like to participate.

The majority (14) of the brokers in both countries had not participated in policy formulation. Of the three exceptions, one had been offered an opportunity to participate (Tanzania) and another had participated through health officials who were to pass on their views to the policymakers (Kenya). The third stated that they had participated without providing details. None of the interviewed processors had participated.

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<sup>11</sup> Taxation on agricultural products is at the discretion of the local authorities which has seen different rates being applied and contributed to traders internalising the tax and passing it on to farmers indicated by low prices. Tanzania's stance on taxing agriculture products is currently undergoing reforms to reduce it nationally from 5% to 3% (World Bank, 2019)

### **6.6.2. Relationships**

Power dynamics along the maize chain was assessed through price determination, relationships with other stakeholders, and attitudes to gender. Overall, the similarities included factors related to market (the market determines the price of the product) and relationships are informal (that is, they are not formalised with contractual agreements). In addition, some stakeholder relationships had more longevity than others. For example, longer relationships were reported between extension officers and farmers, as well as regulatory authorities and other stakeholders in general. The main challenges to these (mostly) transactional-based relationships, included mistrust between the various stakeholders, and goods not attaining the required quality standards.

Farmer interactions with other stakeholders in the maize chain were reported to range from infrequent to constant, and covered areas such as knowledge sharing and regulatory checks. A large number of farmers, when asked if they had utilised the extension services offered by the extension offices, replied that they had not utilised the service in the last two years. In Tanzania, these services are offered by the government, and in Kenya by both the government and private companies. Farmers indicated that intermittent relationships with extension officers were beneficial as they allowed them access to knowledge, training, and inputs. The lack of interactions, or more frequent interactions between the farmers and the officers resulted in the unavailability of the services to the farmers, which disheartened the farmers.

*“Interaction with authorities is favourable however with extension officers there is minimal interaction as they rarely visit farmers”- M22 (Man, Farmer, Kenya)*

*“Interactions with extension officers used to be favourable but no longer. I no longer find the interactions beneficial”- M3 (Man, Farmer, Tanzania)*

Additionally, there is a perception that extension officers focus on larger farms as opposed to smallholder farmers. Interactions with other farmers in both Kenya and Tanzania are characterised by needs based parameters such as the exchange of knowledge, farming practices and even acting as sources of input (particularly provision of seeds). These interactions have led to changes in farming techniques such as changing seed varieties and enabling transfer of knowledge about regulations and agricultural technologies.

*“I switched because Nyandarua is highly productive and more suitable. I learnt of it from other farmers”- M19 (Man, Farmer, Kenya)*



Farmer interactions with processors and brokers are transactional in nature and, in most cases, tend to occur during “farmer days” where farmers bring the goods to a central location and the buyers/traders inspect and purchase these goods. Interactions with processors are based on a needs-basis and therefore are generally on non-contractual basis. These interactions were reported as being rare. Farmer interactions with brokers were reported to be more common, as farmers sold their product to them. This relationship is also non-contractual and, in some cases, (e.g., in Kenya) the broker with the higher price is the one to which the farmers sold maize,

*“I sell to a broker; not a specific one, the one with the highest bid, is the one I sell to”*- M18 (Man, Farmer, Kenya)

Processors reported having both forward and backward interactions within the supply chain, to farmers/brokers and consumers respectively. In some cases, this was reported as being minimal. Generally, they reported having a greater frequency of interactions with regulatory authorities compared to those reported by farmers but are rare in some locations (Kagera and Nakuru). Interactions were centred around business regulations such as licensing and taxation, as well as health-based certifications (Tanzania) and health-based and product standardisation (Kenya). Additionally, customer interactions may have occurred both, when customers bring their products for processing, and when the processors sourced their own supply and sold the processed product.

*“Customers come with their product and receive the services. I don't have to buy, farmers bring the product, have it ground into flour and leave with their flour.”*- P6 (Woman, Processor, Tanzania)

Within the two regions of Tanzania considered, the relationship between brokers and processors was minimal due to the localised nature of the chain. That is, most processors were able to source the maize directly from the farmers. Those who did not purchased maize from open market traders or sourced their products from neighbouring regions through brokers. In Kenya, there was more of an established, although informal relationship between processors and brokers. In some cases, this was due to the long distances between the farmers and the milling centres (Nyeri) which increased costs. Other reasons include the capability of brokers to source the produce from not only other regions but other countries, for example D5 stated that they sell their product to Kenyans.

For brokers, as for processors, the interactions with farmers were on a non-contractual basis which were described by stakeholders as being normally fair and good interactions. Interactions with regulatory authorities were reported to be rare for the Tanzanian brokers, while the Kenyan

brokers varied from no interactions, minimal interactions to regular (monthly) interactions. In Kenya, regular interactions are part of the regular checks for the brokering businesses, while minimal interactions may occur due to the complaints by the public. The infrequency of the rare interactions was attributed to the regulatory authorities not being in the areas under study, except under circumstances where reported cases for concern were identified, in which case the authorities may conduct standards checks.

*“Yes, interactions [with the regulatory officials] are beneficial. Occurs in case the public complains on standards either quality or quantity”- D17 (Man, Broker, Kenya)*

Table 6.15 outlines different challenges faced by the two countries in relation to the maize chain. Challenges encountered include; operational challenges such as unstable electricity supply which rendered the processors unable to meet their customers’ needs, unstable maize supply and low quality, specifically adulterated maize, for the brokers and processors, increasing their costs of production as they looked for alternative sources and increased the occurrence of price disagreements between the stakeholders, cost of transportation and the distances needed to travel with limited assurance that the targeted supply or market will still be available; economic challenges such as changing market conditions, fluctuating prices coupled with disagreements on pricing which is guided by the market (regulated by the demand and supply aspect) but the participants have room to negotiate (farmers find millers have a habit of changing prices while brokers have disagreements with farmers).Some brokers stated that the producer (farmer) dictates the price while other brokers mentioned that the price is determined by the broker:

*“Brokers determine the price”- D14 (Woman, Broker, Kenya)*

Processors perceived prices to be determined by competition within the market, shortages of maize and the presence of other foodstuffs. Unlike brokers and farmers, the processor will set the price of the product depending on the grade of the product and the production costs (human resources and electricity needed to process the product). Financial challenges are important for brokers, and there is evidence that there are some differences between the countries in terms operational capital. Brokers of the maize products in Tanzania stated that it is always necessary to have capital when purchasing goods, indicating there is no structure for delayed payment. However, in Kenya, they indicated that there are situations where are loans provided by the brokers to their customers, who take on credit and are unable to pay, resulting in “souring of relationships”.

Institutional challenges identified include the lack of a guiding framework for pricing and adherence to policies/regulations. These challenges may have further effects (e.g., price disagreements and rejection of the product at the point of sale).

*Table 6.15: Challenges facing the maize chain in the region*

<b>Challenges</b>	<b>Tanzania</b>	<b>Kenya</b>
<b>Climate related</b>	Unfavourable weather conditions, drought, uncertain rainfall patterns	Heavy rains, drought, delayed planting
<b>Hinderances</b>	Pests, diseases, animals	Disease and pest outbreaks, baboons and monkeys
<b>Accessibility</b>	Land needs, cost of inputs, fertilizers and other input shortage	Inadequate planting area, difficulty in obtaining seeds
<b>Economical</b>	Market – The absence and reduction of it, low prices/no set prices, lack of financial support	Poor market

As part of combating challenges and aiding development, both Kenya and Tanzania are signatories to the East Africa Community (EAC) Vision 2050 (EAC, 2000) based on the AU-CAADP (Comprehensive Africa Agriculture Development Programme) mandate (AU, 2016) that countries will set aside 10% of their budget allocation for the development of the agriculture sector. However, between the period of 2000-2017 government expenditure dropped from 4.8% to 1.8% for Kenya and 3.0% to 1.1% for Tanzania (FAO, 2018). When compared as the entire region (EAC), Kenya and Tanzania fall within 1%-2% range for government expenditure on agriculture for the 2015-2019 time period (FAO, 2020). The decrease in government expenditure negates the ratified regional mandate and creates a barrier for government policies aimed at developing the industry, and creating policy levers in terms of stakeholder incentives, subsidies, and access to better technologies. Additionally, it leads to the over-reliance on donor funding to implement viable and vital programs such as “Agriculture First” and “Climate Smart Agriculture Strategy” in Tanzania and Kenya respectively.

Perceptions along the maize value chain about the existence of supportive systems to aid them in tackling their challenges differed within and between the different stakeholders. There were a number of respondents along the value chain who considered that a support system is in place, such as extension and regulatory services, while others, in particular processors and brokers, reported being unaware of such support systems. Additionally, respondents stated that

sometimes the support occurred after they had tackled the issues by themselves. Farmers generally felt that there was no support system, in particular in relation to the extension services, given their limited interactions with these services. However, some farmers had access to loan services to aid them in farming. Processors and brokers were also able to obtain loans, with the latter using the loans to begin their businesses. However, they perceived that a barrier to economic viability was the high number of permits and licenses needed for their business, which would increase their operation costs as lack of the certificates may limit their marketing options.

### ***6.6.3. Awareness of policies and sustainability***

In general, stakeholders in Kenya perceived that policies have been positive in terms of impacts, whereas stakeholders in Tanzania perceived policy impact to be limited. Kenyan respondents were aware of policies and generally perceived them to be positively impactful. This differed from the perceptions of the Tanzanian respondents who found the policies to have negatively impacted them, resulting in minimal alteration to their activities.

*“Currently has not changed my activities”*- M3 (Man, Farmer, Tanzania)

*“They aided in the selection of the variety to plant and improved productivity”*- M16 (Man, Farmer, Kenya)

Positive impacts of policies that have been noted include control on the use of pesticides and has contributed to improved customers’ trust and relation leading to customer loyalty while negative impacts include the increasing operation costs to follow the regulations. In the case of implementation of policies and associated regulations, respondents in Tanzania identified policy shortcomings, and that policies were costly to follow, urging for better monitoring and evaluation:

*“... [There is also a need to ...] Also following up to make sure that the policies are being implemented and followed so that food safety and security are ensured. It should be noted that some of the stakeholders especially the farmers may have low level of education, and this should be taken into consideration”*- D2 (Man, Broker, Tanzania)

Stakeholder awareness of policies varied in different parts of the value chain. There were instances where stakeholders in different parts of the chain agreed, for example, on the use of pesticides, and what this means for the value chain overall and in relation to food consumption (e.g., food preservation and food safety). Brokers and processors expressed concern with

regards to certain farming practices, specifically in relation to negative health impacts further along the chain:

*“Yes, for example the use of pesticides which may be helpful to prevent pests but when processed cause diseases such as cancer.”* - P6 (Woman, Processor, Tanzania)

Farmers mentioned that they were aware of policies that involved the use of good quality inputs for their farming activities, good farming techniques (such as soil management, crop rotation, pesticide usage) and others such as the importation of seeds allowing for the introduction of better varieties to improve production. Kenyan farmers found the impact to be in the form of improved marketability and increased productivity and in general altered their activities. This was opposite to Tanzanian farmers who, on general, found no alterations to their activities. The mentioned impacts by Tanzania farmers, like the Kenyan farmers, include increased productivity yield and improved marketing.

Brokers were focused on regulations involving price determination (such as export bans), licenses, weights and measurements standards, food safety and quality (moisture content, the presences of aflatoxins) while processors were more focused on regulations dealing with their business (permits, health and safety certificate, taxes) as well as their product (food safety and quality, food laws). When asked about policies that dealt with obtaining permits or paying taxes, the brokers identified policies that aided their businesses (e.g., Business registration) but stated that the procedures are stringent, in terms of the necessary requirements to pursue the application and costly due to the fees. These costs influenced their ability to acquire permits and meet the required operational standards. In this way, the Tanzanian brokers found some measures to have negative impacts, finding them restrictive or raising their operation costs. Kenyan brokers found the impact to be positive. While Tanzanian brokers found that while unfriendly, policies in general aid their business while Kenyan brokers found them to be stringent, costly to implement and need to be rectified, by making them accessible and understandable, so that more people can implement them. There was also a need to increase awareness raising initiatives as well as the monitoring and evaluation aspect of the policies implementation by the authorities. Brokers would like to see implementation of policies that allow open market conditions when needed and increase income and benefits.

Consumers who were aware of the policies mentioned those that are involved with food safety, food security, food fortification, agriculture and health. Consumers perceived the food safety policies, combined with quality standards put in place by their national bureaux of standards, to improve the quality and safety of the food produced for consumption and hence improve

food security. In the case of consumers who also happened to be farmers (vegetables not maize), awareness of policies was higher with regards to pesticide usage.

Processors in the Tanzania and Kenya perceived the assorted policies to be beneficial overall, although implementation of them required further action. Tanzanians outlined the high number of policies and their lack of understanding, while Kenyans stated there was inadequate sensitization activities to raise awareness. Four Tanzanian processors reported finding that the policies may not adequately tackle challenges such as storage and the use of pesticides, identifying a need for co-operation between processors and farmers. Kenyans stated that there is an advantage in the policies that when one follows them, they are able to conduct their activities freely without disturbance from the authority.

Processors expressed the view that they would like to see policies developed and implemented that focused on awareness raising of the current policies or aiding their business practices:

*“Policies that focus on raising awareness, educating people. Also, there is a need for monitoring the implementation of the policies”*- P2 (Man, Processor, Tanzania)

*“Policies that unify the millers/processors such as those that deal with setting prices as everyone setting their own prices is a challenge in the market”*- P3 (Man, Processor, Tanzania)

Price standardization policies were requested by processors in both countries. Other responses from Kenyan processors outlined the need for policies covering food safety and quality and those that protect

*“Policies that protect the rights of processors”*- P7 (Woman, Processor, Tanzania)

Brokers and processors prioritised policies that handled the financial aspect (reduction of taxes, access to free markets, increase income, price setting) as well quality control (quality standards, sanitation). While the farmers prioritised policies that emphasised production (productive and quality, access to expert services and inputs, plant varieties, and soil management). Awareness and education-based policies and programs that would increase policy knowledge among the society was identified by all representative respondents.

Opinion was also sought on specific policies such as import-export regulations and licensing regulations. Provided with the policy instrument example of import-export bans, the consumers stated that they did not have a deep understanding the bans, with most of them stating that there is a need for raising awareness among the public and the sellers of maize as well (covering both the farmers and traders) given that maize must meet not only regional standards but international standards. All respondents perceived a need for modification of some of the

policies, primarily those which allowing stakeholders to operate formally. They also called for increased monitoring of the policy impacts of the current ones, especially the tax regulations and access to inputs. Kenyan consumers perceived that banning importation of maize was good, in order to ensure the safety and health of the consumer. These views were underpinned by the perception that the country did not produce enough maize to export or meet internal demand while imports led to flooding of the market (Kenya) and that they reduce the effect of aflatoxins entering the food chain. Tanzanian consumers found that the export bans aid in price stabilization and quality within the country. One consumer respondent stated that

*“...price support policy and farm input subsidy aid in case of these bans to support the farmers and other stakeholders of the chain”*- C13 (Man, Consumer, Kenya)

Processors, on the other hand, had varying opinions:

*“No, the ban of maize worsened the business with no consistent supply of maize”*- P10 (Woman, Processor, Kenya)

*“Not 100% either way. There may be some benefit, however doubts are also present for example with regards to imported products' safety”*- P2 (Man, Processor, Tanzania)

Some of the processors expressed the view that import-export regulations were beneficial in that external markets may generate larger income returns for stakeholders, once market entry is achieved. Most stakeholders stated that the policies are neither 100% good nor bad. They cited concerns with the quality and safety of imported products (Tanzania) which differed from the Kenyan consumers' viewpoint. Also stated was that the policies fostered inconsistent supply environments and flooding of the market with maize which will make negative contributions to farmers and businesses dependent on the value chain. Import bans meant that the supply of maize to meet Kenya's demand of maize decreased while the export ban in Tanzania meant that the internal market was oversupplied and contextualised by lower demand.

With regards to generalized food-related policies, such as the Food and Nutrition Security policies, the perception of stakeholders was that they are generally beneficial although there are some areas of concern. Stakeholders were of the view that these helped achieve food security, with impacts identified including increased care by brokers and processors when securing stock by checking quality standards, improvement of sales to the market by farmers and increased customers' trust in the product sold by the brokers and processors along the chain and within the market. The negative perception is that the policies are prohibitive centred on impacts felt mostly by the brokers such as price increases, loss of product due to mandated market

restrictions which may lead to accumulation of maize with no market to sell to and reduced sales.

Stakeholders, especially farmers, used local or informal language to describe the policies (and related regulations), and could not identify specific policies. They were more likely to describe the effects (changes) that occur in relation to the implementation as a way of identifying the policy or otherwise,

*“Policies may be good or bad, but because they are unknown it is difficult to have opinions.”-*  
C11

Avenues of awareness creation, i.e., means by which the stakeholders became aware of policies (and associated regulations) and sustainability measures varied among the four areas and along the chain. Brokers and processors were made aware of the measures that they need to implement by the authorities. This was also reported by as a route of knowledge exchange for farmers with regards to extension officers. However, interaction between the authorities and the stakeholders (farmer/broker/processor) is limited so exchange of information is compromised.

Common media and avenues for raising awareness among the respondents include media especially TV and radio and newspaper announcements, training programs and national fairs/exhibitions. However, their interaction with fellow members of the peer group along the value chain is the most frequently cited source farmers with farmers, brokers with brokers, for information and knowledge transfer. This is followed by interactions with other stakeholder nodes (farmers with brokers, processors with farmers) and social networks (comprised of grandparents, parents, friends and neighbours). Financial organisations, such as banks and lending facilities, primarily in Kenya, and input dealers covering seeds, inorganic fertilizer and pesticides (Tanzania) were referenced as well but to a lesser extent by farmers as an avenue of information.

Stakeholders in both countries were aware that there are policies or regulations that govern their particular node of the value chain. Processors in both countries were aware of the policies which applied to workplace and product as well as food security policies and their goals. They also recognised that implementing the various regulations is challenging, for example because insufficient information was provided about the policies, limited financial resources to aid implementation, and the numerous regulations which had to be followed. However, processors attributed implementation of the regulations with positive impacts such as strengthening customer trust in their products and facilities and increasing sales. They perceived that the lack of policies to regulate the industry would hinder the value chain. Most of the brokers in Kenya



(six) indicated that they were aware of the various policies and regulations, and those who mentioned that they were unaware, in follow up, gave responses that highlighted their awareness. An example is the broker from Tanzania, D3

“(Are you aware of policies related to your work) ... *I am unaware-*

(Thoughts on licensing regulations) ... *Getting licenses for business is ideal as they look at your level so as to assess your tax rates and associated matters”*- (Woman, Broker, Tanzania)

Tanzanian brokers were mainly unaware of policy instruments relating to their node. Of those who were aware of the regulations stated that the implementation had led to a negative impact on their business, rising operation costs. Similarly, the Kenyan brokers stated that implementing the aflatoxin levels standards and the colour of maize standards led to a reduction of sales and rejection of maize being bought.

Awareness of sustainability and sustainability measures is low among the general public. In some instances, the interviewer had to explain what is meant by sustainability and sustainability measures. Farmers were aware of more food security policy measures than the other stakeholders in the chain; examples of such measures the need for crop rotation and irrigation which form part of the agriculture act and policies in the region as instruments to improve productivity.

#### **6.6.4. Gender**

Women were perceived to be the majority gender among the stakeholders of the chain. Among the farmer respondents, the perception of both women and men farmers is that more women are farmers compared to men.

“*Women are more farmers as they are the family caretakers. The men tend to prefer cultivating coffee. Yes, women face more challenges as they tend to be the only ones involved”*. – M2 (Woman, Farmer, Tanzania)

However, a few respondents stated that men are more as farmers given “women focus on feeding” suggesting that women are responsible for household food while the men work to generate the necessary income

“*More men, women have shouldered the burden of feeding the family more so than men. I don't think one gender is helped or challenged more than the other”*- M10 (Man, Farmer, Tanzania)

Demographic and health survey statistics (DHS 2014, 2016) for both countries indicate that women are moving towards formal employment. It was found that a large percentage of women

are employed in the agriculture sector, a trend that; 69% in 2010 decreased to 56% in 2015 (Tanzania).

Employment of women is perceived to be increasing in processing and brokering. Processors in Tanzania, with the exception of one respondent, perceived there to be more men than women in business. The situation differs slightly in Kenya, who citing the 2:3 rule<sup>12</sup> (implemented through the gender equality policy) that has led to an increase in women processors.

Women are seen as the end users of maize although brokers stated that men made up more of their clients.

*“Women are more as consumers compared to men, I would say maybe 2:1 while men are more as suppliers (large scale brokers) (1:3)”- D12, (Man, Broker, Kenya)*

Women are the dominant gender in relation to consumption and are represented in some cases by children who are sent to purchase food by their mothers as per the perception of the processors, especially those preparing flour from the customer’s supply.

Perceptions on gender-based interactions during their working activities indicated that businesspeople (brokers and processors) did not focus on gender as part of their marketing strategy stating that:

*“Women are more than men (as brokers). Culturally, maize business is culturally regarded as women business. Women are also more than men in terms of consumers but in terms of suppliers’ men are more. It is better to balance both genders when interacting as they are future prospects- D7 (Man, Broker, Kenya)*

However, some respondents (processors) have found that women were easier to interact with, as they were willing to listen to advice, were more trustworthy as well as sure of what they wanted. Men were perceived as being risk-takers and less likely to bargain.

Processors have experience of interacting with both genders. However, they perceive that gender-based differences occur in their interactions such as “women are agreeable to taking advice” (P1, Man, processor, Tanzania)/ that “men are untrustworthy (P4, Man, processor, Tanzania)” or “women are more understanding (P10, Woman, processor, Kenya)” or “women

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<sup>12</sup> 2:3 rule stipulates that no more than two thirds of positions, especially leadership ones, will be occupied by one gender. Initially, it was for legislative and governmental positions but is currently being utilized in other sectors.

complain more especially regarding price and quality of milling (P11, Woman, processor, Kenya)”.

There are varying viewpoints on whether challenges facing the value chain impact the genders differently. Many of the respondents found that there were no differences, with both genders encountering the same issues. Exceptionally,

*“Yes, there are challenges for women as they are the ones who bear the heavier burden for cultivation”*-M8 (Man, Farmer, Tanzania)

*“There is no gender difference in challenges faced and aid provided”*- M21, (Woman, Farmer, Kenya)

Perceptions on gender were mainly steered by cultural viewpoints. A male respondent in Tanzania stated *“as you continue to interview people, you will see for yourself, it is our culture”*- D2 (Broker, Man, Tanzania). Meaning that cultural norms dictate the placement of women along the value chain. The majority of responses perceived women to be the most involved in farming and purchasing maize, because

*“Women are responsible for food production for the family while men prefer to perform manual labour jobs that offer income”*. -M21 (Woman, Farmer, Kenya)

An example is that, in Tanzania, men were prominent as brokers and processors, although a few women were identified in those positions as well. This is not the case in Kenya, where women are perceived to have a more prominent role in the business community, although they are not perceived to have achieved equality with men.

#### **6.6.5. The importance of maize**

Kenya in 2018 saw an increase in its cereal import dependency ratio from 23.9% to 43.7%. Against this, Tanzania reduced its ratio from 9.7% to 6.5% (Table. 6.16). Current cereal production in the countries is on 6570 thousand hectares (Tanzania) and 2670 thousand hectares (Kenya).

*Table 6.16: Cereal production/trade in the region in 2018(000's= thousands) (FAO, 2018)*

<b>Country</b>	<b>Produced (000's)</b>	<b>Exported (000's)</b>	<b>Imported (000's)</b>
<b>Kenya</b>	4,014	7.2	9529.6
<b>Tanzania</b>	5,987	191.9	22.4

To help understand the results, factors such as land allocated to maize cultivation, priority that maize production takes, time allocated to maize cultivation, and the market for maize were assessed. Maize's importance is due to the constant demand and its ready availability.

