ANALYSIS OF GOVERNANCE OF GLOBAL VALUE CHAIN FOR ORGANIC GINGER EXPORT MARKET FROM SAME AND LUSHOTO DISTRICTS IN TANZANIA

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN AGRICULTURAL ECONOMICS OF SOKOINE UNIVERSITY OF AGRICULTURE. MOROGORO, TANZANIA.

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ABSTRACT

The study examined the market with particular focus on North-Eastern Tanzania organic ginger farmers to sell into export organic market irrespective of existed supply that meet export requirements and high demand in export markets. Specific objectives were to: map the ginger value chain in North-Eastern Tanzania; to assess transaction costs that deter entry and participation of organic ginger farmers to export market and to assess the institutions influence on transaction costs and the market failure. Data collection was preceded by a preliminary survey that aimed to understand the industry and develop the value chain map. Data were obtained from organic ginger farmers in Mnazi and Mamba wards; from Non-Governmental Organizations namely Tanzania Organic Agriculture Movement and FAIDA Market Link and from Local Government Authorities. Interviews and observations were conducted between September 2011 and May 2012 using checklist and questionnaires. Analyses were done using SPSS version 16 where frequencies and estimates of logistic regression were computed. The findings were: ginger was sold in conversional and organic ginger markets that had different requirements. Part organic ginger was also sold as conventional and as non-certified organic in other markets; asset specificity, opportunism and frequency were significant in affecting framers' participation. It also showed size of land owned and proximity to market to have negative relation to farmers' participation. Contracts and vertical integrations were main governance structures with trust as main binding mechanism. Efforts were done by different organisations to reduce transaction costs. Redefining roles of the farmers associations and establishing new models of selling would help to improve the performance of the chain