Farmers in the area allocate on average between 500 m<sup>2</sup> to 30 acres for maize production resulting in two to sixty-five bags of harvested maize. Depending on the season, farmers would spend between 2 hours to 8 hours on the farm, and in some cases hired labour to aid in maintenance and harvesting. It is common to find members of the household involved in farming activities and farming decisions are generally made by both man and wife. However, there were some instances where the decision is made by the head of the household only, typically the male.

*"I make the decisions (man/father) and have been farming for over 30 years"*- M9 (Man, Farmer, Tanzania)

Farmers in all four areas did not sell all their harvest, retaining some for their consumption, which follows the channels outlined in Fig 3.2.

Dependency on maize for income generation alone is rare, with farmers also cultivating legumes and other crops, keeping livestock, and running businesses for additional income. Challenges faced include the prevalence of pests and diseases, unpredictable weather conditions, unstable markets that are affected by the availability of other foodstuffs (Tanzania), poor access to inputs and better technologies (such as irrigation) and the lack of a support system (both countries).

For brokers, the importance of maize was in the fact that although the price was not as high as other foodstuffs such as beans, its demand and availability was constant. Maize is sourced both within and outside of the study areas by brokers and sold locally and outside the study region as well. However, like farmers, most brokers interviewed did not depend on the maize trade alone for their income generation, they were also involved in trading beans, rice, cassava, lentils, millet, sorghum, wheat and potatoes. Their perceived challenges include the lack of a support system, no guiding price which contributed to disagreements, rising operation costs such as transportation costs as they travel further to obtain their maize supply and unstable markets due to implemented government mandates. In this case, it was the temporary ban on maize exports government mandate for Tanzania (2011) while in Kenya it took the form of increased importation of maize (2018).

The businesses of the small-scale maize processors interviewed mainly depended on the current market demand for maize. When seasonal alternative foods, such as beans, are available and in demand, demand for maize may decrease and if they have no storage facilities or other foodstuffs are available, their workload significantly reduces. Some of the processors have diversified and deal with other products such as wheat, millet, cassava among others while other processors opt to source maize from outside the region.

Statistics show that cereal consumption contributes to 1,121 kcal per capita per day for a person in Kenya (KBS, 2019) while in Tanzania it is 978 kcal per person per day (NBS, 2019). Considering that the average dietary supply in the region is between 2174-2535 kcal per capita per day, contribution by cereals is significant in view of ensuring food security in the region. Consumers reported that maize is filling, readily available at an affordable price, and culturally part of local diets.

Consumption of maize within the areas of study are high with consumers reporting averaging at least 3 kgs a week. All respondents (brokers, farmers, processors, consumers) stated that they consume maize, and some farmers consumed maize that they had cultivated. Consumers (who were not also farmers, processors, or brokers) reported being willing to consume any variety of maize available in the market, although some reported being familiar with the different varieties and looked for these in the market.

Responses regarding coping mechanisms to shortages were difficult to obtain. People in the case study have not gone through extreme food crises although some areas were noted for having a shortage of maize availability (Nyeri) in recent years. Many respondents reported having not experienced a food crisis so are unable to respond. Governments in both Kenya and Tanzania have a system in place to aid with the food shortage situation but when asked about it, most participant responses were that they were unaware of the system and those that were aware found the system to be problematic and inconsistent.

*“So far, the government promises to offer subsidies, but they do not follow through. They only offer extension services”- M15 (Man, Farmer, Nakuru)*

*“There are some measures supported by the government such as emphasising the use of warehouses and new systems for transportation”- D6 (Man, Broker, Kilimanjaro)*

For those who were aware reported improvements in food security as a consequence of aiding farmers to access inputs and promoting good farming practices to increase productivity and in

turn availability. Consumers mentioned programs such as the Food Relief program and the existence of the national grain reserve stores as measures in place to ensure food security.

Brokers were seen not to suffer any direct impact of a crisis but stated that they bought and stored excess maize from the previous harvest and sold it during the following season, as well as sourcing maize from outside the region if demand merited this. Farmers were aware of aid being available, but implementation and access were perceived to be hindered by their finances and timing. Aid embedded in policy included (the forms of aid) protection of farmlands, provision of inputs after times of stress, and seed subsidy.

Processors are affected by shortages in production as they are typically small -scale operators dependent on clients who will bring their product to mill. Shortages disrupt this interaction, as an alternative, processors store like brokers, purchasing stored grain from government reserves when permitted by the national cereal boards. The boards decide when to introduce the stored grain to the public as long as it safe to eat.

The importance of relationships is noted in the exchange of knowledge between the different stakeholders and has a contribution in increasing awareness of policies and sustainability. There is a need to improve the support systems so that they work effectively to aid the stakeholders in tackling their challenges.

## **6.7. Discussion**

### **6.7.1 Overview**

The S-LCA was applied to enable an understanding of food related policies in a societal setting. The assessment considered the importance of maize in the case study areas, mainly its role as an indicator of food security, inclusion of stakeholders in policy processes, the impact of policy on the maize chain in four regions and awareness of policies as perceived by the views and opinions of different stakeholders in the maize value chain.

### **6.7.2. Importance of maize**

Access to resources, challenges that stakeholders face, and the existence of support systems were identified by stakeholders as important. Access to resources such as inputs, land, and finances varied from one study area to another. Farmers can access different varieties of maize seeds, fertilizers and pesticides due to the existence of input dealers and some government driven subsidy programs. Utilization of these inputs is driven by a need to ensure their income, for instance changing seed variety is more towards obtaining high yields which can be a risk-averse response (see also Waldman *et al.*, 2017, who found farmers due to information and misinformation overload lean towards risk averse decisions).

Regulations and programs to aid farmers to obtain inputs to increase productivity are in place such as “Kilimo Plus Initiative” in Kenya (Mason *et al.*, 2017) and the National Agricultural Input Voucher Scheme (NAIVS) in Tanzania, or the Tanzania Agricultural Inputs Support Project, spanning September 2022-June 2025 by African Development Bank. Literature on these programs show that they are beneficial to the farmers but highlighted that there is still need for support (Cameron, 2017) as farmers find the inputs to be expensive especially fertilizer.

Increased awareness of the desirability and marketability of organic agriculture was noted among the farmers. Promotion and adoption of organic agriculture was perceived to have a positive impact on the value chain minimising concerns of brokers and processors on the misguided use of pesticides and increase food safety for the consumers.

Land as a resource is perceived to be of importance to farmers and processors as they require the area to conduct their activities. For brokers, it is dependent on whether they store their products over a long duration, that is longer than one week. There was some interest in consolidation of services, particularly the processing, in two of the study areas though for varying reasons. Nyeri respondents found that the distances they travelled to obtain the service was substantial, while Bukoba respondents felt that it would be ideal in terms of market competition. The allocation of land for cultivating maize, especially on small scale farms, was deemed to be of importance because stakeholders perceived that efforts for policy implementation should be targeted towards the small-scale stakeholders. Goedde *et al.*, (2019) emphasised that increased smallholder productivity is a growth driver in development at societal and national level.

Finance is important for the stakeholders of the chain. Farmers require the capital to hire machinery, buy inputs, hire extra labour if needed while brokers are faced with cash upfront transactions. The limited financial support for small scale enterprises is a burden that limits their ability to improve. Financial institutions are unwilling to lend to the agriculture sector due to limited awareness (Kingu, 2019). There have been a series of programs to alter this situation such as the USAID’s program Farmer to Farmer Access program and IFC-CRDB program in Tanzania, the Youth Enterprise Development Fund and AgriFinance Corporation in Kenya.

Production of maize comes with different sets of challenges for the various stakeholders ranging from the finances to climatic changes and current regulations. Coping strategies by the stakeholders are therefore numerous with the need for a support system to be in place and effective. Support systems are viewed as limited in effectiveness by the stakeholders, with the main cause being the limited contact between local authority representatives and the

stakeholders. Extension officers and local regulatory authority representatives must be empowered so that they provide adequate support ranging from access of inputs to obtaining permits.

Maize is the appropriate food for assessing food security in the region, with the research justifying its use as a food security assessment metric. The importance of maize in the region has been identified in previous research (Kilimo Trust, 2017). Maize availability seems to be a relevant assessment metric for regional food security due to its widespread cultivation in the region, the fact that it allows farming households to ensure their food security prior to engaging in commercial activities, and its constant demand means that it is an income generator for a significant proportion of the population. In turn, this allows people to cater to their food security needs (when sold, farmers can purchase food/when cultivated, household food stores are available/brokers can earn while waiting for the season of higher costing produce/ similar situation to processors). It has an equally widely distributed consumption pattern, fuelled by its filling and readily available properties.

It was noted that all the respondents classified themselves as consumers of maize. However, there were differing additional comments such as “I can go for a long time without eating maize” (D2, Man, Kagera) and “I eat it at least every week” (C18, Female, Nyeri). In Kagera, the most commonly consumed foods are variations of green bananas (“matoke”), while in Nyeri the most frequently consumed food is traditional dish that incorporates maize and beans (“githeri”).

There are concerns such as the fact that as a source of income, maize on its own is insufficient (brokers say prices are lower than that of other crops, processors say there are too many millers to be a profitable venture while farmers try to spread out their risk by cultivating other crops along with maize or animal husbandry). In relation to consumption, maize is of low nutritional value. It is high in calories but low in micro-nutrients such as essential amino acids (Murdia *et al.*, 2016). There is a drive to improve the varieties of maize as seen in studies such as Amegbor, (2022) and Nuss and Tanumihardjo, (2010) given its status as a staple product.

However, regardless of the challenges facing maize, its importance in the region cannot be underestimated and as such understanding the environment, surrounding the value chain, in particular, that created by policies is important.

### ***6.7.3 Policy awareness, impact, and participation***

The policy environment is perceived as inadequate by the participants, and active engagement in policy development and implementation is reported to be infrequent. Overall, the



environment created by the policies enhances the production of food. However, there are challenges that prevent optimum production, which may have been targeted by the policies, but limited policy implementation has acted as a barrier to this. The literature shows that in creating environments for agricultural activities to flourish, policies potentially aid in transformation of value chains (Balázás *et al.*, 2021) impacting aspects such as income generation (Buechler, 2009; Delgado, 1997) and nutrition awareness (Gillespie *et al.*, 2015; Hodge *et al.*, 2015). This means that failure to implement such policies may compromise food security. Additionally, it should be noted that policies may have unintended or diluted impacts on food supply chains (Eaton *et al.*, 2008; Chilowa, 1998). For example, impacts on small-scale operations may be due to various reasons including inadequate stakeholder engagement during formulation or implementation (Salami *et al.*, 2010). In Kenya, policy impacts such as those resulting from pesticide regulations and aflatoxin standards have meant that both domestic and regional producers must meet a certain standard before maize can enter the market. Tanzania's regulations on ensuring domestic supply of maize had unintended consequences (see Section 6.6.3). In both countries, policy impacts are both beneficial on a large scale but with perceived negative impacts on the localised levels, suggesting there is a need for knowledge exchange, and stakeholder engagement in the relevant policies.

Perception of the policy environment by the participants was assessed through their awareness and opinions of policies and participation in policymaking. Participation in policymaking is low among the societal representatives, resulting in perceptions that important challenges are not being appropriately addressed in policies, a situation which might be rectified if stakeholders are enabled to contribute more to policy development and implementation. Research (e.g., Sadler *et al.*, 2014; Yami *et al.*, 2018; Vorley, 2013) has determined that stakeholder exclusion may to a limited uptake of policy outputs by end-user communities. Advantages of stakeholder engagement (Section 2.3.1) are dependent on having a working system for stakeholder engagement and awareness among the stakeholders on how to use it.

This research demonstrated that participants were interested in engaging in policy development and/or implementation. The few participants who have participated fit the criteria identified in Chapter 5 i.e., special interest groups and are more familiar with the policymaking process showing that knowledge of the policy environment, or at least the policies being discussed in relation to specific targets, (e.g., food security) is necessary for their effective participation. It also highlights the need to increase the relevant knowledge of food security policies, together with the development and implementation process associated with these policies, within society, in relation to stakeholders who may be affected. The systems for participation among

the respondents who have participated is not harmonized within or outside national borders, with engagement being via different processes including contact with local authority representatives, in the form of consultation and responses to requests for comments to policy outcomes, for example, stakeholders did not mention interactive events or exercises such as workshops, identified in Chapter 5, an important participatory engagement mechanism (Mattee, 2007). Coupled to the need to increase knowledge about policies themselves, ways for stakeholders to engage needs to be developed and disseminated across stakeholder communities.

The limited to non-existent participation by the respondents in the policy process contributes to ineffectiveness of the policies, as problems or challenges may be generalised which has the consequences of developing less than ideal solutions. The system of allowing local authorities to adapt national policies to suit their situation comes into play but it is still a system that needs support and development. Additionally, it means that the respondents are unaware of the policies which can have an impact not only on their activities but also on food security measures.

The low level of awareness of policies among the stakeholders, together with their participation in policy development, implementation, and evaluation, is driven by limited knowledge of the policy environment, with responses along the lines of “I do not know much about it, but I would like to participate” echoing findings by Babeiya (2011) on the need to empower citizens through knowledge to enable participation in policy matters. Regulatory authorities potentially play a significant role in increased awareness of agriculture matters; an issue recognised by the stakeholders in the research presented here. Although farmers indicated that knowledge exchange mechanisms had been established with extension officers, other problems in knowledge exchange with stakeholders throughout the value chain prevent effective knowledge exchange. For example, interaction between the policy maker (e.g., the regulator) and the stakeholder (farmer/broker/processor) is limited, limiting the exchange of information. It is noted that formal meetings such as field farm demonstrations and training exercises are well attended and may provide the basis upon which the relationship between authorities and society can be strengthened, and participatory policy activities increased. Abegunde *et al.*, (2020) and Temba *et al.*, (2016) advocate the improvement of these relationships as a way forward in policy engagement.

For all the respondents, the most common form of knowledge exchange is peer group interaction within the value chain (e.g., farmers with farmers, brokers with brokers). Interactions with other stakeholder groups (farmers with brokers, processors with farmers) and

within social networks (such as neighbours) also occur but less frequently. Additionally, the internet and social media platforms are gaining ground as a platform for knowledge exchange and, potentially, engagement in policy (see Delmastro & Zollo, 2021). Formalisation of informal communication networks is one of the ways that policy engagement can be achieved, as well as empowering existing formal organisations like farmer associations to contribute to policy engagement (Ton *et al.*, 2014).

The research has indicated that policies to protect consumers are not well known/ understood by the consumers included as respondents. Consumer knowledge is important as demand for products puts pressure on stakeholders within the entity of the value chain to improve quality and quantity. Lusk and McCluskey (2017) outlined the increasing importance of consumers in shaping the food system. Knowledge among consumers is important if policies targeting consumption (e.g., nutrition and safety policies) are to be effective (see also Dodge *et al.*, 2011 and Rimal *et al.*, 2008).

Increasing awareness of policies and encouraging engagement in their development, implementation and evaluation, is important as stakeholders have direct experience of the problems the policies are being developed to mitigate and prevent (Vorley, 2013).

#### **6.7.4. Country comparison**

In both countries, stakeholder awareness of policies is limited, although there is evidence that low levels of awareness are more pronounced in Tanzania than Kenya. This could be due to the easier access to information bolstered by the presence of a strong private agri-sector to complement the governmental systems in Kenya such as the FarmKenya initiative (FarmKenya, 2021). However, the results suggest that introducing (new, or enhancing existing) mechanisms for stakeholder engagement in developing, implementing and evaluating policy effectiveness are needed. These may include broadening from dissemination workshops to participatory workshops and the utilisation of social media for information sharing, opinions and surveys as well as a simplified evaluation system that allows all members of society to use.

#### **6.7.5. Conceptual framing**

Following the conceptual framework, the S-LCA placed emphasis on the views of the stakeholders along the value chain ranging from practices that the stakeholders employ to ensure their activities and the challenges they face to the behaviours that affect the value chain as well as the policies being implemented. It is accepted that institutions exist (policies) to better the food value chain but an obstacle in the form of practices by stakeholders may hinder achievements. This is explored with the case of informal networks.

The identified behaviour of the stakeholders to rely on informal networks, due to various reasons such as limited extension services or established trust, is a practice that can alter the activities of the chain and hamper implementation of policy and present potential ramifications (Fig 6.2.).

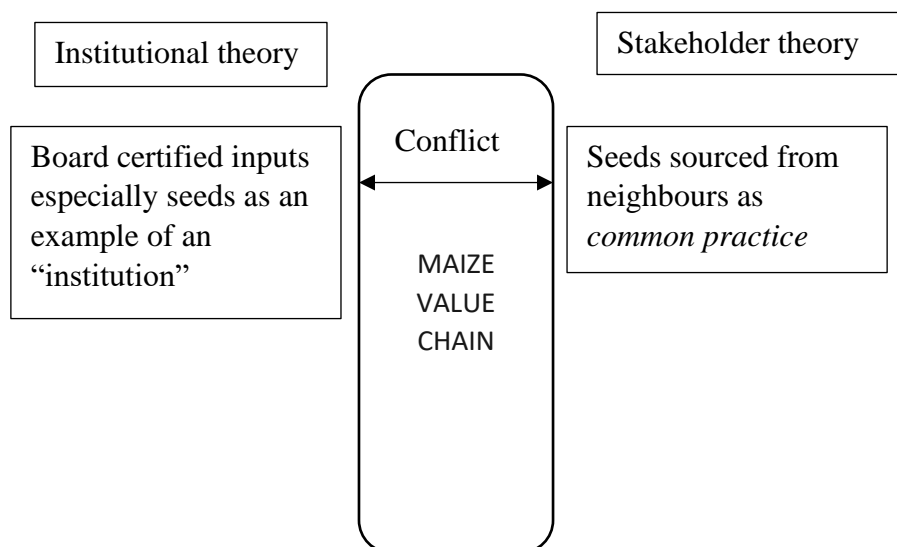


Figure 6.2: Illustration of the interaction between policies and practices within the value chain. Policies in place advocate for the use of certified seeds by farmers but farmers may easily trade seeds between themselves without caring about origin.

Recognition of these informal networks by policymakers and inclusion in policy formulation will lead to more inclusive and acceptable policies. This is because the stakeholders have views on the policies but lack the know how to communicate them. The conflict (Fig 6.2) is an example of the gap that stakeholder studies can aid in answering for when developing institutions.

Key understanding within the society is that the policies are in place to bolster the activities and aid stakeholders however limited awareness about such programs and the limited duration of some of these programs means that the changes are either not felt or impact is not long-term.

## 6.8. Summary

S-LCA allowed incorporation of secondary data in the analysis and discussion however it may be ideal to widen the participant pool to ensure an in-depth understanding of the situation. Time and resource constraints also hampered the study, in that only a handful of sites could be studied. Future research could widen the number and types of sites and duration spent in each to increase the number of participants.

The research conducted around the S-LCA of maize indicates that there is a need to improve the inclusion of the stakeholders (and in general members of society), in both rural and urban areas, in policy making, implementation and evaluation. This will help to prevent issues that result in damaging businesses or reduce the impact of food security measures. Chapter 7 looks at the expert opinions on the effectiveness of these policies and their impacts.

## **Chapter 7: An Expert-based assessment of the effectiveness of food related policies in Kenya and Tanzania**

### **7.1. Introduction**

The previous chapters established that the policymaking process in the region is designed to be participatory with defined goals and stakeholder involvement. However, the actual situation is different with evidence of limited/minimal participation by stakeholders in policy development, participation and evaluation. This chapter together with Chapter 6 addressed the second objective of this thesis, “*Evaluating the effectiveness of policies in the selected value chain*”.

The following chapter outlines the methodology used, results and analysis of the interviews in line with the research objectives specifically second research objective (Section 4.2.2).

#### **7.1.1. Need for assessment**

The S-LCA (Chapter 6) evaluated the policies from the perspective of value chain stakeholders, including consumers, in the context of the maize value chain. However, there is also a need to have expert viewpoints of the situation and how these contribute to food security and sustainable food systems. “Experts”, in this research, are defined as individuals who have been involved in food value chains, in particular the maize value chain, as well as policy related matters specifically advocacy and capacity building in the East Africa region focusing on food. Based on Chapter 5, where it was found that stakeholder participation was dominated by “special interest groups”, it can be assumed that these experts would be well represented as part of these groups. However, there is a need to involve different types of experts and stakeholders.

Research into the effectiveness of policies within the East African region include Bolwig *et al.*, (2013) who looked at the challenges of standards conformity, De Groote *et al.*, (2016) on the effectiveness of extension strategies to increase adoption of technology, Odada *et al.*, (2004) on environmental policies proposed by the East African Community to mitigate problems in Lake Victoria, and Ampaire *et al.*, (2019) on policies covering gender, climate change and agriculture. Key finding of these studies is the fact that neither expert nor citizen consultation was incorporated leading to limited information for developing interventions. This is echoed in research that focused on stakeholder perception such as Chaudhury *et al.*, (2013), Gillespie *et al.*, (2015), and Hodge *et al.*, (2015) considered stakeholder perceptions in relation to participatory scenarios or various food policies in the East Africa region and reported that greater participation and engagement facilitated the identification of knowledge gaps and enabled knowledge exchange regarding policy effectiveness. For this research therefore, there

is a need to gain the perspectives of the experts on policy effectiveness and inclusion of societal stakeholders.

## **7.2. Expert-based Interviews**

Expert opinion can be elicited using a variety of methods such as the Nominal Group Technique (Hohmann *et al.*, 2017), or social judgment analysis (Okoli *et al.*, 2004), both of which have the disadvantage that there is a need to conduct it in person, participatory polling (Sackman, 1976), traditional survey methods and Delphi methodology (Frewer *et al.*, 2011). In this research, experts were interviewed using an interview guide tool. Initially, the intention was to apply a Policy Delphi method to identify lack of consensus in policy outcomes (Turoff, 1970; Manley, 2013). Policy Delphi is a variation of the Delphi method that follows the main principles of Delphi such as anonymity, recruitment of experts as part of the panel, utilization of questionnaires and the use of iterative rounds to provide participants with feedback about the participants response in previous rounds. However, there is one distinct difference, in that Policy Delphi does not seek consensus in its application and as such lends to the heterogeneity of the panel selection (Manley, 2013).

Interviews are an accepted social science method of data collection, involving the exchange of information through a series of questions and answers (Bryman, 2016) between two or more individuals. It is an extension of interactions that can take place in various situations (Alshenqeti, 2014), allowing for the study of societal processes and, in the case of expert interviews, gaining the perspectives of expert knowledge held by an individual. There are three forms of interviews: structured, semi-structured and unstructured. Most relevant to this research is the semi-structured interview methodology which is flexible and modifiable (Hofisi *et al.*, 2014) and frequently used in policy research (Harrell & Bradley, 2009). Baker (2013) and Beyers *et al.*, (2014) used interviews in policy research, creating a step-by-step guide to conducting interviews and ways to avoid bias. As a method, disadvantages and advantages have been discussed in Chapter 4 (Section 4.4.4.) with the most important being that it will aid in contributing new knowledge regarding the effectiveness of policies.

### **7.2.1. In the context of this research**

Determination of the effectiveness of current food security policies will utilise expert-based interviews, as it will allow for collection of expert stakeholder opinion with regards to food policies, their local effectiveness, and greater understanding of stakeholder influence on the development, implementation, and evaluation of these policies.

### **7.3 Methodology**

Given the constraints and challenges posed by Covid-19 (including travel bans, no in-person interactions), the Policy Delphi questionnaire was converted into an interview guide, with one round of responses to an initial set of questions and follow up, in-depth sessions for necessary clarifications.

The research aimed to interview 12 potential stakeholders to form the heterogenous group of participants and meet the requirements of the originally planned Delphi (De Loe *et al.*, 2016). Members of the panel were experts with experience within the field i.e., have worked in the food, agriculture, and/or maize sectors in Tanzania and Kenya. As such, the sampling rationale followed that of the S-LCA (see Chapter 6, Section 6.3.2) combined with the special interest groups identified in the CIS, to target representatives of the different stages of the value chain. Selection therefore centred on representatives covering advocacy, consumer groups, academicians, researchers, cereal board authorities, and extension officers, among others.

#### ***7.3.1. Adaptation of the research***

To construct the originally planned Delphi questionnaire, and subsequent adapted interview guide, the guiding question to be answered was, “*What governs the successful implementation and subsequent effectiveness of food policies in the East African region?*”

Effectiveness in this case was considered in two ways; meeting the targets set out in policy, and the policy’s contribution to food security. The questions asked of participants were in line with this definition of effectiveness.

Specific indicators of food security and sustainability were used to structure the questions. By using indicators of food security and sustainability, the elements of interest for the research were included (Table 7.1). These indicators are adapted from the Milan Urban Food Policy Pact (MUFPP) (2015) and FAO’s Food Security Indicators (FAOSTAT, 2020). The indicators were selected to enable the questions to show the relationship between implementation of food policy and achieving food security: for example, what do the different stakeholders view as important when it comes to policies; what do they identify as important tools that aided in the successful implementation of policies, and what are their views with regards to food security (both production and consumption).

Development of the questionnaire focused on developing questions relevant to the main objectives (see Chapter 4 (4.2.3), Chapter 6 (6.2.2)), questions raised within the S-LCA, and the importance of maize as a measure of food security policy implementation.



Table 7.1: Indicators and sample questions used for the questionnaire/interview checklist

<b>Indicator</b>	<b>Example</b>	<b>Sample question categories in the questionnaire</b>
<b>FAO (2020)</b>		
<b>Availability</b>	Average value of food production	Effectiveness “rate” of the policies/procedures (successes and drawbacks) and the lessons learnt.
<b>Access</b>	Prevalence of severe/moderate food security in the total production	Access to resources to produce and buy food, adjustments to societal environment and logistics (transportation and storage)
<b>Stability</b>	Per capita food production variability	The drive to sustainability impact on implementation and effectiveness.
<b>Utilization</b>	Prevalence of undernourishment	Effect of policy on production rate/ consumption, as well as environmental sustainability.
<b>MUFPP (2015)</b>		
<b>Food governance</b>	Presence of an active multi-stakeholder food policy and planning structure	Effectiveness “rate” of the policies/procedures (successes and drawbacks) and the lessons learnt.
<b>Social and economic equity</b>	Local food initiatives and practices to guide development and expansion of food policy and programmes.	Inclusion of vulnerable groups in policymaking and the approach for implementing policies that affect these groups Use of awareness programs and other food initiatives. Economic and social aspects of food production and consumption.
<b>Food production</b>	Proportion of total agriculture population with ownership or secure rights over agricultural land for food production by sex	Ownership and rights of land and how this contributes to sustainability

### ***7.3.2. Adaptations to the qualitative interview guide***

The approach to data collection was adapted into a one-stage interview guide, instead of a two-stage Delphi. There were concerns during the conversion of the questionnaire especially in rewording that interviewer's bias might be a factor. Efforts to reduce this included ensuring limited use of leading questions, and including open-ended questions (Salazar, 1990; Shah, 2019).

Indicators guided the formulation of questions in the research (see Appendix E). To adapt the questions between the initial Delphi questionnaire and final interview guide, the ranked response format used within the questions was removed to ensure questions were open-ended. The rephrased questions were grouped into categories such as food governance, policy making and participation of stakeholders, awareness of policies and regulations, and contribution to food security and sustainability (see Table 7.2). The grouping of the questions was more explicit in the interview guide than the Delphi questionnaire. This was done to improve the flow of the interview and ensure a more natural conversation.

A full version of the final interview guide can be found in Appendix E. Whilst a heterogeneous sample of experts was recruited, all were interviewed using the same guide.

*Table 7.2: Topics and sample questions in the interview checklist*

<b>Topic</b>	<b>Group of questions</b>
<b>Food governance</b>	Policy making, stakeholder participation, implementation
<b>Awareness</b>	Awareness of policies, regulations,
<b>Socio-economic development</b>	Importance of food (economics, health, nutrition), gender
<b>Food security</b>	Importance of maize, current challenges, extenuating circumstances

### ***7.3.3. Participant recruitment and implementation***

Identification and recruitment of the experts was conducted through personal connections, the application of snowballing technique and identifying individuals through Google Scholar and LinkedIn profiles. Organizations of interest were identified during the literature review (Chapter 2), and the in-depth critical synthesis (Chapter 5) with journal articles, focused on the maize value chain in the case study regions, was used to identify further potential interviewees. The targeted experts were diverse and included academics, policymakers, value chain actors and policy implementers.

Obtaining contact details for potential interviewees was conducted through internet searches and prior established connections. Emails were sent out to potential interviewees (see Table 7.3) introducing the research and its aims, the interview process and inquiring if they were willing and able to participate. In some cases, where there no responses, alternative interviewees were identified. For instance, the interviewee who represented Advocacy in Kenya, (Table 7.4.) was not the initially contacted potential participant.

Options were provided for potential interviewees for the initial communication (a telephone conversation or an internet-based Zoom call). Some contact had been made prior to the Covid-19 outbreak. After initial contact, the interviewees were sent the interview guide, participant information and consent forms. Three interviewees, those contacted via email, opted to write out responses to the interview guide and have short interviews for the sake of clarification and expanding on areas of note within the guide whereas the reminder (5) were interviewed via the internet.

Table 7.3: Identified potential interviewees

Category	Number	Tanzania	Kenya
<b>Advocacy</b>	2	Agricultural Non-State Actors Forum (ANSAF)- <a href="mailto:info@ansaf.or.tz">info@ansaf.or.tz</a> (contacted)	-
<b>Academic</b>	2	SUA	UON
<b>Research Institute</b>	2	Tanzania Agricultural Research Institute ( <a href="mailto:info@tari.go.tz">info@tari.go.tz</a> & <a href="mailto:dg@tari.go.tz">dg@tari.go.tz</a> ) (contacted)	Tegemeo Institute-Only contact form
<b>Policymakers</b>	2	Policy and Planning Division-Food Security Unit (Contacted)	Kenya Institute for Public Policy Research and Analysis (KIPPRA) (accepted)
<b>Farmers Association</b>	2	Mtandao wa Vikundi vya Wakulima Tanzania (MVIWATA)- <a href="mailto:info@mviwata.or.tz">info@mviwata.or.tz</a> /255 23 293 2026 (contacted)	Cereal growers Associations <a href="mailto:info@cga.co.ke">info@cga.co.ke</a> (contacted)
<b>Consumer Association</b>	2	Tanzania Consumer Advocacy Society- <a href="mailto:Consumeradvocacytz@yahoo.co.uk">Consumeradvocacytz@yahoo.co.uk</a> 0757170555 (contacted)	Consumer Federation of Kenya- 0715555550/0733180008 (Contacted)
<b>Processors Association</b>	2	Tanzania Food Processors Assoc.- <a href="mailto:info@tafopa.or.tz">info@tafopa.or.tz</a> / <a href="mailto:tafopaorg2015@gmail.com">tafopaorg2015@gmail.com</a> (contacted)	Cereal Millers Association-Only contact form <a href="mailto:/info@cerealmillers.co.ke">/info@cerealmillers.co.ke</a> (contacted)
<b>Cereal board authority</b>	2	CPB- <a href="mailto:info@cerealsboard.go.tz">info@cerealsboard.go.tz</a> +255262321192 (Contacted)	NCPB- <a href="mailto:info@ncpb.co.ke">info@ncpb.co.ke</a> 0722205756/0733333159 - (contacted)

Covid-19, and accompanying restrictions, meant that the initial in-person contact which would have enabled relationships to be established, and ensured an adequate response rate to the participation requests was not possible. All contact was at a distance, which potentially contributed to decreased response rates. In addition, email contact within organisations was difficult, and infrequent responses to email enquiries were received. Research efforts were therefore focused on the people who responded to follow up emails and schedules adjusted to accommodate them. The process was spread out between March 2020-January 2021 to

accommodate any delays due to Covid-19 and computer fatigue due to people working from home.

The interviewees represent different sections of the maize value chain and included extension officers, policymakers and support services from both public and private organizations (Table 7.4). While a gender balance was actively sought, this was not achieved with male outnumbering female interviewees. Efforts were made to contact numerous female participants however they did not respond to prompt or follow-up emails.

*Table 7.4: Final categories and number of participants interviewed*

<b>Participant</b>	<b>Occupation</b>	<b>Gender</b>	
E1	Policy analyst/Researcher	M	Kenya
E2	Director General-Cereal Product Board	M	Tanzania
E3	University Researcher	M	Tanzania
E4	Agriculturist	M	Kenya
E5	Extension officer	M	Tanzania
E6	Extension officer	F	Tanzania
E7	Extension officer	F	Kenya
E8	Extension officer	M	Kenya

#### **7.4. Analysis**

The resulting responses from the interviews were in two languages, Swahili, and English. The initial step was translating the Swahili responses into English. Recordings of the interviews were transcribed word for word in English. For the three interviews that were a combination of written responses and follow-up questions, the responses were annotated with the interview conversations in English. This was followed by collating the responses according to the questions

All transcripts were transferred onto a Word document for coding. The tables' shows the topics around which the questions were grouped (Table 7.2) and resulting codes and themes from the coding approach (Table 7.5).

The coding approach was similar to that applied in Chapter 6, with a hybrid coding approach undertaken to ensure inclusion of the themes that arose from the codes obtained from the data. Table 7.5 shows the themes and codes as well as brief descriptions of the parameters of the theme linking to the topics used to generate the questions.

## 7.5. Findings

Table 7.5: Themes generated from the data

Theme	Codes	Description
<b>Existing policy system</b>	Challenges, local authorities, Constitution, special interest groups, lack of requisite capacity, training efforts, policy development, Constitution, Central government, effective, requirements, unclear process, fine tuning goals, commitment, follow through, lengthy process, associations, known associates, No choice, ease, acceptance, internal/external funding, commitment, enabling framework, lack of adequate information, skills, support, over reliance, decreasing dependency, resources, societal representation, policies	Looking at existing policies and their impact, the policymaking process from formulation to implementation
<b>Stakeholder participation/involvement</b>	Stakeholders, acceptance, ease, willingness, exclusion, mandate, inclusion, impact, voice, inadequacy, strengthened, improvement, development, mentoring, effectiveness extent, threat	
<b>Communication</b>	Numerous, overlapping policies, governance, limited co-ordination, different ministries and departments, complication, food security goals, common frame, conflict, blueprints, structure, productivity, organization, intensification, land regulation, negative effect, impact	Look at the awareness of policies and regulations
<b>Socio-economic</b>	Competition, varied importance, tourism, mining, dependency on maize, non-relation to food, levels of malnutrition, productivity, global food markets, profitability,	A look at the importance of food and social aspects such as gender

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innovation, diet diversification, Differentiations, accessing resources, non-generalisation, household food security, role of women, technology

**Food security**

Strong maize eating practices, acceptance of the most available foods, urban areas, modernization, traditional foods, health awareness, meat consumption, mobility, population, convenience, storage, applicability, staple, variety of uses, climate change, challenges, extenuating circumstances

Importance of maize to food security,

The responses to the interview questions led to themes being identified. These included stakeholder involvement in policymaking, societal representation in policymaking, complicated food production processes, policy implementation strategies, funding for implementation, awareness of policies, productivity, and food security among others. The findings are presented as linked to the existing policy system leading to the development of policies, and their (policies) challenges. Additional findings covered stakeholder participation and how the policy system aids in food security. Differences along country lines are drawn out when they occur.

The interviewees were all involved in policymaking within the region either as part of their mandated duties or as invited stakeholders. Activities with regards to this varied depending on the position of the individual on the chain, for example extension officers would be involved in contributing information during the “understanding the problem phase” as well as the “implementing of the solution phase” while other experts will contribute during the formulation of the policy itself.

#### ***7.5.1. Existing policy system***

Under food governance, the mandate for policymaking, especially formulation, was perceived to lay with the national government, although implementation was the responsibility of the local authorities. Within this section, challenges associated with this existing system are discussed as well as other factors such as the food policy environment it creates, the policy formulation aspect and stakeholder involvement in the entire process.

The food production sector in the East African region is characterised by policies that have had varying impacts on the food value chain, including maize. For instance, land policies are seen to be more impactful in matters of production than nutrition related policies even though they all contribute to the same pillar of food security, that of availability. Additionally, there are different ministries and departments involved in the formulation and implementation of the policies.

*“There are many policies governing the sector, under different ministries and departments with limited co-ordination”- E4 (Man, Kenya)*

The resulting impact is that there is perceived to be overlapping policies, and duplication of activities contributing to ineffectiveness.

*“Multiplicity and overlapping policies, laws and institutions governing the sector”- E2 (Man, Tanzania)*



While the policies are aimed at improving or enhancing food productivity and availability in the East African region, they have also complicated the process, starting from their implementation being difficult to targeted stakeholders being unable, or perceiving that they are unable, to adhere to implementation activities. Based on interviewee responses, food production is perceived to be associated with a broad set of policies which may lead to increased food production, but which also complicates the associated processes.

Given that formulation of these policies in the East African region is a mandate of the national governments, interviewees stated that the policies tend to be aligned with national development goals and certain international goals that have been ratified by national governments.

*“The current food policies are diverse and aligned to the government blueprints like the Big Four Agenda where food and nutritional security is key, and they promote increased production in terms of quality and quantity”*- E4 (Man, Kenya)

Interviewees suggested that there is a need to ensure that these internationally derived goals are realistic for the East African region. There was also the concern that the political cycle that changes every five years meant that implementation was potentially problematic.

*“Unfortunately, very often such steps do not have strong commitment and they are driven by an individual person (a leader) who will not stay forever. Once he or she is gone, the whole issue is abandoned, and the new leader may come up with a different issue. In other words, such steps do lack long term commitment”*- E3 (Man, Tanzania)

Another concern included that of the goals being outlined in the food and nutrition security policies were developed nationally but implemented locally. That is, the local governments are responsible for the adaptation and implementation of the policies to suit local conditions and contribute to meeting the national target. As such there was a need to adjust the policies to meet local targets.

*“Targets outlined in the food and nutrition policies such as the “reduction of malnutrition” and “increase the quantity and quality of food” are blanket goals and need to be fine-tuned to the various smaller regions to be applicable and suitable”*-E1 (Man, Kenya)

As part of the formulation, food related policies are focused on enhancing food security and as such cover a wide range of issues including increased access to resources. There is also an increase in other initiatives showing a shift from increasing food production to ensuring recommended consumption within the society, strengthening the connection between food and nutrition.

*“Yes, to a large extent but some initiatives are coming up especially those related with nutrition sensitive interventions, including agriculture”* - E1 (Man, Kenya)

The other challenges identified in relation to the formulation of policies include the inclusion of real issues which can only be gathered by obtaining the viewpoints of the affected members of society,

*“It is important for policies enacted to take into consideration real issues facing all value chain stakeholders for an impact in the sector”* - E2 (Man, Tanzania)

The policies are aligned with implementation strategies to ensure their effectiveness. Responses under this theme (implementation) identified that strategies require funding to survive or achieve their aims. External funding sources generated outside the country matter as there may be a need to accommodate the requirements/conditions of the donor,

*“It is true that in the past, many interventions were taken up as “donor-driven” whereby sometimes the host governments were forced to be engaged because of agreeing to sign some international commitments e.g., UN-based ones. However, the reality is such governments weren’t ready. But increasingly we are seeing less and less of such incidences”* - E3 (Man, Tanzania)

However, interviewees also expressed the view that funding was not the only deciding factor or issue of note,

*“Commitment of different stakeholders is perhaps key to success...And of course an enabling policy framework to support the commitment”* - E3 (Man, Tanzania)

*“Issues include limited funding, knowledge and skills and lack of adequate information when it comes to implementation”* - E4 (Man, Kenya)

Limited funding and knowledge of the implementing officers is seen to have an impact on local policy implementation,

*“There are issues with implementation such as low farmer adoption, inadequate staff to implement policy and inadequate facilitation”* - E7 (Woman, Kenya)

*“Stakeholders are willing to embrace implemented policies but there is resistance as a result of inadequate sensitization”* - E8 (Man, Kenya)

There is also a need to adapt policy implementation to account for climatic challenges and ensure that requirements are produced in a timely fashion,

*“Implementation was slow due to devolved functions which led to inadequate facilitation to ensure that people obtained the necessary resources – E7 (Woman, Kenya)*

Despite the challenges, commitment to certain implementation strategies was noted in interviewee responses. For example, some of the extension officers are implementing strategies that they “inherited” from the previous occupants in their positions, such as “improvement of food security and improvement of agriculture”. This is especially true of agriculture development strategies which have seen the introduction of additional phases (2017-2023), building on the initial time period (2006-2014).

In addition, other challenges faced in implementation may be institutional, including a lack of adequate support for technology transfer. An example of this is the irrigation issue in Kenya which aims to improve the irrigation infrastructure, which has not been adequately adopted. However, the government is aware and taking measures to rectify the situation.

Lack of access to financial resources by farmers to enable them to utilize the technologies and techniques, and subsidies not being utilized by intended recipients, are also identified as challenges. The conditions and terms of financial institutions may not favour smallholder farmers, who, at the same time, have very little access/knowledge and support to access these institutions. Some experts agreed that land regulation resulted in increased production,

*“People tend[ing] to produce more when they are organised” -E3 (Man, Tanzania)*

Land regulations currently work towards ensuring ownership (Chapter 5) to enable a stable foundation for productivity by empowering the farmers to access finances, because title deeds can be used as collateral to finances which in turn can be used to access better technology and techniques to be used on the farms.

In addition to institutional barriers to policy implementation, the lack of a support system to enhance policy adoption and limited knowledge and awareness of the policies and policy instruments were identified as problematic. There is a system in place that is currently limited in nature, facing challenges from the level of formulation to implementation. However, policies are still generated with the system.

### **7.5.2. Food policies**

Perceptions of the interviewees on the food policies ranges from the measures they focus on with regards to food security, impact of the policy on society and challenges concerning the policies.

Food related policies arising from the current system, are aligned with national and international development agendas. Food security issues are addressed in these agendas and potential solutions outlined in the food policies.

*“Having a common frame is a good idea, but countries should not undermine each other in implementation. For example, the issue of common market in food communities have become hard to implement”*- E3 (Man, Tanzania)

Food security measures were identified by interviewees to be focused on food productivity, land issues and in this instance, consumption patterns. Given that food security in the East African region is affected by low farm productivity, policies were thought to be aligned towards productivity

*“Currently productivity is low, and this makes farmers uncompetitive in the global food markets and thus disappointed. Overall food security in the region is affected by the low farm productivity – E2 (Man, Tanzania)*

However, productivity was not considered to be the most reliable measure of food security,

*“We have some areas that produce substantial amounts of food (mostly cereals and beans) such as the Southern Highlands in Tanzania, but which also have the highest extent of malnutrition – E3 (Man, Tanzania)*

Other factors that may affect the achievement of food security measures included limited policy implementation due to insufficient resources, for example with regards to technology, which causes authorities to rely on the already tried and tested methods

*“It is true that given that the kind of production technologies that are available, it is not possible to go for intensive technological production hence the increased land use becomes inevitable”*- E3 (Man, Tanzania)

In line with increased land usage, land regulation was thought to have both negative and positive impacts. It was agreed that existing policies lead to an increased production of food,

*“They promote increased production in terms of quality and quantity. This is through increased productivity and profitability through technology innovation and management practices (TIMPs) as well as addressing climate change”*- E4 (Man, Kenya)

Policies were also perceived to impact on different members of society differentially, and in some cases, the responses also outlined implementation failure,

*“Yes, we had in the past in Tanzania, price subsidies for maize flour (Sembe), rice and sugar in Dar es Salaam hoping to cushion economic hardship for the low-income earners. However, it was proved later on, that the middle- and high-income earners were the greater beneficiaries (i.e., they were taking advantage)-E3 (Man, Tanzania)*

*“There is a need for timely access of inputs for farmers “- E6 (Woman, Tanzania)*

Access to resources (and by whom) was identified as being very important and should be included as a policy outcome. However, drawing a clear cause and effect between limited resource access and food policy goals not being met is not possible.

*“It is hard to draw a line on this. In some cases, it may be true but very often the small-scale producers have developed their own coping strategies, which is how some have kept surviving all these years”- E3 (Man, Tanzania)*

Another characteristic of existing policies as perceived by interviewees is that they are geared towards production and consumption, instead of changing consumer preferences such as the push towards more traditional, organically produced food.

*“Ideally, [accounting for consumer preferences] is how it should be, but in reality, it is hard to attain- E3 (Man, Tanzania)*

Consumer preferences may influence whether nutritional goals are met. Preferences are linked to increasing economic mobility, greater awareness of the food production process by consumers and cultural factors. For example, consumer preferences for traditional foods are associated with cultural norms

*“Yes, while we have strong maize or rice eating cultures in Tanzania, such cultures are opening up accepting the most available foods especially in urban areas where people are highly integrating different foods which are available- E3 (Man, Tanzania)*

*“Yes, with modernization, the diet is changing among the population. There is an increase in meat consumption among the youth population. The elderly are going back to their traditional foods, ...due to increased health awareness”- E4 (Man, Kenya)*

*“Typical traditional diets are hardly maintained in urban areas where you have many mobile people”- E1 (Man, Kenya)*

These changes in dietary preferences could be addressed in policy development, in order to prioritise for example, certain crops or production practices in alignment with consumer

demand, and changes in this demand. For example, the maize eating culture is one of the contributing elements to the gearing of food security measures around cereals,

*“Maize is an important food security crop as it has a variety of uses at the household level. It is easy to store the grains as opposed to other perishable crops”- E3 (Man, Tanzania)*

However, maize is poor in micronutrients and high in calories. Over reliance of maize in the diet may lead to malnutrition.

*“It has remained for long that once you have enough of the main staple (maize or rice), then you are food secured. This misconception has continued and unfortunately many policymakers have taken it the same. I think the persistence of malnutrition, especially in rural areas, is caused by this misconception. Diets have remained with very little diversification. Unfortunately, the nutrient dense foods such as vegetables and fruits are not considered important in that setting”- E3 (Man, Tanzania)*

Food security is also influenced by the impact of population growth and climate. Mitigation by technology adoption may be increasingly central to policy development and implementation in the future.

*“I think what will happen is that the increased demand will push the food producers to orient towards producing more, intensifying through better technologies or expanding the cultivated land.”- E3 (Man, Tanzania)*

*“There may be a shift, but efforts are being made to promote climate smart technologies”- E4 (Man, Kenya)*

Improvement of agricultural production systems would also ensure that the region is not reliant on imports, (which disadvantages local maize producers). This is especially important in Kenya, which is a net importer of maize, and where there a constantly high demand for maize.

*“True we have already witnessed recently when importation of rice from Asia was allowed to top up the low harvest, many paddy farmers complained because of the resulting low prices of rice. Of course, for consumers this was an advantage.”- E4 (Man, Kenya)*

### **7.5.3. Stakeholder involvement**

The requirement for participation in the policymaking process is included in the constitutions of both countries. It should be noted that the interviewees have all participated in the policymaking process. Tanzanian interviewees identified lack of a support system to promote stakeholder inclusion, while Kenyan interviewees indicated that the activity is stipulated on

paper but does not occur in practice. With regards to stakeholder representation, opinions varied, with some interviewees stating that for policies to have an impact in the sector all considerations of real issues must be considered by talking to stakeholders, and others indicating that representation is inadequate because of limited knowledge of the policy environment or stakeholder voices not being heard.

Stakeholder involvement in policy development, implementation and evaluation is limited in both countries but an added obstacle of limited knowledge about agri-food and associated policies further inhibits stakeholder engagement

*“To a greater extent yes, but the extent of involvement still needs to be strengthened”*- E1 (Man, Kenya)

The process of which stakeholders are engaged might be biased as the invited participants are already known to the government officials.

*“Yes, to some extent it is true [that selection of stakeholders is limited to those already identified], some are considered to be a threat to the “ruling system” but the mechanism and procedure for selecting them is not clear-cut which keeps some of them away”*- E3 (Man, Tanzania)

While expert representation is through invitation, representation of the public is normally through special interest groups or NGOs. However, there is a concern about the nature of these organizations, in some instances, the associations are formed for a specific reason rarely for enacting policy changes and another concern is that they have no “power” to have their voices heard.

*“Farmers have organizations and associations which are invited; however, these organizations and associations are quite weak and lack the requisite capacity to participate in the policymaking policy process. There are efforts being made by strategic partners to train the farmers in policy making process”*- E4 (Man, Kenya)

The procedure for involving stakeholders may exclude members of society (see also Chapter 4), as advertisements posted in newspapers which may not be accessed by everyone. It is understood by the interviewees that there is a need to strengthen stakeholder involvement. County governments and local authorities were identified as potentially playing a substantial role in increased stakeholder engagement in the policy process.

*“The existence of county governments was envisaged to promote public participation in policy formulation as prescribed in the 2010 Constitution”*- E1 (Man, Kenya)

Interviewees indicated that better coordination between the activities of the local governments and the national government goals is needed in relation to policy development, and by implication stakeholder engagement

*“Implementation [of the formulated solution] was slow due to devolved functions”*- E4 (Man, Kenya)

Most of the local authorities are perceived to be without power to act and financially weak and thus dependent on the central government, which means increased participation by stakeholders may not be a priority. Currently, extension officers, as part of the local government, would be involved in contributing information during the problem identification phase and implementing the measures once designed. Their involvement can be through training, farm demonstrations and “barazas” (local meetings/workshops) which allow farmers an opportunity to air their views and concerns. In both cases, to obtain relevant information, awareness of the policies by the stakeholders is necessary.

In some cases, society is “forced by circumstances” to accept the policy, regardless of their inclusion or non-inclusion, to be able to carry out their socio-economic activities.

#### ***7.5.4. Socio-economic aspects***

Acceptance of policies is framed by the fact that socioeconomic development is dependent to a certain extent on food production, although interviewees also stressed

*“We have many aspects and sectors that are quite important socio-economically which are not related with food production e.g., tourism sector in the Northern part of the country and small-scale mining in some areas”*- E3 (Man, Tanzania)

*“More than 60% of the populations is involved in food production”*- E2 (Man, Tanzania)

The aspects that arose from the findings include finances and gender issues. Challenges affecting policy implementation included the lack of access to financial resources,

*“Conditions and terms of credit from financial institutions are not in favour of smallholder farmers”*- E2 (Man, Tanzania)

*“It is true that production is dominated by small scale producers who have very little access to financial resources”*- E3 (Man, Tanzania)

In addition, the beneficiaries of policy interventions may not have been those initially intended when the policy was formulated. For example, in Tanzania there were price subsidies offered for maize flour to cushion the economic hardship for low-income earners, but the policy was



found to primarily benefit middle- and high-income earners. Gender was also assessed when considering the targets of the policies,

*“Yes, household security is the role of women, some technology should be geared towards women farmers”*- E4 (Man, Kenya)

*“Gender issues are important in relation to accessing different resources, but they do differ from one place to another. It cannot be generalised.”*- E3 (Man, Tanzania)

Policy goals should be adjusted to meet the needs of women. For example, the introduction of technologies that reduce the amount of time spent on the farm might also address ways to increase women’s access to these technologies.

*“There is slow progress in implementing but it is developing”*- E7 (Woman, Kenya)

However, certain considerations must be taken into account such as the fact that gender issues cannot be generalised across all contexts and regions, which emphasises the need to adapt policies to local area parameters and the change in the roles with women being the bread earners more and not only as farmers,

*“While this may still hold true to some extent, we are increasingly seeing many women becoming the bread earners in their households”*- E3 (Man, Kenya)

#### ***7.5.5. Societal awareness regarding stakeholder participation in policymaking.***

Awareness about participation in policy making was described as low within society and is attributed to low level of knowledge regarding food security policies, and lack of time on the part of stakeholders to attend stakeholder workshops and other participatory events. Extension officers may act as a conduit for farmers to share their views and contribute to policy formulation. However, participation leading to policy development is not clear-cut relationship given that currently the use of “barazas” workshops are the common means of communicating issues. While stakeholders may offer their opinions during the workshops, it is difficult to link these to policy changes.

The level of awareness of policies and regulations is higher among the farming communities because of educational programmes provided by extension officers. In Kenya, education of farmers occurs in the private and public sectors, while in Tanzania education is provided by local authorities. This highlights the importance of collaboration not only between the central government and local governments but also between the public and private educational sectors.

Interviewees perceived that, that if people are better educated about the initiatives and policies, and there is a sense of ownership of the policy, implementation, and commitment to achieving the policy goals is higher. Effective policy outcomes will only result if mentoring/sensitization of stakeholders regarding policy outcomes is conducted prior to policy implementation. Participation must be improved and made more effective ideally through

*“Strong mentoring, that increases knowledge and capacity in the society”* (E3, Man, Tanzania).

## **7.6. Discussion**

Overall, the findings support the results of Chapter 6 in terms of stakeholder involvement, providing evidence that there is a perceived need to improve the systems so that stakeholders can participate in the process. With regards to effectiveness of the policies, factors such as acceptance of policies, and commitment by the authorities regarding policy implementation are important as well as improved stakeholder involvement.

### ***7.6.1. Perceptions of the policy environment***

The large number of policies governing food production introduces “apathy” among stakeholders in relation to policy implementation because they did not contribute to policy formulation and development, plans for effective implementation, or co-design of measures for policy evaluation. This results in reduced trust in the government and its activities, which in turn limits stakeholder motivation regarding involvement in future projects (Jagosh *et al.*, 2015). Limited participation and engagement also mean that the targeted goals or objectives are not met. In the case of agri-food policy, food security will not be achieved in the East Africa region.

In addition, policy implementation may not be effective as insufficient funding may act as a barrier to agri-food policy implementation. Access to resources is necessary on two levels: for the producers (farmers) and for those responsible for policy implementation. In the case of the latter, resources are needed to be able to effectively implement, monitor and evaluate policy programs. Resources are needed by farmers to ensure that policy levers such as subsidies and training are available to support their activities and they are able to access them.

Given the devolution status of the countries moving from centralized governance to local authorities, policies may be developed at the national level, but implementation is at the local authority level. Devolution is seen as an improvement on the previous system of central government decision-making, which was perceived to isolate some members of society from decision-making processes (Mwenzwa, 2016). However, efforts to shift decision-making, with regards to policies, from the national level to local level may slow down implementation and

associated engagement measures. At the local level, the presence of extension officers may be important for knowledge exchange about associated policies, their implementation and associated strategies due to their close links to the communities, but they require relevant support from the authorities to effectively do so. Government support is also important in the case of continued implementation of strategies that were initiated by previous officials.

Implementation is dependent on a supportive environment which would also include increased participation in the steps prior to implementation (problem identifying and policy formulation). Stakeholder participation was perceived by stakeholders to be limited and needed to be strengthened beyond the stipulated rights in the Constitution of both countries. Limited awareness of the implementation on the part of stakeholders may also reduce policy acceptance. Another barrier to implementation is a lack of continuity and commitment, be it human or financial resources, and this negatively impacts the realization of the goals that can lead up to improved food security.

Coordination among all the sectors necessary for achieving food security was recognised by interviewees as a precondition for successful policy implementation, in particular, to avoid duplication of effort at all stages in the policy process (USAID, 2007). Although relevant authorities, such as overseeing committees, have been set up to reduce this, they may not be resourced sufficiently to continue their work, or there may be a lack of continuity to ensure these authorities are operating according to their mandates.

#### ***7.6.2. Awareness raising regarding policy formulation, development, implementation, and evaluation processes***

Awareness raising is dependent on the authorities acting to educate stakeholders and disseminate information. Ahsan and Huque (2016) reported that ineffective implementation strategies by local authorities leads to ineffective empowerment of the public. For example, extension officers are involved in the education of farmers. They cover various areas such as technologies on post-harvest management, farming technology, and training using demonstration farms. In some cases, as part of the implementation of policies, training of farmers will be undertaken regarding general agricultural practices, soil conservation, sensitization and capacity building of the value chains. However, farmers are not the only stakeholders who need to participate in policy development and implementation, other stakeholders of the food value chain must be involved as well. Therefore, additional mechanisms are required to ensure this occurs. Sensitization is important in ensuring that the stakeholders are aware of the process and the policies as this eases implementation and allows for the achievement of the goals and targets set out in the policies.

### **7.6.3. Food security**

Consumer preferences have a direct impact on food security and the food system from the perspective of demand. Preferences are determined by the economic status of consumers, the availability of preferred food types and an individuals' nutritional knowledge. There is a need to account for this not only in policies but also in information interventions. Just & Byrne (2019) looked at the inclusion of consumer preferences in policy strategies. They concluded, and in agreement with experts consulted in this research, that is difficult given that the evidence needed is harder to collect, but ultimately concurred it is necessary (see also Costa-Font *et al.*, 2008). Gender plays an important a role in food security and policy formulation. Women have an important role in ensuring household security, and policy formulation needs to take this into account, and indeed improved (World Bank, 2014).

Ratification of international objectives with regards to the overall development goals within the region is commendable, but there is a need for an environment that supports policy continuity in order to operationalise and hence attain these international objectives. Policy "ownership", not only by the government but also stakeholders, including the general public, of these policies is central to effective implementation.

### **7.6.4. Conceptual framing**

Similar to the findings reported in Chapter 6, these results are in line with stakeholder theory in terms of the pillars; normative, instrumental, and descriptive. Responses advocated for the sensitization of society in matters concerning policymaking and policies to be able to alter the behaviours of the stakeholders with regards to their activities within the value chain, while also attributing these changes plus others such as devolution to contributing to a transparent government and increased trust and accountability on all stakeholders.

The findings also show the importance of stakeholder involvement in formulation as it is not only necessary to set up controls for the system but also the ways that stakeholders can conduct these controls such as the need for resources and other aspects.

## **7.7. Summary**

This chapter sought to explore the question "*What governs the successful implementation and subsequent effectiveness of food policies in the region?*" Based on eight expert interviews, the analysis revealed that successful implementation and effectiveness of the policies is dependent on communication, coordination and commitment of the stakeholders and policymakers.

Stakeholder engagement, both expert and citizen, is important for successful formulation and implementation of the policies as there is a need to have representation of people who are aware

of the policy environment and those who are experiencing the issue that needs to be rectified by policy. There is a notable lack or limited occurrence of engagement with citizens due to factors such as limited awareness among the public concerning policy making and limited resources. This finding indicates the need to increase awareness and knowledge on policy matters and improve communication systems so that information transfer goes in both directions (bottom to top and *vice versa*). Limited resources act as a barrier to effective participation in policy development and implementation, showing that there is need for coordination between authorities involved in budget allocation and the local authorities in charge of policy implementation. Compromised stakeholder participation has an impact on the attainment of food policy goals. in this case, food security.

The next chapter looks at combining the findings of critical synthesis of food related policies, and the viewpoints of the stakeholders and experts on these policies and placing them within the environment of the sustainable development goals.

## **Chapter 8: Discussion**

### **8.1. Overview**

The research presented in this thesis aimed to explore the role of stakeholder involvement in the food policy making process, from formulation to implementation and policy evaluation in Kenya and Tanzania. These two countries share common food security problems as well as agronomic conditions and similar food value chains. In addition, the research considered stakeholder perspectives on the effectiveness of policies targeting food security. The theoretical approach for the research investigated institutions that interact with the maize chain, covering policies and culture and linked to stakeholder viewpoints concerning the maize chain and the identified institutions.

The chapter summarises the results of the thesis to resolve the three objectives of the research: the exploration of food policy in the two countries for the first objective, evaluating the effectiveness of policies as the second objective and for the third objective identifying the contribution of the policies to the SDGs. The chapter therefore covers the policymaking process, highlighting stakeholder involvement, formulation of policies, awareness creation and participation parameters under the first objective using the CIS findings followed by assessing effectiveness of policies as per the second objective based on the S-LCA and experts' interviews. The policies are then analysed to identify their contributions to the SDGs and their achievements.

The structure of the chapter starts with the conceptual framing outlining the instances that the lens provided by the combined theories are highlighted by the findings followed by stakeholder engagement in the policymaking process. Perception of the formulated policies by the society on their activities and factors related to the effectiveness of policies is covered before the chapter looks at sustainability.

### **8.2. Conceptual framing**

The theoretical approach outlined in section 2.5.5, based on the institutional and stakeholder theories, is discussed.

Uniformity among the stakeholders of the value chain is an indication of acceptance of the various institutions involved. The results support the prediction that the different pillars of institutional theory are relevant. For example, there is an established presence of policies and culture within the maize chain environment. Scott (2005) emphasised that some pillars of institutional theory would be more important when operating in an economic environment and

this may be the case with the policies (as a form of regulatory pillar) being more prominent with regards to conducting their activities. Cultural aspects (as a form of cognitive pillar) such as the culture of consuming maize creates a stable market and encourages continued stakeholder participation in the chain which, in turn, increases the need to accept the policies governing the value chain by the stakeholders so that they are successful. Institutional theory has highlighted the factors taken into consideration (themes) for policy formation, such as national development, as well as reasoning as to why the policies are accepted. A key assumption, or belief by societal members, is that the government is motivated to promote policies which benefit society. This belief contributes to the acceptance of, and consequently legitimises, the institutions.

Acceptance of the institutions, particularly the policies, however, does not translate to direct action by the stakeholders as there are other factors that have to be considered, which are captured through application of stakeholder theory and associated pillars. For example, as a form of the instrumental pillar, the identification of the informal networks and their influence in shaping the activities of the stakeholders such as choosing the inputs to use and knowledge sharing between stakeholders. Findings such as the limited interaction between the government officials (extension officers) and society resulting in low awareness of the policies were framed within the descriptive pillar while the normative pillar was demonstrated through the finding of a lack of inclusion of societal stakeholders in policymaking. The consequence of this is the limited implementation of the policies. The interaction of the theoretical lens, between stakeholder and institutional, highlights the power of stakeholders with the regards to successful implementation of the policies.

The following sections discuss the findings in the context of the objectives of the study and the conceptual framework to understand the importance of stakeholder engagement in the policymaking process.

### **8.3. Stakeholder Engagement in Policy Formulation, Development, Implementation, and Evaluation**

The role of stakeholders in the policymaking process from formulation to implementation and potential evaluation of their effectiveness was considered through several research activities (Chapters 5, 6 and 7) using different methodological approaches. The analyses considered how stakeholder engagement (potentially) translates to policy effectiveness and stakeholder acceptance of policies. Stakeholder engagement was examined in relation to stakeholder

awareness of the policy development process, (perceived) participation in different stages of the policy cycle, and perceptions of the efficacy of policies.

### **8.3.1. Policymaking process**

The policymaking process identified in the research coincided with the “theoretical” processes identified in Chapter 2, where the need for stakeholder inclusion was identified as an important part of the development of effective policies. The research, in this thesis, also identified key drivers of formulation and the time taken to pass a policy to the implementation stage as important factors.

In Chapter 5, a broad range of stakeholder engagement was identified within the policy documents as having the potential to increase the effectiveness of policy through the entirety of the process from the identification of problems, co-development of solutions and as outcomes of the policy implementation process (see Mulyaningrum *et al*, 2015; Lemke and Harris-Wai, 2015).

However, inclusion of stakeholders in the policy making process is skewed towards the “expert” side of society and limited public representation evidenced by many responses from research participants stating that stakeholders had not participated in the process. Expert stakeholders are frequently representatives of special interest groups with interests in the policy, in this case food security. As this potentially excludes other stakeholders who do not have technical expertise in the issue at hand (e.g., value chain actors, consumers), biases in participatory contribution may occur, such that the preferences and priorities of the excluded groups may not be considered as part of the policy development process. This is demonstrated in this research (Chapter 6 and 7).

Exclusion of the stakeholders from formulation introduces the potential to miss out the understanding of the practices and behaviours within the society that will affect the implementation of policies. These practices and behaviours form part of the culture of the society which is important as culture is a form of an institution. The role culture plays along the maize value chain in both countries is significant: from reliance on neighbours for advice to perceived roles of individuals in the households.

While societal inputs may be limited in the policy formulation phase, development, both national and regional (that is East Africa), was highlighted as a key driver for the formulation of policies and take on the form of the achievement of national and international development goals such as Vision 2025 of Tanzania (GOT, 1999) and Vision 2030 for Kenya (GOK, 2008) and attaining regional development visions (see EAC, 2015). Policy development and



implementation must be directed to these development outcomes, which are important given the responsibilities of elected governments to society, in relation to the food chain, and in response to the need to mitigate challenges such as climate change. However, international policy goals are broad and at a high level (Morton *et al.*, 2017), and require policy adaptation if they are to succeed in regional or national contexts (Hudson *et al.*, 2019). Chapter 7 stressed the importance of adaptation.

The latter stage of policymaking process, the implementation phase, also relies on stakeholder engagement to be effective. In the case of food-related policies, societal acceptance of policies and associated policy interventions is a requirement of policy effectiveness (see Espinosa & Nassar, 2021; Wentholt *et al.*, 2009), which implies that stakeholders covering the entirety of the food supply chain need to be involved. This is reflected in research which considers food systems, where stakeholder engagement, from primary producers through to end-consumers, participate in food security policies (Saint-Ville *et al.*, 2017; Alliance of Biodiversity *et al.*, 2021; Garcia-Gonzalez & Eakin, 2019).

In addition to inclusion of stakeholders, the speed of passage of a policy is also of importance. In both Kenya and Tanzania, governmental commitment to the objectives of the policy may govern the speed of passage, which may also justify situations where Acts of Parliament are used in place of policies (e.g., banning exports (Makombe & Kropp, 2016), and aflatoxin tainted maize (FarmKenya, 2020). It is possible that in some situations, rapid policy responses may be required, such as emergency food aid and food safety nets (Emongor, 2014) or export bans and lower tariffs (Kiratu *et al.*, 2011). In a crisis context, it may be more difficult to ensure extensive stakeholder engagement occurs, given the need to implement policies quickly (Babu, 2013), although stakeholder involvement in rapid responses to a crisis may be an important element of effectiveness (see, Maxwell and Parker, 2012; FAO/WHO, 2016). The position of stakeholders, therefore, is not an exceptionally powerful one, with political will being the driving force behind the passage of the policies (Hudson *et al.*, 2019).

Although societal engagement in policy activities is desirable at different scales, from global to the very local, this will only occur if societal actors, including the public, are educated about, and made aware of, the mechanisms which have been put into place to enable their participation in the policy process (Chapter 6). This starts with the representatives of policymakers. However, it was noted that during data collection, the agricultural extension officers in each area were more likely to introduce the interviewer to farmers with whom they were already engaged. A situation is then created whereby people who have not engaged with extension officers can be

excluded from opportunities and knowledge. Thus, the people potentially most affected by the policy may not be included in stakeholder or citizen engagement activities.

### ***8.3.2. Awareness raising pathways***

To increase societal awareness of the policy environment, the results of this research suggest that communication between society and policymakers is the central to the policymaking process. This will ensure that societal views are taken up and addressed through the entirety of the policy process.

The most frequent means of communication in both Kenya and Tanzania is via (traditional and social) media or based on peer to peer or other “relationship” based communication (Chapters 5 and 6). There is a reliance on print media specifically newspapers and gazettes, to notify the public on participating workshops and the resulting policies for enactment. Peer to peer communication includes that between farmers, or between farmers and extension officers. There is less clarity regarding the extent to which this increases engagement in policy process, as opposed to (e.g.) agronomic practices. Disadvantages of peer to peer and traditional media-based communication is that there is potential to exclude members of society who are not involved in peer networks, or who unaware of the “gazetting<sup>13</sup>” process to be aware of the enactment of new policies and unable to access publications advertising the participatory events. In addition, literacy levels may be problematic if there is reliance on obtaining information from print media such as newspapers. Tanzania has a 22.4% illiteracy rate (Kilimwiko, 2021) while Kenya has an 81% literacy rate (UNESCO, 2018). Literacy in this case is basic/elementary with adult men being more literate than women in both countries. Access to higher education levels and availability of continuous training options increased the awareness level of stakeholders in relation to participatory activities and the policy cycle. Training sessions about farming techniques and associated farming matters (e.g., storage, licenses) are offered by the extension officers, as part of research projects or by private entities and NGOs and are an opportunity to enhance policy awareness.

Word of mouth between established relationships between different stakeholders in the same sector or who have interests in the same value chain may therefore also be an important means of communicating policy-related matters. The research presented here indicates that the relationships between the stakeholders enables knowledge and information transfer to occur, including in relation to food security policies (Chapter 6). These relationships aid in acceptance

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<sup>13</sup> Announcing a notice, policy, law in the legal newspaper of the country

of policies as stakeholders share their experiences on policies and regulations encountered in their activities to meet economic objectives.

Stakeholder networks also play an important role in making stakeholders aware of the participatory options and creating room for sharing their views. In addition, the formation of associations and cooperatives by the different stakeholders, creates an avenue for them to be invited to participate in policy making, although this is not the intended reason for their formation. However, the strength and nature of these relationships may not be at an optimal level making them ineffective, though it is an optimal first step in forming a participatory platform. Muange *et al.*, (2014), Mefor *et al.*, (2022), Otheino *et al.*, (2014) and Mbugua *et al.*, (2019) have investigated social networks and their importance in information sharing in the East Africa region. This body of research has indicated that participation in policy development is enhanced through conducting barazas which enable participants to communicate concerns to government officers. The barazas have been observed to be particularly effective when dealing with outbreaks of disease on the farms, introduce new technologies or instances of food crises (see Mubofu & Elia, 2017; Mugendi *et al.*, 2011; Shelburne *et al.*, 2017; Murage *et al.*, 2012), although there is less evidence of their effectiveness in increasing stakeholder participation in the policy process, as demonstrated by the results of the research presented in this thesis.

Stakeholder networks, education level and opportunities play a role in ensuring awareness amongst members of society. Location was also identified as having an impact on civil awareness of the policy process as these factors contributed to the society's exposure to policymaking (Chapter 7). Accessing information about policy engagement in locations such as cities is easier, resulting in increased stakeholder awareness and understanding of the policy process and how stakeholders can engage in it. People living in locations (e.g., rural areas), where relationships with the local authorities ranges from limited to non-existent, can go more than two years without contact, which further excludes them from policy engagement (Chapter 6).

Awareness raising improves stakeholder participation. Currently, participation in policymaking is enshrined in the constitutions of both Kenya and Tanzania, which stipulate that it is the citizens' right to engage and be involved in civil decisions. However, the reality is that stakeholder, including citizen, engagement in agri-food policy development and implementation is infrequent in both Kenya and Tanzania, in particular citizen engagement (Kinyondo & Pelizzo, 2019). Many of the respondents who contributed to the research perceived that they were excluded from policy processes at all stages. A similar situation was alluded to by the expert respondents, who stated that there is a need for "stronger interactions

between the government and the society as real issues are obtained from the stakeholders” (see Chapter 7).

There is evidence of a disconnect between society and government at the policy formulation, development and implementation stages which reduced the effectiveness of policies designed to promote food security. There is very little evidence of stakeholder involvement in policy evaluation, although this has been infrequently mentioned by stakeholders as an issue. There is evidence that many stakeholders would like to see increased public engagement with, and participation in, food security policy (for example, in relation to culturally determined preferences for food choices) even though such increased involvement may increase the time needed to formulate and implement food security policies (Chapter 6). The following section outlines the current systems of participation to identify areas that can be improved to increase stakeholder engagement.

### ***8.3.3. Systems of participation***

Given that it is recognised within both countries that it is a right of every citizen to participate, the systems which enable participation are of interest. Devolution of the government responsibilities and the establishment of local government structures to operationalise increased participation may represent an important initial step in ensuring greater stakeholder participation in food security policy (Mmari & Katera, 2018; Mutuga, 2018; Wafula & Odula, 2018). This is work in progress. Kenya has made efforts in creating community focused platforms to facilitate participation in policy development (under the county governance toolkit) and disseminating information (Ngugi *et al.*, 2015) about public participation policy. An important ambition is to support stakeholder participation through the Kenya Participatory Budgeting Initiative. However, there is still a long way to go especially with strengthening citizen’s *capacity* to participate (Mbithi *et al.*, 2019). Against this, Tanzania has been in a “devolution” state of governance for a longer period, since the 1990s as part of their Decentralization by Devolution approach (Mollel, 2010; Matete, 2022) that saw the re-establishment of local government authorities. However, citizen engagement in policy development is still relatively infrequent. An important barrier may be a lack of understanding of the policy process itself, and the mechanisms in place to allow engagement, on the part of citizens (Kinyondo & Pelizzo, (2019)). As is the case in Kenya, Tanzania has set up systems such as neighbourhood and village committees to enable participation in civic matters, but citizen awareness and utilisation of these system is low (Chaligha, 2014; Msofe 2016; Mwiru, 2015). In addition, the use of “barazas” (workshops) provide an opportunity to hear the challenges faced by citizens and other stakeholders and based on this provide vital information

for policy makers. However, these are also infrequently employed in the context of food security policy. Although extension officers have indicated that their duties include holding training sessions and meetings for knowledge exchange between them and agri-food stakeholders, it is not clear to what extent this knowledge exchange is relevant to agri-food and food security policies.

The results of Chapter 7 reinforced that there is a concern among stakeholders regarding the level of knowledge of the policy environment held by stakeholders, including citizens, to allow them to participate adequately and effectively. Therefore, while creation of such systems is a positive step in enhancing participation in governmental decisions, it is also necessary to support these systems and increase societal awareness of them if they are to facilitate increased participation in the policy process.

#### **8.4. Dynamics of Participation**

How, and the extent to which, stakeholders are included in policymaking processes may be related to the extent to which they have previously been involved or are expected to play a part in the process in terms of historical or culturally determined practices (Masefield *et al.*, 2021; Wanner & Haider, 2019; Lemke & Harris-Wai, 2015). Gender needs to be considered as an issue in relation to ensuring inclusivity in participatory policy processes (see Hunt *et al.*, 2015). Age, social class, and culture of the society may also act as barriers to be overcome (Chaligha, 2014) when it comes to participation. These factors can be considered as pressures on the participatory system that arise from the society with an impact on the policymaking process and resultant policies. The findings on these factors; gender, age, education, are discussed within the framing of stakeholder theory and its pillars.

##### **8.4.1. Gender and participation in policy processes**

In Chapter 7, the results indicated that a barrier to women's' inclusion in participatory policy processes was women citing (or men stating) that women's "responsibilities" are reason for their absence from participatory fora. Even if the participatory meeting is called specifically for women, attendance is not guaranteed. In Kenya and Tanzania, men are more likely to attend any formally organized meetings (Kinyondo & Pelizzo, 2019) and women have household responsibilities that may limit their ability to participate in meetings. An example of this was noted during the data collection (Chapter 7) whereby the extension officers stated that it had been difficult to get women to participate in the interviews as they had domestic responsibilities. Along the maize chain, women tend to be concentrated in primary production and consumption, emphasising the roles defined by the patriarchal culture or socio-cultural domain (Allen &

Sachs, 2007), which designates women as being responsible for food production and household food procurement. When women are farmers, decisions on what to do with the harvest will be shared both husband and wife. For male farmers it is also normal to make the decisions as an individual. Decision-making about food production is women-led but financial decision-making in the middle of the chain is mainly, but not exclusively, dominated by men. It is therefore less clear how women will participate in policies which affect the entirety of value chain, unless they are explicitly included in all participatory processes (Farnworth, 2011). Furthermore, female exclusion justifies the focus of some aspects of the national policies on women (Chapters 2 and 5).

Women are among the foremost potential beneficiaries of food security related policies (Chapter 6). There are various policies which aim to improving the living conditions of women, conferring rights that were historically or culturally not available to them such as owning land, or implementing strategies that will reduce their household workload especially with regards to farm based, food generation activities. Barriers caused by gender are referenced in policies within the two countries and implementation of gender equality measures have led to situations such as the gender rule in workplaces in Kenya. Other changes in the positioning of women in the region is a notable increase in economic mobility (Chapter 7). Women are increasingly operating their own businesses and branching out within roles of the value chain to setting up brokering businesses and running small scale processing mills. Increasing women's economic mobility is important as it increases the capacity of the women, and by extension their households, to access more food avenues increasing their household security (Fletschner & Kinney, 2014; Galiè *et al.*, 2019).

The results presented in this thesis confirm the results of previous research. Brownhill *et al.*, (2012) cited entrenched gender inequalities as contributing to the gap between actual participation in policymaking and what is written in official documents. Chaligha (2014) cited the lack of women participants in the participatory policy processes resulting in them not benefiting from policy implementation as what they need will not have been considered during formulation (see also Farhall and Rickards, 2021). The impact of this on a value chain where a significant proportion of women are primary producers or consumers is that the challenges are not appropriately identified or adequately tackled in policy.

#### ***8.4.2. Education and inclusion in participatory processes***

Social characteristics such as level of education play a role in both participation in policy, and awareness of policymaking as mentioned earlier in 8.3.2. People with formal educational qualifications or access to continued training opportunities are more aware of the policy

environment (Chapter 7). However, having more education, or access to training, does not automatically translate into participation. In both Kenya and Tanzania, there is a distinct lack of participation by the “educational elite” (Chaligha, 2014), potentially because people in this group perceive that previous policy outcomes were not favourable to them or perceive that participation did not influence the policy process. There is also an aspect of power dynamics in policy making in both countries. As mentioned earlier, speed of passage of policy may be reliant on political will. However, during policy formulation, power dynamics may play a key role. Stakeholders invited to participate will differ in motivations and desired outcome, which is a noted characteristic of stakeholder engagement (Chapter 2). Those with overpowering “voices” may carry more weight during policy formulation (Hudson *et al.*, 2019). This was confirmed by the research presented in this thesis, where expert respondents indicated that some invited participants had “little voices” so carried little weight during policy formulation (Chapter 7).

Other factors that are important in ensuring participation is the need for resources and the time taken (Chapter 2). It is noted that there is a need for resources to facilitate participation as well as reluctance on the individuals to participate due to the time commitment needed (Chaligha, 2014; Ngugi *et al.*, 2015) which needs to be overcome.

Given that gender and other social characteristics (of the stakeholders), create a gap that impacts the formulation and implementation of policies (institutions). the characteristics of women’s inclusion and associated barriers fits in with the descriptive pillar of stakeholder theory highlighting the interactions of societal behaviours with the system and how it affects the implementation and formulation of institutions.

## **8.5. Perceptions of Policies**

Policies are generated and implemented as part of the governments’ strategies, which demonstrates the conceptual framework presented in Chapter 2. However, this requires awareness of the policies to exist within society. Many stakeholders, including citizens, have low levels of policy awareness per se, as well as little knowledge as to how they can engage in policy processes (section 8.3.1). In addition, stakeholder understanding of policies (e.g., in relation to interventions) is limited, with much of this related to the impact of the policy on an individual or a group of individuals (Chapter 6). Trust in the government means that stakeholders’ perception of intended policy impact is positive. This is demonstrated through the respondents stating that the impact of policies is positive (Chapter 6). Citizens, who may not be directly impacted by, or have adequate knowledge of, a particular strategy or policy, may evaluate the policy positively, while those directly affected may have differing viewpoints. In

the research presented here, some of the respondents reported being “disheartened” by some of the policies/regulations but have only asked for reassessment of the policies and procedures, rather than cessation of the policies, reinforcing the idea that the government can be trusted to get “policy right” (Chapter 6). There is an opportunity created by this trust to strengthen the policy environment and the implementation by increasing knowledge of the policies in society.

Perception of policies and the policymaking process can be viewed as a bridge between stakeholder and institutional theories especially with the existing culture of belief that the government is right (held by the stakeholders) as well as the perception that impact of policies is positive (stakeholders’ perception of the institutions).

### **8.6. Effectiveness of policies**

Given the challenges of limited participation, implementation and awareness, policy effectiveness may be diluted (Chapter 5 and 6). This section considers factors such as the importance of policy coherence in contributing to policy effectiveness, commitment, and communication.

Food related policies in Kenya and Tanzania target food security as their goal, through increased food production. The region is still food insecure, and conditions have worsened with the advent of the Ukraine crisis (Ben Hassen & El Bilali, 2022; WFP, 2022) as well as global energy price increases. Local agronomic conditions such as low productivity due to drought compound the problem. 17% of Tanzania’s population is in danger of becoming food insecure (IPC 2022), while in Kenya 23% of the population in arid and Semi-arid areas are at risk (IPC, 2022).

The balancing act between the policies that focus on increased food production and those handling resources such as land and the environment in general is difficult, particularly when climate change is factored into the policy mix. There is therefore a need to build up policy coherence (Chapter 5) from the initial stage of policy formulation (Chapter 6). Coordination, due to the multi-faceted nature of the food security situation, is important if the targets outlined in the policies are to be met. From inclusion of representative members of the public in the relevant activities to co-ordination of the extension officers and the policymakers to streamline and merge goals and targets. Also important is the evaluation of the impact of implemented policy to guide further actions.

FEWSNET (2022) has indicated that food prices in Kenya had increased over the last year, with maize having increased in price by 63%. This is an example of the impact of national policies affecting regional partners, as supplies imported from Tanzania were reduced by the



enforcement of export permits, on the Tanzanian side of the border, to allow domestic trade. Policies in both countries that deal with food crises come into play in such situations. In this case, a subsidy was used to lower the prices in Kenya. Awareness of the subsidy, or other measures used to deal with food crises, by stakeholders (Chapter 6) was low, as stakeholders participating in the research indicated that they had not experienced food shortages. At the time of thesis submission, the situation experienced by the population, that is occurrence of food shortages, may have increased stakeholder awareness of food aid measures. In Tanzania, the impact of this policy was that stock was unsold, resulting in lost income and increase in food waste. This demonstrates that food security policies may have unintended negative impacts showing the need for communication and coordination among the stakeholders.

Many policies are designed to focus on prevention or mitigation of food insecurity, based on the success or otherwise of previous policy measures (Bodnar 2011; OECD *et al.*, 2016). In the case, it is notable that agricultural technology policies, particularly the biotechnology policies, tend to focus on prevention of future food insecurity (Chapter 5) by outlining ways developed technology can be used to avoid insecurity. However, in both cases of prevention or mitigation, for the policies to be effective, there must be commitment on the parts of all stakeholders.

Commitment is key in ensuring the effectiveness of policies, there is a need for commitment to the policies and the targets. An example of commitment in the countries is the continued implementation of previous policies from predecessors (Chapter 7). Commitment starts from the international level with the ratification of international agreements, the adjustments of the goals to suit the region and implementation of the measures through local policies. Commitment is essential on the side of policymakers as their level of commitment fuels the motivation of societal stakeholders to follow through with the implementation, especially with regards to funding the policies. Measures of increasing commitment rely on the awareness of the issue/situation at hand. For instance, if members of society are knowledgeable, they are willing to aid with implementation. This brings in the importance of communication and making society aware of not only their right to participate and how to go about it effectively by understanding the situation in question. Additionally, as part of the commitment to the Constitutional Rights that stipulating broader societal involvement, creation of the system necessary to ensure effective involvement is the first step. Involvement of stakeholders at the formulation stage aids in the implementation stage by “reducing resistance” but it relies on increased sensitization among society which requires governmental support and commitment to achieving the goals of policies.

There is an emerging, and increased focus on nutrition in policy, with strategies and interventions being put in place (Chapter 7) requiring collaborations between food, agriculture, and health authorities. In relation to food consumption, and in the context of nutrition policies and strategies, changes in diets in both Kenya and Tanzania are linked to cases of both micronutrient deficiency and increased rates of obesity (Keding, 2016). This may be a consequence of improved access to economic resources by consumers who are adopting unhealthy, westernised diets, (Chapter 7) (see also Mbogori & Mucherah, 2019). This change of diets must be considered in policy development and implementation, when the policy focus is on food security (Kimmel *et al.*, 2019; Vorster *et al.*, 2011) and emphasises the need for policy coherence and co-ordination.

The findings in the research also indicated that other factors that contribute to effectiveness such as co-ordination and communication are linked to the presence of stakeholders. Mutero *et al.*, (2014) and Gitau *et al.*, (2008) reported that stakeholder participation in policy making was at a low level in Kenya and Tanzania. This has negative effects on policy effectiveness, and implementation of policy measures by the stakeholders is also affected (Chapter 6). The research confirmed that that policy effectiveness is more likely when stakeholders perceive “ownership” in relation to policy outcomes (Chapters 2 and 7). It is also notable that this situation, stakeholder participation, has not changed since earlier papers by Mutero *et al.*, (2014) and Gitau *et al.*, (2008) were published.

The conceptual framework outlines that the institutions impact the maize chain and subsequently the society while the societal attributes impact the value chain and the policies. The findings collaborate this but also highlight the need for sensitization programs and better participatory systems. Fig 8.1. showcases the circular nature between stakeholders and policies; using the same framing as the conceptual framework, sensitization programs will aid society in formulation and implementation while the existence of participatory systems will aid in formulation. This is the environment that sustainability measures are operating in.

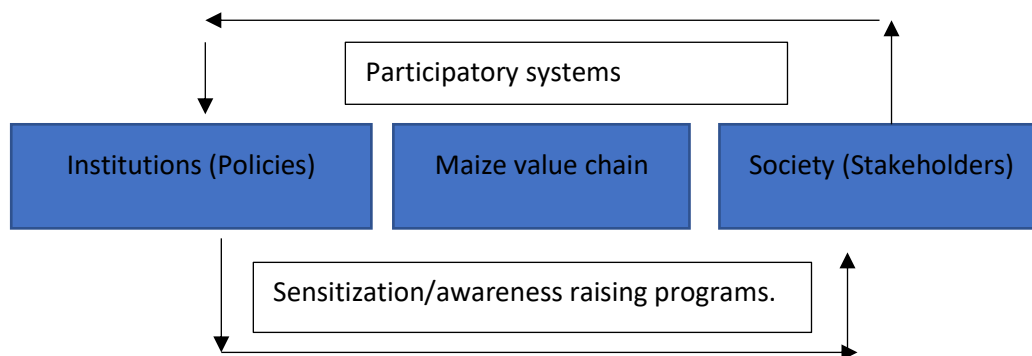


Figure 8.1: The circular nature necessary for the effective stakeholder engagement in policymaking highlighting the need for participatory systems and awareness raising programs

## 8.7. Sustainability

Sustainability represents a greater focus of both Kenyan and Tanzanian policies after 2010, although previous policies address sustainability to a lesser extent (Chapter 5). The policy relevance of increased sustainability is identified for both food production and consumption (Chapter 5). However, awareness of sustainability as a production and/or consumption issue in the rural areas is limited (Chapter 6), and linked to factors such as education level, occupation, and location as these impact stakeholders' access to, and understanding of relevant information. For example, people living in cities may have access to more information sources therefore will have a higher level of awareness than those in the rural areas (Chapter 6) and Appendix F. Table 8.1. shows the conclusions obtained from the policies with regards to specific SDGs of most relevance to the thesis and explained further in the following paragraphs.

Table 8.1: Conclusions derived from the assessed policies in relation to sustainability according to the specific goals.

Goals	Key Conclusions
5: Gender equality	Policies are working to ensure gender equality acknowledging that inequality is present. However, culture is a major challenge with traditional norms dictating the role of women.
2: Zero hunger and 12: Sustainable production and consumption	Recent focus has shifted from not only increasing production but also improving nutritional status in both countries. There is a need to thoroughly assess the impacts of policies being formulated and implemented as some policies may have unintended negative impacts that outstrip the positive impacts.
6: Clean water and sanitation,	There is tension between available resources for agriculture, including water needed for irrigation, and the external pressure of the increasing

13: Climate action and 15: Life on land	population and people’s need for living space and food as well as climatic challenges. Policies and strategies have significantly contributed to balancing the needs of the population and the finite resources however there is a need for policy coherence for successful implementation.
1: No poverty, 8: Decent work and economic growth and Goal 9: Industry, innovation, and infrastructure	The food and agriculture sectors are key employers in both countries, a fact that is recognized within the policies. Improvement of working conditions is targeted through increased utilization of better technologies within the value chain. There is a need to improve the infrastructure, especially transportation networks and financial support systems to aid availability of food products through production and distribution.
16: Peace, justice, and strong institutions and 17: Partnerships for the goals	Acknowledging the societal right to engage in policymaking needs to progress to more active inclusion practices. It is also necessary to ensure the inclusion of the public in addition to the expert stakeholders. Policy coherence efforts within the policies contribute to the achievement of sustainable development goals.

Policies and interventions to “mainstream<sup>14</sup>” gender, achieving gender equality are included in the policy documents (Goal 5). Efforts towards gender equality include increasing land ownership by women and implementing technologies that ease their workload. However, cultural barriers to attaining gender equality (Chapter 6), especially with regards to the women’s culturally assigned responsibilities when it comes to household food security, still represent a challenge to achieving gender equality.

Production and consumption in both countries is covered by the various policies addressing the use of inputs and natural resources with the focus being on increased productivity and improving nutritional status (Goal 2 and 12). Use of natural resources, such as water and land, are regulated within resource related policies to ensure a sustainable approach (Goals 6, 13,15).

The role that the food and agriculture sector play in society is acknowledged by the food related policies. Economic roles involve providing the members of society with income generation opportunities as well as aiding the development of the countries (Goal 8). Income generation

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<sup>14</sup> gender mainstreaming” defined as the “process of assessing the implications for women and men of any planned action, including legislation, policies, or programmes, in all areas and at all levels (1997, ECOSOC)

means that people can improve their living standards (Goal 1). The working conditions of stakeholders in the agri-food value chain are targeted through strategies which promote agricultural mechanization and other technologies that will optimise the activities associated with food productivity, especially for women (Goal 8). Development of better technologies and subsequent utilization is supported by measures within policies but requires a support system and appropriate infrastructure (Goal 9).

Stakeholder participation and the system to ensure inclusion faces shortcomings. These shortcomings include the fact that stakeholder participation in policymaking has been perceived to occur under certain parameters such as focusing on expert stakeholders, or in a top-down approach with people given an opportunity to comment on an already drafted policy (Chapter 5, 6 and 7) which may lead to exclusion rather than inclusion of some stakeholders. There is a need to strengthen the participatory processes and making people aware of the opportunities to participate and exercise their constitutional rights (Goal 16). The emphasis placed on policy coherence within the policy documents indicates the importance of collaborations in developing food security policies (Goal 17). Policy coherence (Chapter 5) is necessary as the various national policies that have an impact on food production and consumption in both countries may influence food security in neighbouring countries. As such policy tension is noted and needs to be resolved. An example is the tension between agricultural strategies and environmental conservation, where there is still a need to balance the production of food for the current population while safeguarding the environment for the future.

The measures outlined within the policies that are working towards improving the national situations and contributing towards the sustainable development goals are faced with challenges. These challenges include limited awareness of the measures, ineffective implementation and monitoring systems, and infrastructure issues especially connecting people to markets. These challenges are like those of stakeholder participation and indicate the need to improve the policymaking systems within the countries.

## **8.8. Country comparison**

The maize chain activities in all four study areas (two in each country) contributes to the national goals of attaining the SDGs goals 1, 2, 8, 12, and 17. An important difference between Kenya and Tanzania with regards to maize is that Kenya is an importer of maize, whereas Tanzania is an exporter. Policies developed concerning maize must bear this in mind and account for the impact on the stakeholders. For instance, the importation and exportation situation highlight the importance of brokers. In Kenya, for example, limiting maize supply for

one reason (safety) will affect the consumers in another way (limited availability and access). This shows that all aspects of the food situation must be understood when it comes to making the policies and highlights the need to involve the different people when doing so.

Other measures to increase availability of the cereal in the countries may be reliant on the involvement of the different people include adoption of better technologies and better inputs to improve the production process emphasising the importance of the interaction between extension officers and farmers which is currently limited in nature. These interactions coupled with the informal networks identified in both countries are important for change to occur.

As more is understood about health and food especially with the advent of non-communicable diseases, the focus of food security in both countries has shifted to not only availability but also utilization. This is noted by the increase in nutrition focused initiatives and programs within the two countries' policies (Chapter 5). This shift is important when considering that in some areas within the countries may be food secure but suffer from malnutrition. Additionally, as more people become nutrition- conscious, the demand for nutritional food will increase, raising the question about the suitability of using maize as the food security indicator within the region, given its nutritional composition especially the lack of certain nutrients such as B12 or the concern that the presence of certain nutrients can be toxic in large concentrations such as Zinc (Qamar *et al.*, 2017). All together, these points must be considered during policy formulation and implementation.

However, when considering effective stakeholder participation practices, including the use of devolution to local authorities to enhance participation, Kenya can learn from Tanzanian experiences, for example in relation to not educating the public on the importance of their participation, Kenya would emphasise awareness on all societal levels and Tanzania can work on improving their awareness raising and participation system (see Kinyondo & Pellizo, 2019). There has been research into factors which result in effective participation in both countries, but it is notable that these cases were in small areas, counties, and municipality (Ngugi *et al.*, 2015; Charles & Aldyne, 2019) with the findings corroborating the thesis results insomuch that there is a need for awareness creation among the people and capacity building among the implementers to ensure an effective system is in place and can be utilised, and that participation must be underpinned by resources.

## **8.9. Summary**

The research reported in this thesis suggests that there is a system for participating in policy making in place in both Kenya and Tanzania, but there is limited awareness of the system

especially in rural areas. Improvement of the system in terms of supporting it with the necessary resources, educating people on policymaking, their participatory rights and how to contribute is necessary. Increased stakeholder participation will increase policy effectiveness, enabling more rapid attainment of the relevant SDGs. However, due account must be taken of policy coherence to avoid redundancies and contribute to ineffectiveness. There is a general acceptance of policies among the stakeholders although their activities may hamper the implementation of said policies due to a lack of the inclusion in the formulation. Institutions can therefore be implemented within a system but whether society will fully embrace them is debatable and dependent on their sense of ownership with regards to the institutions.

## **Chapter 9: Conclusions, research limitations, and recommendations for future research**

### **9.1. Overview**

Throughout this thesis, the research aim has been to better understand the role of stakeholders in policy effectiveness based on their inclusion in the policymaking process. This chapter covers the conclusions based on the empirical findings and what it means in terms of food security, the limitations that were encountered, and future research recommendations.

### **9.2. Stakeholders, policy effectiveness, and what it means for food security in Kenya and Tanzania**

There is evidence to suggest that the effectiveness of food security policies increases with the involvement of stakeholders in the policy processes. There are additional factors, such as the funding of the implementation stage, which play a role in increasing policy effectiveness, as well as commitment and coordination, but stakeholder inclusion is a significant contributing factor. There were no substantial differences in the extent to which stakeholder participation occurred between Kenya and Tanzania. An important observation is that in both countries' stakeholder engagement is low.

The system for stakeholder participation in both Kenya and Tanzania needs to be improved, the main challenge being the limited awareness among the population. To enable stakeholders to participate in all policy processes, mechanisms need to be developed to provide them with the knowledge that they can do this. Efforts to improve may involve education of the public about how they might participate in policy processes, as well as offering opportunities to the public through training sessions or short informative messages/adverts similar to the police alerts that are transmitted via SMS. It is also not enough for the government to put announcements on media channels about opportunities to offer opinions on drafted policies. The governments need to promote opportunities for engagement and increase dissemination techniques to make more people aware to encourage inclusivity in the process. This means a shift from printed media to the utilisation of radio/TV announcements, SMS as mentioned before, and social media.

There also needs to be evidence collated and provided stating that participatory processes make a difference within policymaking, whether it is policy formulation, including development, implementation, and evaluation. This is dependent on having working monitoring and evaluation systems that provide accurate data. There is evidence that stakeholder participation leads to society perceiving that by stakeholders participating, they 'own' the resulting solution. This catalyses them to work towards implementation success, confirming the findings of the



existing literature. In relation to SDGs, creating an environment where people understand and work towards a common goal is very important. The other main factor necessary to improve the system for participation is ensuring the provision of dedicated resources to support participatory processes. Improving the system requires commitment and communication across all levels of society.

There is evidence of a disconnect between wider society and policymakers when it comes to tackling food security-related challenges. Limited stakeholder inclusion through the policy process translates to limited awareness of the policies among the stakeholders. The role of food security policies is to establish an environment for a food secure system ranging from the utilisation of resources to reduction of loss/waste. This is hampered by a lack of policy coherence as environmental policies may have different policy targets to food and nutrition policies. The engagement of stakeholders from constituencies and organisations with interests in environmental, agricultural, and public health nutrition and all relevant policies might increase policy coherence. In addition, limited awareness and knowledge of policies and policy levers, such as subsidies, means that people cannot fully take advantage of the measures available to improve household food security and agronomic practices. Enhancing the system with a well-rounded awareness-raising program that informs society about participatory possibilities is therefore needed and emphasises the need to improve communication.

An important conclusion is that in both Kenya and Tanzania, there is the recognition of the need for (a broader range of) stakeholders to participate in policy processes. However, at present, the mechanisms to do this are either not in place, fragmented, or are not accessed by stakeholders because they are not aware of them. Failure to effectively involve different stakeholders in food policy processes means that the policies may be ineffective due to the wide range of stakeholders involved in the food system who will be affected and may have important and relevant information. The ineffective involvement of stakeholders in policies relevant to the SDGs reduces the likelihood that the goals will be achieved, so it is important that better mechanisms to involve stakeholders are developed and implemented.

### **9.3. Methodology contribution**

The maize chain was used as a case study across four areas, two each in Kenya and Tanzania, characterised as smaller-scale producers and maize consumers. This allowed the case study approach adopted to explore the relationship of policies with the maize chain through the perceptions of stakeholders who were either producing or consuming maize at a smaller scale than other areas in the respective countries. This was followed by comparing the findings. It

also allowed for a comparison of the findings between Kenya and Tanzania, two neighbouring countries with distinct differences.

The application of critical realism in this thesis was based on the criteria in section 4.2.1. The data generated featured different perspectives on the policies and interactions between the various stakeholders in the value chain, enabling an understanding of the structures that cause events via an understanding of the policymaking process. This resulted in policies that altered how the stakeholders operated and identified areas where change could be enacted to aid development. This research supports Njihia's finding (2011) on the use of critical realism within Sub-Saharan Africa.

There is a perception within the societies which were the focus of this research that governmental decisions are 'right' which results in the acceptance of policies even if the members of society do not contribute to their implementation (Fig 2.2). The institutional theory lens provided a justification for the inclusion of stakeholders by highlighting that there are societal practices and influences which may not be adequately captured within the institutions. This conclusion was reached using the selected methods. The findings support the utilisation of these theories (Fig 2.2).

The combination of three methods, CIS with S-LCA and expert-based interviews, allowed for the understanding of stakeholder involvement in policymaking from three different viewpoints; that of the policymakers who are aware of the need for stakeholder involvement, that of the societal stakeholders who are most likely to be involved or aware of the possibility of involvement, and that of experts who are the most likely to be involved.

Within the case study framework, CIS enabled the thematic analysis to be conducted which links with the thematic analysis of the S-LCA to create an overview of both the role played by stakeholders and the impact of policy on a particular value chain. Each method was associated with challenges. For CIS, it was difficult to access the information and determine the most suitable material, although the method did allow for the thematic analysis and utilisation of additional data to better understand stakeholder involvement. The S-LCA challenges were centred more on the selection of categories and indicators to use to conduct the assessment, but this was also a benefit as it was not a rigid method. With expert-based interviews, the challenges were the identification and recruitment of participants, while the advantage of the method was that its application resulted in rich detailed responses on the specific issues of interest.

People in Kenya and Tanzania are becoming more aware of their rights and are increasingly holding their leaders accountable for policy implementation outcomes. Identifying challenges

that hamper their willingness to participate in policy development and implementation will contribute to creating effective participation systems that lead to effective policies and improved food security.

#### **9.4. Recommendations**

Food security, as of 2022, has decreased due to a combination of climatic changes, the Covid-19 pandemic, failure to achieve food quality standards, the Ukraine crisis, energy price increases, and cost of living inflation (FAO, 2022). Increased stakeholder participation in policy processes may facilitate increased policy reactivity in relation to a rapidly changing food security policy context. Based on the findings of the research presented here in this thesis, the following recommendations can be made.

***Enhanced participation:*** The existing activity aimed at increasing stakeholder engagement is focused on the utilisation of the local authorities, which may be under-resourced and cannot commit to increased stakeholder engagement. Governments should take action to ensure that all local authorities are supported, where possible, so that stakeholder engagement can continue and increase. It is also necessary to take actions to reduce barriers such as the disillusionment of citizens with governmental processes, as identified in this research. ‘Open to all’ dissemination workshops regarding policy development and impact may increase the transparency of the policy process. Stakeholders from all levels of society should be encouraged to participate in these workshops. It may also be relevant to learn both how the participation in policy processes is enhanced other countries and how participatory practices may be adapted to align with the local contexts.

***Utilisation of informal networks:*** Informal networks could be used to improve the dissemination of information throughout society regarding policies, programs, and their implementation. Informal networks, whether transactional (occurring between supply chain actors) or social, might be further exploited to increase stakeholder awareness regarding participatory opportunities, especially in areas where there are low literacy rates. Utilising stakeholder networks (farmer cooperatives, business associations, and citizen organisations) and social media to disseminate information about participatory processes might raise the awareness of stakeholders regarding the participatory mechanisms already available to allow them to engage in policy processes. The use of informal networks may also reduce the pressure to do with allocating resources to ensure that the participatory processes occur.

***Education programs:*** To increase the awareness and knowledge of society regarding sustainability matters, as well as peoples’ rights when participating and how to participate in

policymaking, education programmes should be developed. These programs need to be structured to consider the varying levels of literacy in the target populations. For example, women may need these programmes to be adapted to their needs to ensure that they can participate, for example, in relation to the childcare provisions at the places where the meetings are being held or holding the sessions when their other responsibilities are not impacted.

***Enhanced commitment:*** A greater commitment to the outcomes of the participatory processes on the part of policy actors and other policy sponsors is needed. Information needs to be provided regarding the difference that participation has made to policies to highlight the value of participation in the future.

***Improved monitoring and evaluation:*** While policy implementation strategies outline both the monitoring and evaluation measures, there have been challenges when conducting monitoring and evaluation in the policymaking process. At present, stakeholders have little involvement in monitoring and evaluation activities. More systematic approaches to collecting relevant data from stakeholders, as well as including stakeholders in discussions of what a successful policy outcome looks like, is needed.

## **9.5. Future research**

The primary producers who participated in this research were largely small-scale farmers. While this reflects the type of farmer predominant in Kenya and Tanzania (Rapsomanikis, 2015), there is a need to compare the results of this research with the findings obtained from larger-scale producers, who may already have more formal routes of participation available to them. The extent of stakeholder inclusion and how inclusion occurs should also be assessed for its correlation with the success of policies. With regards to monitoring and evaluation, another area of future research is the assessment of whether the evaluation protocols in place are sufficient or if there is a need to design and validate more robust protocols.

Maize was used for this case study in relation to the S-LCA. Another supply chain, for example, one involving vegetables, which are not as highly regulated in relation to the domestic supply, should be investigated using similar methods. This is particularly relevant given the increasing policy emphasis on improved nutrition and dietary choices and the role of horticultural crops in healthy diets.

The use of Delphi for the collection of expert opinions with regards to policy effectiveness is a potential option for future research given its current limited use in Sub-Saharan Africa and within this thesis. The efficacy of Delphi in identifying unintended policy impacts could be tested as part of a comparative analysis of different foresight methods, such as interviews or

classic Delphi, to explore methodological utility in the context of expert or stakeholder involvement in the policy processes.

Future research might link the observable and measurable changes, such as changes in food security status and the progress made towards the relevant SDGs for them to be related to the perceptions of stakeholders regarding the efficacy of policies and their participation in policy processes.

## **9.6. Research limitations**

There are some limitations to be taken into consideration. These relate to the use of the maize value chain as the case study selected, as well as the impact of Covid-19 on the data collection.

1. The outbreak of Covid-19 caused a limited interaction with stakeholders. This resulted in smaller sample sizes than expected. While future research should attempt to include larger sample sizes, the triangulation of the different methods used within this thesis ensures that we can still be confident in the overall conclusions.
2. Reliance on qualitative methods reduces the applicability of the findings at a national scale. Limited available resources for conducting the research guided the reliance on qualitative methods as well as the number of participants able to be consulted. A mixed-method approach using both qualitative and quantitative methods to investigate the research questions may result in more generalisable outcomes at a national scale. For example, quantitative methods will enable the impact to be statistically investigated and extrapolated at a national scale.
3. The use of stakeholder 'convenience samples may mean that the results are biased towards stakeholders who already have some engagement with policy and are interested in the process. Expanding the sampling criteria to include perhaps individuals who have not participated would eliminate this bias. Additionally, the research focused on small scale producers, not on a diverse scale level of producers. A similar study with large scale stakeholders may provide comparative findings which would be useful given how there are producers of different scales in society.
4. Rapid changes in external circumstances may compromise the conclusions of this research. Changes to food chains both nationally and globally are having both negative and positive impacts on the efforts to achieve food security and sustainability. This means that the need for research in this area is continuous and must evolve to ensure that the best methods are applied to optimise stakeholder involvement in policy.

## **9.7. Summary**

Stakeholder involvement, that of experts and other stakeholders including citizens, in governmental decisions is increasingly embedded in policy. The research presented in this thesis explored whether the involvement of stakeholders was effective in Kenya and Tanzania in the context of improved food security. Also identified were some of the potential issues regarding how stakeholder engagement is implemented in both policy development and its implementation.

Stakeholder involvement is essential within the policy environment. However, this research showed that in relation to food security policies in Tanzania and Kenya, policy effectiveness is reduced by the limited inclusion of stakeholders in the development and implementation process. Challenges to the inclusion of stakeholders found included their lack of awareness of participation mechanisms and the lack of an effective participation system. Other themes contributing to policy ineffectiveness were identified, including policy incoherence. A barrier to developing policy coherence may be the limited resources for policy implementation, monitoring or testing.

In summary, efforts to improve stakeholder inclusion, especially within rural areas, in policymaking in both Tanzania and Kenya will contribute to the attainment of relevant SDGs and overall food security in both countries.

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# Appendices


## Appendix A- Research permits

Associated permission slips

Kenya research permit

Republic of Kenya  
National Commission for Science, Technology and Innovation  
Ref No: 480221

**RESEARCH LICENSE**




This is to Certify that Ms. Ivy Matoju of Newcastle University, has been licensed to conduct research in Nairobi, Nakuru, Nyeri on the topic: **UNDERSTANDING IMPACT AND EFFECTIVENESS OF POLICIES ON ESTABLISHING SUSTAINABLE FOOD SECURE SYSTEMS: A CASE STUDY USING THE MAIZE VALUE CHAIN** for the period ending : 25/January2022.  
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Tanzania permit


UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY  
TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY



  
**RESEARCH PERMIT**

Permit No.	2021-309-NA-2021-025
Date issued	4 <sup>th</sup> June 2021
Researcher's Name	Ivy Maloju
Nationality	Tanzanian
Research Title	Understanding impact and effectiveness of policies on establishing sustainable food secure systems: A case study using the maize value chain
Research Area(s)	Kilimanjaro, Kagera
Validity	From: 4 <sup>th</sup> June 2021 to 3 <sup>rd</sup> June 2022
Contacts of local collaborator (with affiliated institution)	Prof. George S. Oreku, The Open University of Tanzania, Email: George.oreku@out.ac.tz , +255-778 888010

 PROGRAM OFFICER

 FOR DIRECTOR GENERAL

**IMPORTANT REQUIREMENTS**

- A PI who wishes to continue with a research beyond the expiry date of the research permit should write to COSTECH two months before the operational permit's expiry date, to request for an extension or renewal of the permit.
- Research permit that involves collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA), Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.
- Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRRC) shall be owned as stipulated in the research proposals and in accordance with the IP policy of the respective research institutions.
- All researchers are required to report to a Regional Administrative Secretary (RAS) of the study area and present the introduction letter and activity schedule(plan) prior starting any research activity.
- All researchers are required to submit quarterly progress reports and all relevant publications made after completion of the research.
- All communications should be addressed to COSTECH Director General through [clearance@costech.or.tz](mailto:clearance@costech.or.tz) or [dg@costech.or.tz](mailto:dg@costech.or.tz) or +255 (022) 2700749; +255 (022) 2771358. Terms and conditions of the permit are found at [www.costech.or.tz](http://www.costech.or.tz)

Tanzania Commission for Science and Technology, Ali Hassan Mwinyi Road, P.O. Box 4302, Dar Es Salaam.  
General line: +255(022) 277 1358, Fax: COSTECH, E-mail: dg@costech.or.tz.  
Website: <http://www.costech.or.tz>

## Appendix B- Critical synthesis protocol

### 1. TITLE

TITLE	ANALYSING FOOD-RELATED POLICIES IN KENYA AND TANZANIA
FIRST REVIEWER	Matoju Ivy
TEAM OF REVIEWERS	Prof. Lynn Frewer, Dr., Beth Clark
SUPERVISOR (S)	Prof. Lynn Frewer, Dr., Beth Clark, Prof. Robert Newbery, and Prof. Sally Shortall
PROJECT TITLE	FOOD POLICY AND ITS ROLE IN CREATING SUSTAINABLE FOOD SYSTEMS IN KENYA AND TANZANIA: Understanding impact and effectiveness of policies using maize as the model value chain.

### 2. BACKGROUND

#### 2.1 Introduction

Food security includes all the elements and activities that relate to food including production, processing, distribution, marketing, preparation, and consumption. Secure food systems are related to bases; economic, social, and environmental. Maize is a relevant supply chain to assess food security as it is a staple food product in Kenya and Tanzania. Changes along the maize supply chain both (within and outside national borders) may have a significant effect on food security, including in relation to agricultural practices, socio-economic factors, and nutritional status of consumers.

establishing and maintaining food security (assuming the pillars of food security are access, stability, utilization, and availability) requires that certain steps are taken to create the context in which they can realise positive impact. To maximise impact, policies need to take account of the views and priorities of stakeholders, including those who are affected by the policy (e.g., actors in the value chain, and consumers) and those who implement the policy.

Policy development is therefore reliant on information and knowledge exchange between different stakeholders and policy end-users and relies on the interactions between various actors in relation to supply chain activities, including policymaking.

Food policy concerns a set of coherent decisions with a long-term purpose (FAO, 2015) that affect the food value chain. Here, policy refers to any available official documentation that outlines activities that will result in changes within the food system, be it public or public-private or privately driven. These changes may be in the form of food programs, safety

regulations, or access and availability of food products. Policies of interest that interact with an aspect/pillar of food security, include those that are designed to ensure food security and sustainability (food availability) of the food chain.

#### *Rationale*

Analysing food policy in Kenya and Tanzania will enable understanding of how policies ensuring food security are formulated, the inclusion of sustainability, the goal of the policies especially the pillar(s) of food security the policies address. It will also allow an understanding for stakeholder participation

#### *Method*

Critical interpretative synthesis enables policy analysis to identify themes that may be used when it comes to addressing whether existing policies improve food security. This method allows for determination of how a specific topic has been “problematized” (regarded as an issue that needs solutions) as well as identifying underlying assumptions and factors influencing both the policy and proposed solutions. The synthesis will address food security from the perspective of food policy. To conduct the synthesis, a compass question will be used to guide the synthesis. A compass question is one that guides the synthesis while ensuring the objective is not lost, in this case it will be “*Do food policies in East Africa consider “sustainability” and “food secure chains” in their policies?*” More specific questions that will be addressed by the review include:

10. Are there any policies that focus on “food security?”
11. Is “sustainability” mentioned in the food-related policies that are currently, or have been, enacted?
12. Are there any measures outlined in the policies that are directed towards developing and maintaining food security and will ensure sustainability?
13. What are the targets and proposed impacts (e.g., society, specific stakeholder, production inputs) for the policy being implemented?

The study forms one aspect of understanding food policy in East Africa by enabling the synthesis of information obtained from various policies in the region into themes to understand policy development and sustainability measures in the food chain

### **2.1. Aim and objectives**

Synthesis objective- *To identify the themes around food- related policy in the East Africa region (Kenya and Tanzania),*

Based on the above objective, this review has the below aims:

- To understand food policy and the policy formulation process

- To see if the term “sustainability”, or measures aiming for sustainability, is included within policies
- To see if there are any measures to ensure food security as an impact of the implemented policies
- To determine the contemporary drivers that led to the formulation and/or implementation of the policy
- To assess the extent to which stakeholders (food chain actors, consumers) have been involved with food policy development and implementation

### 3. Criteria for including policies in the critical synthesis.

Concepts derived from the compass question will form the basis of the inclusion and exclusion criteria, namely: Food policies, food security, drivers of food policy making (Section 3.1).

#### 3.1. Inclusion criteria

Inclusion criteria	Parameters/Characteristics
National and regional based policies (making it specific, for Tanzania and Kenya)	Recommendations or mandatory obligations for producers or retailers, Active or future regulations <i>Justification:</i> - It is important to assess what the policies aim(ed) to achieve Understanding the aims of the policies facilitates identification of the stakeholders involved, and the process the policymakers followed whilst designing the policy.
Time scale (39 years)	1980-Present <i>Justification:</i> - The time scale allows for inclusion of policies that arose with the change in democratic conditions (One party state to multiparty officially occurred in the 1990s) and economic liberalization (open market trading began around 1982 (Kenya) and 1988 (Tanzania) in the two respective countries. The time range will allow for the evolution of the policies to be

	mapped alongside changes in the political landscape.
Any policy document that relates to food, spanning from production to consumption	<p>It is important to covering all aspects of the food value chain, from production to consumption. This includes policies that deal with access to land available for production, water regulations, production input regulations, production policies, and food safety standards among others. It is also important to include documents that address all stages of food production, for example in relation to such as food security, including economic and financial aspects of the food chain (trade, investment).</p> <p><i>Justification:</i> - Analysis of policy documents which address issues throughout the entirety of the supply chain will enable the identification of stakeholders, the most frequently (and infrequently) targeted areas for policy driven interventions, and the effect of policy intervention on specific aspects of food value chain (for example, consumption or production)</p>
Spatial focus	<p>Only policies that enacted and implemented in Kenya and Tanzania will be included. International policies will be included if ratified or adopted by in Tanzania and Kenya</p> <p><i>Justification:</i> - The two countries are members of various international organizations and as such adopt certain international measures into their national agendas.</p>
Media sources	Articles published within the timeframe that specifically deal with food / mention food in their titles. Food synonyms and antonyms will be included



	<i>Justification:</i> -Analysing newspaper articles published within the specified time frame, will help to establish the food situation the region was experiencing prior to, and after, policy development and implementation, thus enabling the identification of possible drivers of policy formulation.
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### 3.2.Exclusion criteria

Exclusion	Parameters
Research studies	Primary research studies into the impacts of policies conducted in the region. <i>Justification:</i> - The aim and analysis of the research studies may vary from the targeted objective of this synthesis. Also, the focus/scope of the study will differ.
Policies devised before 1980	Policies developed or in action before 1980 in the region <i>Justification:</i> - Prior to the 1980s, both Kenya and Tanzania were in a transitional state following the attainment of independence in the early 1960s.
Documents that do not interact with the food value chain	They do not mention any aspect of the food chain (production, consumption, processing) or food products.
Spatial focus	Any policies that are not signed/accepted by the case study countries <i>Justification:</i> - The analysis is focused on the two countries and national food security.
Media sources	Articles published before 1980; articles that are not concerning food in the region or describe recipes. <i>Justification:</i> - Recipes are unlikely to be relevant to food security policies.

## 4. Search strategy

The below describes the different elements of the search strategy for policies (as well additional information) to be included within the critical synthesis.

Databases	<p>Ministerial databases, national, regional, and international food databases, NGOs databases were also be used for data collection.</p> <p>The databases included; Ministry databases of each country (Agriculture, Finance, Land, Planning), Standards databases (Tanzania Bureau of Standards (TBS), Kenya Bureau of Standards (KEBS)), Regional databases (East Africa Community (EAC), African Union (AU)), International databases (Organisation for Economic Co-operation and Development (OECD), Food and Agriculture Organisation (FAO), International Food Policy Research Institute (IFPRI), International Food Standards (IFS), World Trade Organization (WTO), Armed Conflict Location and Event Data (ACLED)), Newspapers archives (East African, Daily Nation, Taifa Leo, The Standard, The Citizen)</p>
Key informants	<p>Consultation with informed individuals in the region (using the snowballing technique-asking participants to identify other potential participants) including government ministry and departmental officers, identified stakeholders who were consulted for the policy making process. This consultation provided additional knowledge (context) about the policymaking process, as well as enabled identification of additional policies that may have been missed in the initial search.</p>
Information search	<p>To ensure that applicable policies were identified, journal articles concerning food policy were searched, using Google Scholar to identify papers on food policy in the East Africa region, specifically the reference lists. Manual searching of titles in select book chapters to identify policies was also be conducted</p>
Search terms data collection (policies and strategies)	<p>Search terms that were used include:</p> <ol style="list-style-type: none"> <li>1. Food “policy” OR “regulations” in “Kenya” OR “Tanzania” OR “East Africa”</li> <li>2. Agriculture “policy” OR “regulations” in “Kenya OR Tanzania OR East Africa”</li> <li>3. “Maize “farming” OR “Production” or “Maize value chain” in “Kenya” OR “Tanzania” OR East Africa”</li> </ol>

	<p>4. Nutrition “policy” OR “regulations” in “Kenya” OR Tanzania” OR “East Africa”</p> <p>5. Trade “policy” in “Kenya” OR “Tanzania” or “East Africa”</p> <p>6. Environment “policy” OR “regulations” in “Kenya” OR “Tanzania” OR “East Africa”</p> <p>7. Food OR Agriculture “Programs” or “Strategies” in “Kenya” OR “Tanzania” OR “East Africa”</p> <p>Other generic search terms were used as well such as “food security” The terms were used as both individual phrases or combined phrases.</p> <p>The proposed search was trialled and tailored to each database and organisation searched to establish which returned the most relevant results.</p>
Data collection	Data collected was in the form of policy documents, newspaper articles, and interview transcripts
Screening process	All relevant policies were downloaded and assessed using the inclusion-exclusion criteria
Details	This part of the review was conducted by a primary reviewer, with two individuals to double check the included policies and articles

## 5. Review methods

The below section will describe in more detail how included studies were analysed.

Quality Assessment	<p>Traditional quality assessment does not apply in this case therefore the quality assessment used criteria that included <i>relevance</i>, and <i>reliability</i> which are ideal for of the selected policy by checking the sources and the criteria used for evaluating sources. The assessment examined whether the policy meets the inclusion criteria and if the source of the secondary data was reliable.</p> <p>Another area of focus of the assessment will be the resultant synthesis itself, does the synthesis set out to answer the research questions</p>
Data extraction	A summary document which provides an overview of included policies was created, providing a means for the

	<p>reviewers to familiarise themselves with all the documents. It will contain basic information about each policy (e.g., date, focus, source etc.) as well. Extraction will follow these criteria, among others, which will become apparent as the review process develops:</p> <ol style="list-style-type: none"> <li>1. Is the policy preventative or reactive to a developing problem? If reactive, does it have future preventative measures</li> <li>2. What is the aim of the policy? What goals does it aim to achieve?</li> <li>3. Who are the target actors? Ministries, local authorities, stakeholders included in formulation</li> <li>4. Has the policy superseded another policy broadly targeting the same issues?</li> <li>5. Does the policy have linkage to other policies?</li> </ol> <p>The aim was to identify common themes and concepts within food policies in Kenya and Tanzania, including stakeholder inclusion and provide a summary of all relevant policies.</p>
<p>Synthesis</p>	<p>Critical Interpretative synthesis was used to assess the policies that included. The synthesis summarised the policy <i>objectives, actions, and targets</i>. It allowed the assessment of stakeholder inclusion and the goals of the policies against the Sustainable Development Goals. It also enabled the identification of policy drivers present during the policy making period, and the possible connections, between the drivers and formulation of policies by looking at newspaper articles in the public arena (social media analysis was not conducted due to resource limitations). Emerging themes from the different policies will then be identified and critically analysed with respect to the objectives of the synthesis.</p> <p>The other area of interest was the year the policy was enacted which, combined with the data generated from the media sources, enabled the timeline of the policies in the region to</p>

	<p>be mapped to show change in relation to ensuring food security</p> <p>The information was collated and integrated into a “synthesizing” argument which brings out relationships between the information and allows for conclusions to be made.</p>
Analysis	<p>Line of argument, the form of a synthesizing argument, was used with cross country comparison which ties in with the case study approach of the entire study.</p> <p>By synthesizing the information into identifiable/clear themes/groups, the impact of policies on food security can be assessed and any changes that occurred in the policy arena as time progressed can be identified. It will lead to an understanding of food policy and stakeholder involvement as well as the impact of policies on the food value chain.</p>

## 6. Presentation

Output from review	Identification of food policy stakeholders, the process for policies development, determination of the drivers that lead to policy creation in Kenya and Tanzania
Presentation	<p>Textual</p> <p>Tables (Summary of included policies)</p> <p>Figures (timeline of policy evolution and policy making process in the region)</p>

## 7. TIMELINE FOR SEARCH

Protocol	1 month
Literature search	2 months
Quality Appraisal	1 months
Data extraction/ Synthesis/Writing up	2 months

Policy pro-forma design

TITLE OF THE POLICY		
DATE ENACTED		
POLICY REPLACED/SUPERSEDED		
OBJECTIVES OF THE POLICY		
BACKGROUND/RATIONALE	Economic	
	Nutrition	
	Health	
	Safety	
	Land	
	Food stock	
POLICY COHERENCE (LINKS TO OTHER POLICIES)		
SCOPE OF THE POLICY	<i>Is the policy preventative or reactive? If reactive, does it have future preventative measures? What are is the aim, achieved goals? Who are the target actors and/or department?</i>	
FOOD SECURITY PILLAR TARGETED	<i>Which pillar, availability, access, stability, or utilization is the policy aiming to improve?</i>	
IMPLEMENTATION STRATEGY	Institutions	
	Finance	
	Targets	
	Policy instruments	
	Monitoring and evaluation	
	Timeline	
KEY WORDS		

Articles

Date	
Title	
Key words	
Relevance	
Summary	

## Appendix C-Search terms and online sources

### Search terms

Category	Search terms
<b>Policy</b>	“Food policy ...*”, “Agriculture policy in...*”, “Trade policy in ...*”, “Land Policy...*”, “Environmental policy in...*”, “Food legislation in ...*” Kenya, East Africa, Tanzania, African Union
<b>Maize</b>	“Maize value chain in...*”, “Maize production in ...*” East Africa, in Tanzania, in Kenya, “Importation and exportation of maize in East Africa”
<b>Food security</b>	“Food security in ...*”. “Food sustainability in ...*” Kenya, Tanzania, East Africa
<b>Status</b>	Maize shortages in Kenya, Tanzania, Famine warnings and occurrence in East Africa, Kenya and Tanzania, Droughts, and Floods in Kenya,

### Online sources

Database	Link
<b>Google</b>	Google <a href="https://www.google.com/">https://www.google.com/</a>
	Google Scholar <a href="https://scholar.google.com/">https://scholar.google.com/</a>
<b>Government</b>	Finance <a href="https://www.mof.go.tz/">https://www.mof.go.tz/</a> ; <a href="https://www.treasury.go.ke/">https://www.treasury.go.ke/</a>
	Agriculture <a href="http://www.kilimo.go.ke/">http://www.kilimo.go.ke/</a> ; <a href="https://www.kilimo.go.tz/index.php/en">https://www.kilimo.go.tz/index.php/en</a>
	Land <a href="https://www.lands.go.tz/">https://www.lands.go.tz/</a> ; <a href="https://lands.go.ke/">https://lands.go.ke/</a>
	Trade <a href="https://www.mit.go.tz/">https://www.mit.go.tz/</a> ; <a href="http://www.industrialization.go.ke/">http://www.industrialization.go.ke/</a>
	Statistics <a href="https://www.nbs.go.tz/index.php/en/">https://www.nbs.go.tz/index.php/en/</a> ; <a href="https://www.knbs.or.ke/">https://www.knbs.or.ke/</a> ; <a href="http://www.tsed.go.tz/">http://www.tsed.go.tz/</a> ; <a href="https://kenya.opendataforafrica.org/gallery/Food-Security">https://kenya.opendataforafrica.org/gallery/Food-Security</a>
	Health <a href="https://www.moh.go.tz/en/">https://www.moh.go.tz/en/</a> ; <a href="https://www.health.go.ke/">https://www.health.go.ke/</a>
	Water <a href="https://www.maji.go.tz/">https://www.maji.go.tz/</a> ; <a href="https://www.water.go.ke/">https://www.water.go.ke/</a>
	Information <a href="https://www.tanzania.go.tz/">https://www.tanzania.go.tz/</a>
	<b>NGOs</b>
Food and Agriculture <a href="http://www.fao.org/home/en/">http://www.fao.org/home/en/</a>	



	East African Community	<a href="https://www.eac.int/">https://www.eac.int/</a>
	Famine Early Warning System	<a href="https://fews.net/">https://fews.net/</a>
	IFPRI-Food Security Portal	<a href="http://www.foodsecurityportal.org/">http://www.foodsecurityportal.org/</a>
	The Economist Intelligence Unit- Global Food Security Index	<a href="https://foodsecurityindex.eiu.com/index">https://foodsecurityindex.eiu.com/index</a>
<b>Articles</b>	Weekly	<a href="https://www.theeastafrican.co.ke/">https://www.theeastafrican.co.ke/</a>
	Daily	<a href="https://www.nation.co.ke/">https://www.nation.co.ke/</a> ; <a href="https://www.standardmedia.co.ke/">https://www.standardmedia.co.ke/</a> ; <a href="https://taifaleo.nation.co.ke/">https://taifaleo.nation.co.ke/</a> ; <a href="https://www.thecitizen.co.tz/">https://www.thecitizen.co.tz/</a>

## **Appendix D-Description of policies and objectives**

### Food and Nutrition Policies

There has been a total of five policies covering the production and consumption of food by people living in Kenya and Tanzania within the study time period (1980-present). Kenya has one policy implemented between 1980-1989 which focused on ensuring availability of food for its population and was consolidated into the national development vision (1986). Key features of the 1980s policies were linkages with the economically driven development vision in place at the time. The country's subsequent policies incorporated the human right to food (1994 policy) and nutrition security within its mandate (2011 policy) broadening policy focus from just availability to cover utilization as well.

Tanzania had only one food policy, enacted in 1992, which is still the policy currently in operation. The policy outlined availability and access of food targets, which also met nutritional requirements, especially for vulnerable members of society, (the elderly, children, and pregnant women). It should be noted that the country has strategies developed within the time period to ensure the right to food for its people.

Associated strategies through the same time period include Tanzania Agriculture and Food Security Investment Plan (2011), Food Fortification Strategy (Tanzania 2012), National Nutrition strategy (Tanzania 2009), National School meals and nutrition strategy (Kenya 2017), Kenya Agri-Nutrition Strategy (2020), Nutrition Action Plan (Kenya- 2018) among others.

### Agriculture policy

Within the region, food and agriculture policies are linked (Mkonda & He, 2018). However, separate agriculture policies currently exist in Tanzania. There have been two agriculture policies that focused on the strengthening of the agricultural sector: Agriculture policy 1983 (Tanzania) and the Agriculture Policy 1997 (Tanzania). Currently, there is a draft 2013 comprehensive agriculture policy under development, which seeks to build the sector into a competitive, productive sector, on both national and regional terms. Both the current and draft versions of the agriculture policy call for the collaboration between different ministries so as to reduce redundancy of activities and policies that interact with the food chain being target specific such as focusing on particular aspect of agriculture for improvement with the main aim of increasing production to enhance food security

Although Kenya has no explicit agriculture policy, it does have agricultural strategies for the development of the sector. Strategies such as the Kenya Climate Smart Agriculture Strategy (2017- 2026), or the Agricultural Sector Transformation & Growth Strategy aim to develop the

sector and mitigate the challenges caused by the changing environment due to climate change. Tanzania also has associated strategies, for example the post-harvest management strategy and “Kilimo Kwanza” (Agriculture First) program to improve the agriculture sector.

### Resources focused policies

Resources focused policies refers to access and maintenance of the natural resources necessary for food production: environment, land and water

*Environment policies* - There have been three policies focused on resource management; Tanzania has one from 1997 while Kenya has a more recent 2013 one, a successor of the 1999 policy. A key fact about the policies in both countries is that they both focus on the “sustainable management and use of resources”.

*Land policies* - Land is an important resource in relation to food security (Baltissen & Batsema, 2018, WorldBank, 2014). In legislation, land has been governed by traditional viewpoints which tends to disadvantage women in ownership with recent policies being the turning point in stipulating legal changes to adjust the situation. In Kenya, a person can own land while in Tanzania it is owned by the President, meaning one may hold a land title deed but the land is ultimately under the control of the government. The national land policies in operation were designed 10 years apart with Tanzania using one enacted in 1997 and in Kenya in 2007. In 2016, Kenya enacted the Land Use policy to outline land usage guidelines as an extension of the Land policy. The main goal of the policies is to outline the use of the land within the country borders and to cope with the growing population and associated food security and other economic demands.

*Water policies* - Water is a precious resource in a region that experiences both floods and drought seasons (CIMA, 2018, 2019). Policies in both countries consider water resources through plans for water harvesting, monitoring, and distribution. Water management is essential due to the reliance on rainfall and irrigation for food production. Current policies include the National Water Policy 2002 in Tanzania and National Water Policy of 2016 in Kenya. Associated strategies include the Water Development Programme of Tanzania (2005-2025).

*Labour policies* - Women and youth are represented heavily in food related policies (agriculture, food, land) as both the producers and consumers. Both Kenya and Tanzania have enacted two (2) policy versions for gender equality, National policy on Gender & Development (2019) representing the most recent policy for Kenya, and Women and Gender Development (2000) for Tanzania.

The countries also look to empower the youth population through the Youth Development Policy of 2007 (Tanzania) and the Youth policy of 2018 (Kenya), which both encourage youth participation in the agriculture sector.

#### Technology focused policies

Embracing technology and creating environments that stimulate innovation are seen as the way to combat challenges facing both Kenya and Tanzania and progress development. The policies relate to science, technology, and innovation.

The Innovation policies which include Tanzania's National Science, Technology, and Innovation Policy (2015) and Kenya's Science, Technology and Innovation policy (2016), are part of a progression from previous continental agreements focused on the use of science and technology and applying it to innovation, including within the agricultural sector.

Both Kenya and Tanzania have biotechnology policies developed the first decade of the 21<sup>st</sup> Century, Biotechnology Policy (2010-Tanzania) and National Biotechnology Development (2006- Kenya), and both are outlined in the form of regulations concerning the possibility and potential of utilizing the resulting technologies. They are important due to advances in scientifically enhanced maize and their use in local agriculture.

#### Input policies

Production inputs, for example, fertilizers and pesticides, are covered in large part by other policies and strategies such as Agriculture Development Strategies or Agriculture Policy rather than stand-alone policies. An additional factor is that the region is working on the harmonizing inputs regulations in the region through the East Africa Community harmonization efforts. Only Kenya has a standalone policy for inputs specifically that for seeds, which was enacted in 2010, focusing on the quality of seeds used within the value chains.

#### Economic focused policies

Agriculture, and by extension food production, provides most income in both countries. Therefore, finance and trade policies are of interest. Finance plays a role in determining whether the other policies are implemented, in terms of funding of the implementation programs, whether stakeholders can access financial support, whether the economy is viable to aid in access and availability of food.

Agriculture is as a tool for development in East Africa. The agricultural sector is the largest employer in both countries, and a significant contributor to the GDP (Kari, n.d; ANSAF, 2015).

Kenya's recent trade policy (2016) focuses on strengthening the supply chain and having accurate records of the available agriculture produce for purposes of both trade and food security.

Trade policies for Kenya ranged from import substitution to export based strategies, where they focused on producing their own products to an extent that they would import them and are now covered by the National Trade Policy (2016). Sustainable development and poverty reduction are emphasised within the objectives of the policies. In Tanzania (2003), they emphasis higher production and output of food products and encourage cross border official trade while advocating for the continued existence of State trading enterprises for the import and export of select products of which food is one of. Policies such as the National Industrialization policy (2012) in Kenya, National Microfinance Policy (2017) for Tanzania are also implemented to aid in efforts of increased production by strengthening the support system for stakeholders.

A major food security hurdle in both countries is the supply chain and marketing of agricultural produce, specifically, getting it to the parts where it is most needed. Efforts to streamline this connection/make it effective have included recognizing informal cross border traders and the implementation of the Simplified Trade Regime (EAC mandate).

### Consumption policies

In addition to food and nutrition policies, there are several policies in effect that influence consumption within the food value chain. These other policies include the Food Safety Policy of Kenya (2013) and the health policies for both countries. Tanzania has implemented three health policies. Health was addressed in the previously implemented policies of National Health Policy of 1990 and National Health Policy 2007, and the current policy National Health Policy 2017, seeking to ensure the quality of people's health so that they are able participate in socioeconomic activities, in line with the development vision 2025. This objective is echoed in Kenya's Health Policy (2014) which is the successor of the previous Kenya Health policy (1994).

The Food Safety Policy of Kenya (2013) and quality standards established by the respective bureau of standards in the countries aim at protecting consumers and ensuring that the food they consume meet their needs by focusing on the production/processing aspect of the value chain. Associated strategies include the National Fortification Strategy of Tanzania (2012, recently updated), Kenya National Nutrition Plan (2018) and county specific nutrition plans.

Objectives and targets of sampled policies

Table 2: Sample policies displaying the objectives of the policies and the targets of the implementation from people to institutions

<b>POLICY</b>	<b>OBJECTIVES</b>	<b>TARGETS</b>
<b>Food policy 1986- Kenya</b>	Improving access to credit, inputs; Promoting and attaining self-sufficiency; accessibility to nutrition; achieve a degree of food security	Enabling a shift from govt. intervention to market driven
<b>Food policy 2011- Kenya</b>	Eradicate hunger and malnutrition; equitable access to and uptake of high quality, high impact nutrition interventions; achieve adequate nutrition for optimum health; increase the quantity and quality of food available, accessible and affordable; protect vulnerable population using innovative and cost effective safety nets linked to long-term development; add value, build synergies and assist with implementation of existing national and sectoral policies and strategies to effectively address issues of food insecurity and malnutrition in Kenya; Achieve the govt. policy throughout their life cycle enjoy at all times safe food and waters in sufficient quantity and quality to satisfy their nutritional needs for optimal health.	Establishing an overarching framework bring together the different facets involved in food and nutrition security, active involvement of the private sector, efficient collaboration and establishment of government institutions Increase public awareness concerning nutrition security
<b>Food policy 1992- Tanzania</b>	Prepare a viable system for coordinating, balancing and guiding food and nutrition problems; rectify state of food availability and utilization in accordance with nutritional requirements; involve all sectors which deal with issues pertaining to food and nutrition; incorporate food and nutrition considerations in development plans and allocate available resources towards solving the problem of food and nutrition at all levels; use nutrition as one of the indicators in assessing social development achievements of economic and health improvements projects; Formulate and develop research which will facilitate solving of food and nutrition problems	Public; Institutions; Farmers; Awareness raising
<b>Food policy 1994- Kenya</b>	Maintain self-sufficiency; Improvements in marketing and storage of food, boost food productivity	Creation of a linked policy framework with agriculture
<b>Policy</b>	<b>Objective</b>	<b>Targets</b>

<b>Land- (Tanzania)</b>	<b>1997</b>	Promote and ensure a secure land tenure system; Equitable distribution of and access to land; recognition, clarification and securing of existing rights; avoid land concentration; land is used productively to promote social and economic development; transparency in land matters; protect land resources from degradation for sustainable development	Institutions, women, and communities
<b>Land use- (Kenya)</b>	<b>2016</b>	Coordination between land use policy instruments; enabling environment for agri and livestock development; consolidate existing multiple laws and bureaucratic agencies	
<b>Environment (Tanzania)</b>	<b>-1997</b>	To ensure sustainability, security, and equitable use of resources; prevent and control degradation of land, water, vegetation and air; conserve and enhance natural and man-made heritage; improve the condition and productivity of degraded areas; raise public awareness; promote international cooperation	Use of environmentally sound technologies, Women, Internalization of environment considerations in other sectoral policies and programmes Capacity building
<b>National and Science Policy (Tanzania)</b>	<b>1996-</b>	Promote science and technology as tools for economic development, improvement of human, physical and social wellbeing and for the protection of national sovereignty; promote the scientific and technological self-reliance in support of economic activities; stimulate the generation of scientific and technological knowledge; incubate a science and technology culture; establish and /or strengthen national science and technology institutions; establish appropriate legal framework for the development and transfer of technology; promote rational utilization of natural resources; promote active participation of women in science and technology by creating an enabling environment; promote appropriate technologies that reduce the chores and drudgery of life of women	Establishing legal framework, institutions, increased research into applied socio-economic development
<b>National Biotechnology Development Policy 2006- Kenya</b>		Prioritize, promote, and coordinate research in basic and applied sciences in biotechnology; promote sustainable industrial development for the production of biotechnology derived products; develop and establish mechanisms for the provision of sustainable funding and also address ethical issues; promote public understanding of the potential benefits of biotechnology	Public, Institutions Industry

**Appendix E-Adjusted Expert Interview guide and questionnaire checklist for society**  
INFORMATION SHEET



Dear Participant

As part of an exploratory study to understand the role played by stakeholders in ensuring food security in the region through policies, we are interviewing stakeholders along one of the key staple food value chains, that of maize. We are looking to gain a better understanding into 1) how the policymaking process in the country occurs, 2) how the society reacts to the implementation and 3) the effects on the food systems.

You are invited to share your viewpoints and opinions concerning the path to food security with respect to policies and activities along the maize value chain. These discussions will cover:

Part I: Policy awareness

Part II: Implementation of policies

Part III: Food production

Part IV: Extenuating circumstances

The discussions will be no longer than 50 minutes. Any opinions and information that you provide during the discussion will be confidential and used solely for this research study.

Please contact the research team if you wish to learn more about this study, contact details are outlined below. Also, as a participant, would you please state your occupation, age and gender.

Your participation in this study will be greatly appreciated.

Yours Sincerely,

Kind regards

Ms. Ivy Matoju (PhD candidate) [i.a.matoju2@newcastle.ac.uk](mailto:i.a.matoju2@newcastle.ac.uk)

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School of Natural and Environmental Sciences (Agriculture Building), Newcastle University,  
Newcastle upon Tyne, NE1 7RU



**PERSONAL DEMORGRAPHICS FORM**

**Individual Allocated Number** \_\_\_\_\_

**Age** \_\_\_\_\_

**Gender** \_\_\_\_\_

**Occupation** \_\_\_\_\_

**Education level** \_\_\_\_\_

**Marital Status** \_\_\_\_\_

**Additional Interests**

- |   |  |                                      |
|---|--|--------------------------------------|
| <input type="checkbox"/> Environmental Issues | <input type="checkbox"/> Human Rights    | <input type="checkbox"/> Development |
| <input type="checkbox"/> Politics             | <input type="checkbox"/> Social Concerns | <input type="checkbox"/> Technology  |

**Other: (Please Specify)** \_\_\_\_\_  
\_\_\_\_\_

I consent to take part in this study      Yes       No

## INTERVIEW CHECKLIST

How do you define your role?

Are you involved in education of consumers (With regards to different techniques, technologies, regulations)?

The food production sector is associated with a broad set of policies (land use policies, nutrition policies). Has the increased number of policies has complicated rather than simplified the production-consumption process?

As a participant in the food value chain within the region, are the consumers in the region aware of the different regulations that they have to follow or that are in place to protect them?

Do you participate in the policymaking process, be it the formulation or implementation of policies/strategies?

- Could you describe this process (how were you made aware of the process, how did you participate-meetings, submitted comments)?

Given the impact of food related policies especially increasing food production, what is your opinion regarding the food stakeholders' representation within the policymaking process?

According to your knowledge, are stakeholders in the region involved in the policy formulation process?

Is there a process or system in place in the region, which allows consumers to take part in policy formulation process?

Have factors such as the existence of county governments/local authorities improved stakeholder inputs to the development and implementation of policies in the region?

Do you think that stakeholder involvement has made an important contribution to policy development, particularly with problem formulation?

With regards to the current food policies, have they led to an increase in food production and thus a key way to increase food security in the region?

Do they tend to advocate for increased consumption as opposed to better diet composition?

### Implementation process

Are you involved in the implementation of policies/strategies in the food sector?

- What is the extent of your involvement (describe the activities you carry out in this regard)?

During your time in office, which policies have been implemented in the region?

- Which ones are being implemented from the previous occupants?
- Why were they implemented?

Are stakeholders of the food value chain willing to embrace the implemented policies, especially those that deal with improved technologies or changes in diet?

Have there been any issues/problems that were encountered by the implementation of the policies (funding, limited acceptance)?

What is/was the effect of the implemented policies on the problem to be solved.

- What was the rate of success?
- Was the issue solved, making the implemented policy effective?

Do you think there is a link between stakeholder involvement in the policy making process and development in the region (better transport links, access to large markets)?

In your opinion, what sort of policies/strategies are needed in the region to improve the production-consumption of maize which in turn will aid in improving food security?

### Food production

Within the region, food security is gauged by the availability of cereals in particular maize and rice, do you think this is appropriate?

- Is there another food type that should be used to gauge food security in your opinion?

Have you noticed a change in consumption diet within the population?

- Has this impacted the production patterns in the region (more vegetables than cereals, more meat than plants)?

Food production tends to be the main economic activity in the region, contributing to the social structure, do you agree?

- Does socio-economic development therefore rely on food production?

Are there ways that improvements to food production and consumption can be implemented?

In your capacity, have you encountered any gender discrepancies that may result in hindering food production-consumption and subsequently food security?

In your opinion, should measures to improve agricultural production-consumption be tailored according to gender?

- Could you elaborate?

With regards to food security policies, do the targeted aims cover ways to combat the challenges facing food producers and subsequent consumers (access to resources, access to technologies), in your opinion?

### Extenuating circumstances

Is there a system that allows for consumer feedback in the region?

- Is it effective?
- Are people aware of it and utilise it?

Are there any protection measures implemented by the government to aid the food value chain during times of stress?

What are the standing guidelines for the collection of surpluses, accessing and distribution of stored foods to affected areas in times of crisis?

Do you think that issues such as population growth and climate change will contribute to the region shifting from mostly locally produced food to a greater reliance on imported products?

- What will then be the impact on the local stakeholders especially consumers?

### QUESTIONS FOR CHAPTER 6

#### *Farmers*

##### Production

1. How large is your farm? What is the maize output?
  - Why do you grow maize?
  - Who decides what to do with maize?

- Which variety of maize do you grow?
- How long have you been growing it?
- Have you grown any other varieties previously?
- Why the switch?
- How did you learn about the newer variety?

2. What inputs do you use on farms?

- Do you use pesticides? Are they natural based (organic) or chemical based (inorganic) or do you rely on a management method (planting a different plant/crop as a deterrent)? Why do you use this method?
- Do you use fertilizers? Are they natural based (organic) or chemical based (inorganic)? Why do you use these?
- With regards to the seeds, you plant, how do you obtain them? What are their characteristics (drought resistant, insect resistant, high yielding, short growth span)? Is this the reason you plant it?
- What about the equipment needed? Machinery such as scythes, tractor, truck, disinfectant sprayers, garbage/trash/waste collection and disposal systems.
- How do you access them?
- Ease to access them?
- Can you approximate the distance travelled to get them?
- Can you approximate the total amount of finances involved? How do you meet these costs?

3. To operate your farm, do you have access to finances and opportunities to get loans? Cooperatives?

- Available training sessions and extension services?

4. Can you outline your production process?

- You plant how many acres and harvest how much?
  - Do you sell everything? To whom and what proportions?
  - Do you sell in the market or to the broker?
  - What do you remain with, do you mill at home or to the miller?
5. Are there any regulations/laws that you know you have to follow to produce maize?
- How did you come to know of this?
6. Are you aware of any sustainability strategies for producing maize?
- How did you learn of them?
  - Do you employ them?
  - Do they help you?
7. What are the challenges you face when it comes to producing maize?
- What are coping strategies that are you employ?
8. How many hours in a day do you spend on maize related activities?
- Income from maize on average depends on... and is within the range of...?

#### Relationship with stakeholders

9. As a farmer of maize, what sort of support system do you have?
10. Do you sell your maize directly to consumers or a broker?
- Do you have a specific broker? Link to Q.5
11. How are your interactions with authorities?
- Extension officers?
  - Are these interactions beneficial?
12. Do you have interactions with processors (millers, packers)?
- Can you describe these interactions?
13. Are there any challenges you face within your interactions?

14. In your opinion, are the farmers in this area more than men or women? Why do you think this is so? Do you think a certain gender faces more challenges or benefits(support) when it comes to producing maize?
15. What form of support is available? From fellow farmers or other stakeholders on the chain?

#### Awareness of policies

16. As a farmer cultivating a food crop, are you aware of food related policies? Do you think they help you? Do you fully understand them and what they will do? Are they effective?
17. Of these policies, you do know, how have they changed/affected your activities to produce maize?
18. Do you follow all the policies designed activities?
19. Do you participate in designing policies? Is it something you would like to? How did you participate? Did it result as you hoped?
20. What sort of policies do you need?

#### ***Brokers/Middlemen***

1. Are you a broker with storage facilities or do you receive package and transport? Or both? Are you a maize farmer/processor as well? Are you a consumer?

#### Policy awareness

2. In your role (s) in the maize chain, are you aware of the different policies (policy, laws, regulations) that affect the maize chain? Can you mention some? How did you learn of these policies? Are there specifications that affect you?
3. The Food Policy was implemented, in 2005, how has it affected you? Did you participate in the process through your MP, another way? Would you have liked to participate?
4. The govt. has put in place food policies, do you think they are effective in promoting food security? Are you aware of them or the policy instruments used?
5. How have the various policies affected you and the chain?

## Business/Economics

6. How do you source your commodity? Are there any policies (standards) that you follow or base it on trust? Is it a single source or spread out?
7. What are the challenges you face in operating? How do you deal with them?
8. Do you deal with only maize cultivated in the area? And sell in the vicinity as well?
9. Do you work with maize only? Is it an important crop in the area? What other crops do you deal with? But maize is main commodity? Yes or No, why? Because of the shortages or other challenges?
10. Who are your customers? The markets or the processors?
11. What is your target operational quantity? What is the demand from your customers? What is the quantity supplied by your sources?
12. What do you pay your suppliers? How do you determine the price? How much do you earn?
13. Do you receive and send on the product or do you semi-process?

## Relationships

14. Do you interact with representatives from the regulatory authorities? Are they beneficial or stressful? What are conditions that prompt the interactions?
15. Are there any challenges that you face when you interact with farmers? What are the parameters of your relationships? Are there any situations that can lead to rejection of the product?
16. What is the situation with your customers? Challenges and benefits?
17. Is there a support system in place? Such as insurance, laws, training opportunities?
18. In your section of the value chain, are there more women or more men? Why do you think this is the case? What about your customers and sources? What is the proportion? Which gender do you like working with? Why?
19. Are you aware of any sustainability strategies that can or bring implemented along the chain? Are you implementing any in your capacity? Do you think a sustainable system will be beneficial to you and livelihood? What about nationally?



20. How did you start to operate as a broker? What are the sorts of inputs did you need? What support was available? What are the challenges did you face?
21. Do policies seeking to reduce interest rates for businesses or less stringent licensing procedures help? What sort do you need?

### ***Processors***

#### Policy awareness

1. What are the policies (laws, regs, standards) that you have to implement in your business?
2. What are the challenges that you face when conducting/implementing these policies? Are they beneficial to you?
3. How did you become aware of these policies and how do you learn of new ones? Have you participated in the formulation of a policy? How did you? Would you like to?
4. What has been the impact of these policies on you and the value chain?
5. Are there policies that have been beneficial to you? How?
6. Are you aware of the food policies being implemented by the govt.? Do you understand their aim fully? Do they promote food security in the country effectively?
7. What sort of policies do you need?
8. Are you aware of any sustainability strategies/practices being implemented along the chain? Are you implementing any? Will a sustainable system be of beneficial help to you? What about nationally?
9. Are the policies such as export/import bans beneficial to you?

#### Business/Economics

10. What is the full capacity of your plant? Do you operate at that capacity? What are the challenges to operating at that quantity? What capacity do you operate at?
11. Where or from whom do you source your supply? What sort of measures do you use to determine whether to buy or not (standards etc.)? Is it local or also from external regions?

12. What is the extent of your activities? Do you only process (mill) or package and sell as well? Who are your customers? Are you capable of meeting demand?
13. Are the prices set or determined by the government? What situations can cause this to change? Can you give an example of this happening?
14. Do you work with maize only? No/Yes, which other crops, what happens in the case of shortages? What is the price range you pay for maize and what is the income you generate?
15. What did you need to start your business? What were the challenges? Is there a support system in place (cooperatives, training, incentives)?
16. What are the ramifications of shortages (limited availability and access) of maize on your activities? How do you deal with them?

#### Relationships

17. What sort of interactions do you have with regulatory authorities? Are they beneficial or stressful, on location or at their offices?
18. Interactions with your suppliers and customers, how do you establish the parameters of the relationship? What challenges do you face? Are there any policies that directly govern these interactions?
19. What is the gender proportion in your section of the value chain? Why do you think this is the case? What about the suppliers and consumers?
20. Is the difference in interactions based in gender?

#### **Consumers**

##### Policy awareness

1. As a consumer, how many food-related policies are you aware of? Which ones are these?
2. Are you aware of any food programs that are targeting ensuring food security? Which are these?
3. How did you become aware of them?

4. What do you know of policymaking in the country? Have you ever participated in policy formulation? Would you like to do so? (Link to policymakers' question on how they connect with stakeholders/notify)
5. Do you know of any policies that affect maize availability in the country? Which ones? What is your opinion concerning them (good, bad, ideal, affecting, effective?)
6. Are there any food policies that have impacted you? Can you elaborate?

#### Maize

7. Do you consume maize? on average, how much maize do you consume? Why do you consume maize? What factors are in play that led to consumption of maize (price, ability to fill the stomach, easy to prepare, culture)? Which type of maize do you prefer to consume? Is it a local variety or comes from other regions?
8. Are you aware of the policies that are in place for you as a consumer of maize (standards and the like)? Do they play a role when you are producing your maize products?
9. Are you a producer/consumer or do you buy straight from the processor or the market?
10. What is the price range you can spend to purchase maize?
11. Is there a support system that allows for concerns and complaints concerning a product? Are you aware of it? Would you use it?
12. Opinion on policies such as export/import bans?
13. Are you aware of the measures to ensure sustainability of the food systems? Do you think they can be in the long-term effective?
14. How much of the maize value chain are you aware of? Is the farm to fork chain important to you and plays a role in the consideration of purchasing a product?

## COVID-19 AND THE IMPACT ON THE RESEARCH

Between March 2020- March 2021, the entire global community suffered through the effects of the Covid-19 pandemic (UNCTAD, 2021). Table 3.5. showcases restrictions in Kenya and Tanzania during the planned with fieldwork period (March-August 2020), to curb the spread of the virus. This resulted in the cessation of activities involving face-to-face interactions indicated by lockdowns, social distancing restrictions and travel limitations which greatly impacted the planned research.

*Table E.1: Timeline of applied restrictions during the initial data collection period*

<b>Date</b>	<b>Activity</b>
<b>March 2020</b>	Suspension of fieldwork activities by university Travel curbs in Kenya
<b>April 2020</b>	Movement in and out of Nairobi halted
<b>May 2020</b>	Travel between Kenya and Tanzania stopped
<b>July 2020</b>	Kenya retains Tanzania on its quarantine on arrival list Tanzania retaliates by banning Kenyan flights
<b>August 2020</b>	International entry in Kenya
<b>September 2020</b>	Tanzania removed from the Kenyan list, allowing travel Curfew in place in Kenya

Given the restrictions in place, methodological adaptations were required and implemented with respect to S-LCA (for stakeholder data) and expert-based interviews.

With fieldwork suspended as per both Newcastle University regulations and country (specifically Kenya) guidelines, alternatives for the S-LCA were pursued such as data mining using already published journal articles, to collect societal information with regards to maize and policies. This was in addition to the collection of secondary data from national and international websites to obtain relevant data.

By December 2020, the Newcastle University regulations still in place prohibited travelling yet allowed for outsourcing of the data collection provided that it was conducted by people in-country to limit travel across different regions. Primary data concerning the perceptions of stakeholders in the identified areas concerning policies and their activities along the maize chain were collected through the use of trained enumerators.

Efforts were initiated to identify individuals with the capabilities and background to be interviewers/data collectors. Table 3.6 outlines the activities followed for this process.

Previously established networks (from living and working in both countries) aided in the identification of individuals by using a job description that was circulated via the internet (email) and interested parties emailed their Curriculum Vitae for assessment. The criteria for ensuring high standards of the collectors included previous experience in conducting interviews and data collection, familiarity with the region, food and agriculture. Existing guides on work with enumerators were used to help with both the recruitment and training process including “Doing research with enumerators”, prepared by Croome and Mager (2018) which outlines guidelines from recruitment to training to conduct the data collection interviews.

Shortlisted individuals were contacted and initial meetings (via Google Meet) were conducted to explain the parameters of the research, the required activities and remuneration. Once verbal agreements were reached, the individuals signed binding agreements to ensure confidentiality and outlined the responsibilities of all involved parties.

Training sessions were organised (Via Google Meet) to go over the target areas, the targeted respondents, the questionnaires to ensure that the enumerators understood the questions and are conversant with the research to ensure that they are able to pick up on certain phrases and key words to obtain additional information. Such sessions are seen as important for the quality of the data collection (Taptue & Hoogeveen, 2019). Familiarity of the selected individuals with the target areas was essential due to the potential issue of language as highlighted by Translators without Borders (2018). It was also agreed that communication via email was to be constant when the data collection was ongoing. This would allow for quality control and troubleshooting as the process was ongoing instead of at the end of the exercise.

## Appendix F-SDGs and the policies

SDG Goal	Relevant Policy/Policy Statement
<p>No 1.4 By 2030, ensure that all men and women, the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance</p>	<p>Equitable distribution of and access to land by all citizens and the ability to acquire, in their own right, through purchase (for women) as well as the fact that resource sharing will be promoted (Land policy 1997- Tanzania)</p> <p>The right of every adult woman to acquire, hold, use and deal with land shall to the same extent and subject to the same restrictions to be treated as a right of any man (Land Act -Kenya)</p> <p>Gross disparities in land ownership, gender and trans-generational discrimination in succession, transfer of land and exclusion of women in land decision making process (Land policy 2007-Kenya)</p> <p>Promote technology to reduce the chores and drudgery of life and promote active participation of women (Biotechnology policy 2010-Tanzania)</p> <p>Promote specifically the access of women and youth to what? (Agriculture policy 2013-Tanzania)</p> <p>Shows that culture still prevails by stating that women will be entitled to acquire land either through purchase or allocations. However, inheritance of clan land will be governed by custom (Land policy 1997-Tanzania)</p>
<p>2.3.By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.</p>	<p>Ensure sustainability, security, and equitable use of resources (Land Policy 1997-Tanzania)</p> <p>Sustainable development is viewed as a goal especially given that environmental degradation due to the impacts of climate change leads to increased food imports while unsuitable agriculture land use contributes to land degradation (Environment Policy 2013-Kenya)</p>
<p>2.4. By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme</p>	<p>Appropriate measures that will enhance both large scale and small-scale production of food for the maintenance of food security (Land Policy 2007-Kenya)</p> <p>Food and Nutrition policies acknowledges that the economic situation when poor has an impact on food security</p>

<p>weather, drought, flooding, and other disasters and that progressively improve land and soil quality.</p>	<p>2.3. Economic performance of the households has a direct bearing on people’s food security and nutrition status (Food policy Kenya-2011 and Tanzania 1992)  Creation of an enabling environment and more export-oriented policies (Trade policy-2003 Kenya)  Economic importance of food demands prime interest in food safety (Food safety policy-2013 Kenya)  Increase access to markets and foster regional trade (Vision 2030)</p>
<p>5.1 End all forms of discrimination against all women and girls everywhere  *5C Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels</p>	<p>All the policies aim at eliminating discrimination starting with the preparation and amendment of gender equality and gender mainstreaming policies  Social differences and gender discrimination contributed to inequalities (Health policy-2017 Tanzania)</p>
<p>6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes</p>	<p>Bad water use practices and degradation threatens sustainability of the resource with the potential negative effect to ecosystem integrity, human health, food security among others (Water policy-2002 Tanzania)</p>
<p>8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all</p>	<p>Provision of a sustainable financing system for R &amp;R is a goal of the Seed Policy (Ke)</p>
<p>9.3: Increase the access of small-scale industrial and other enterprises, in developing countries, to financial services, including affordable credit, and their integration into value chains and markets  9.1: Develop quality, reliable, sustainable, and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p>	<p>Noted that the close relationship between the quality of life of the society, as well as an individual, and the capacity of the economy in which it enables an individual, society and the nation at large to live and sustain higher quality of life (Vision 2025)</p>
<p>12.2: By 2030, achieve the sustainable management and efficient use of natural resources</p>	<p>Satisfaction of basic needs and protecting the environment (Environment Policy 1997 Tanzania)</p>

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12.3: By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health and the environment

12.8: By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

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13.2: Integrate climate change measures into national policies, strategies, and planning

Reduction of waste is a goal of the Agriculture Policy 2013-Tanzania) while Plant Protection Acts work towards the regulation of the chemicals used during agricultural activities

As part of the implementation of Vision 2025, education of the society is one of the main aims

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Environment policies outline the emergence of climate change as an important concern. Kenya's constitution is referred to as the "Green Constitution" as it looks at implications of sustainable development

"...Tanzanian's vulnerability to climate variations, an assessment of impacts of climate change and climate variations will be undertaken. In this regard strategies will be evolved to ensure that options which are pursued do not unduly sacrifice national development endeavours..." (Environment Policy-1997 Tanzania)

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15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains, and drylands, in line with obligations under international agreements

15.3: By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought, and floods, and strive to achieve a land degradation-neutral world

15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

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The resource policies especially the Land and Water policies expound on the need to balance the utilization of the resource with conserving and preserving it for future



16.7: Ensure responsive, inclusive, participatory, and representative decision-making at all levels	The Constitutions of both countries outline this as a right for the public and are taking steps to make it possible
<b>17.11</b> Significantly increase the exports of developing countries, with a view to doubling the least developed countries' share of global exports by 2020	The main policy objective shall be to pursue infrastructure development geared towards enhancing productivity, competitiveness and diversified sustainable productive capacities for domestic, regional, and international trade (Trade Policy)
<b>17.12</b> Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access	
<b>17.14</b> Enhance policy coherence for sustainable development	
<b>17.17</b> Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	

## Appendix G- Respondents Details and Coding process snapshot

### Appendix G- Respondents Details and Coding process snapshot

In addition to the participants in Kilimanjaro and Kagera, data was also collected in Dar es Salaam and is referenced as “urban”. This increased numbers of participants, and access to certain categories of stakeholders. Their details are in the following tables

*Table G.1: Demographic information regarding the consumer respondents in each region. Degree with no prefix refers to bachelor’s degree while Class VII is the last year of preparatory school.*

<b>Respondent</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Education Level</b>	<b>Marital status</b>	<b>Region</b>
<b>C1</b>	73	M	Consumer/Farmer	Form IV	Married	Moshi
<b>C2</b>	28	F	Consumer/Farmer	Class VII	Single	
<b>C3</b>	43	F	Consumer/Teacher	Degree	Widow	
<b>C4</b>	29	F	Consumer/Businessperson	Form IV	Married	
<b>C5</b>	48	F	Consumer/Farmer	Class VII	Married	
<b>C6</b>	38	F	Consumer/Businessperson	Class VII	Single	
<b>C7</b>	46	F	Consumer/Researcher	PhD	N/A	Urban
<b>C8</b>	46	F	Consumer/Sociologist	BA Degree	Married	(Tz)
<b>C9</b>	59	F	Consumer/Researcher	Masters' Degree	Single	
<b>C10</b>	51	M	Consumer/Researcher	Masters' Degree	Married	
<b>C11</b>	48	M	Consumer/Lecturer	Professor	Married	
<b>C12</b>	19	M	Consumer/Student	Form IV	Single	Nakuru
<b>C13</b>	28	M	Consumer/Farmer	College level	Married	Nakuru
<b>C14</b>	28	M	Consumer/Lecturer	Masters' Degree	Single	Nakuru
<b>C15</b>	27	M	Consumer/Teacher	BA Degree	Married	Nakuru
<b>C16</b>	29	M	Consumer/Teacher	Degree	Married	Nakuru
<b>C17</b>	24	F	Consumer/Student	Form IV	Single	Nakuru
<b>C18</b>	25	F	Consumer/Teacher	College level	Single	Nyeri

Table G.2: Particulars of the processors in the different regions

<b>Respondent</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Education Level</b>	<b>Marital Status</b>	<b>Region</b>
<b>P1</b>	52	M	Businessperson	Class VII	Married	Kagera
<b>P2</b>	46	M	Farmer	Class VII	Married	Kagera
<b>P3</b>	40	M	Businessperson	Class VII	Single	Kagera
<b>P4</b>	49	M	Businessperson	Class VII	Single	Kagera
<b>P5</b>	38	M	Businessperson/Farmer	Class VII	Married	Kilimanjaro
<b>P6</b>	45	F	Businessperson	Form IV	Single	Kilimanjaro
<b>P7</b>	30	F	Businessperson	Form IV	Married	Kilimanjaro
<b>P8</b>	38	F	Businessperson	College level	Married	Nakuru
<b>P9</b>	46	M	Businessperson	College level	Married	Nakuru
<b>P10</b>	42	F	Trader	Form IV	Married	Nyeri
<b>P11</b>	42	F	Businessperson	Form IV	Married	Nyeri
<b>P12</b>	30	M	Businessperson	Form IV	Married	Nyeri

Table G.3: Information on the broker respondents

<b>Respondent</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Education Level</b>	<b>Marital Status</b>	<b>Region</b>
<b>D1</b>	51	M	Businessperson	Class II	Married	Kagera
<b>D2</b>	35	M	Businessperson	Form IV	Married	Kagera
<b>D3</b>	54	F	Businessperson	Form IV	Single	Kagera
<b>D4</b>	57	M	Broker/Farmer	Class VII	Married	Kilimanjaro
<b>D5</b>	57	M	Broker	Class VII	Married	Kilimanjaro
<b>D6</b>	47	M	Broker	Form IV	Married	Kilimanjaro
<b>D7</b>	27	M	Businessperson	Degree	Married	Nakuru
<b>D8</b>	45	F	Businessperson	Class VIII	Married	Nakuru
<b>D9</b>	45	F	Businessperson	Form IV	Married	Nakuru
<b>D10</b>	63	F	Businessperson	Class VIII	Married	Nakuru
<b>D11</b>	46	M	Businessperson	Form IV	Married	Nakuru
<b>D12</b>	55	F	Businessperson	College level	Married	Nyeri
<b>D13</b>	53	F	Businessperson	Form IV	Married	Nyeri
<b>D14</b>	48	F	Businessperson	Form IV	Married	Nyeri
<b>D15</b>	63	M	Businessperson	Form IV	Married	Nyeri
<b>D16</b>	52	F	Businessperson	Form IV	Married	Nyeri
<b>D17</b>	48	M	Businessperson	Form IV	Married	Nyeri

Table G.4: Farmer particulars in the different regions

<b>Respondents</b>	<b>Age</b>	<b>Gender</b>	<b>Occupation</b>	<b>Education Level</b>	<b>Marital Status</b>	<b>Region</b>
M1	70	M	Farmer	University	Married	Kagera
M2	59	F	Farmer	Form IV	Married	Kagera
M3	57	M	Farmer	Class VII	Married	Kagera
M4	46	M	Farmer	Class VII	Married	Kagera
M5	42	M	Farmer	Class VII	Married	Kagera
M6	51	F	Farmer	Class VII	Married	Kagera
M7	30	F	Farmer	Form IV	Married	Kagera
M8	74	M	Farmer	Class VIII	Married	Kilimanjaro
M9	52	M	Farmer	Class VII	Married	Kilimanjaro
M10	31	F	Farmer	Class VII	Married	Kilimanjaro
M11	53	F	Farmer	Class VII	Married	Kilimanjaro
M12	68	M	Farmer	Class VII	Married	Kilimanjaro
M13	45	M	Farmer	Form IV	Married	Kilimanjaro
M14	60	M	Farmer	N/A	N/A	Kilimanjaro
M15	79	M	Farmer	Class VIII	Married	Nakuru
M16	39	M	Farmer	Class VIII	Married	Nakuru
M17	45	M	Farmer/Carpenter	Class VIII	Married	Nakuru
M18	64	M	Farmer	Form IV	Married	Nakuru
M19	60	M	Farmer	BA Degree	Married	Nakuru
M20	49	F	Farmer	Form IV	Married	Nakuru
M21	20	F	Farmer	Class VIII	Married	Nyeri
M22	79	M	Farmer	Class VIII	Married	Nyeri
M23	37	F	Farmer	Class VIII	Married	Nyeri
M24	45	F	Farmer	Class VIII	N/A	Nyeri
M25	65	M	Farmer	Form IV	Married	Nyeri
M26	37	M	Farmer	Form IV	Single	Nyeri

## The coding process

Table G.5: Snapshot view of the coding process

<b>Respondent categories</b>	<b>A priori theme</b>	<b>Question</b>	<b>Response</b>	<b>Codes</b>	<b>Code category</b>	<b>Themes</b>
Farmers	Awareness	Are there any regulations/laws that you know you have to follow to produce maize?	M2- Yes, there are some regulations I should follow. I learnt of them through the extension officer, who is also the key source of information for me with regards to farm matters. M17- Yes, those that deal with crop rotation, and I learnt it from interacting with other farmers. Media is the main source of information specifically radios as well as fellow farmers.	Extension services, information sources, crop rotation, media, farmers, interaction	Means of awareness Relevant policies and regulations	Awareness of policies Interactions and impact
Brokers	Operations	How did you start conducting your business, was there help and what were the challenges?	D5- Since 2002. I needed weight balances, a place for storage and equipment to measure certain quality standards such as moisture content. There is no help at all. Challenges include ensuring that the product has attained the standard requirements. D11- Was influenced by a trader who used to buy maize from our region. It was an eye-opening experience. I needed capital, store and weighing scale. There was support. Challenges faced include fluctuating demand and supply and unstable market prices.	Capital, storage, quality standards, unstable prices, equipment, demand, supply, maize	Available resources, challenges	Resources, support systems, maize dependency
Processors	Relationships	What sort of interactions do you have with regulatory authorities?	P2-I interact with them concerning licensing, taxes, health inspection certification. I do not see them as a bother, as failure to adhere to them is disastrous to me not them (the	Licensing, parameters, impact and perceptions, health,	Means of interactions, parameters of	Interactions, Impact of the regulatory interactions

			<p>authorities). The interactions can be in my office or theirs, it varies.</p> <p>P12- Interactions are beneficial and favourable especially those of the Ministry of Health</p>	financial aspects	interaction, impact	
Consumers	Importance of maize	Why do you consume maize? What factors are in play that led to consumption of maize	<p>C15- It's a staple food and a source of energy. Ability to fill the stomach and culture are the contributing factors.</p> <p>C5-It is easy to access, and the price is low. The price is one of reasons to buy</p>	Availability, purchase price, culture, reasoning	Justification for consumption, choices	Consumption characteristics

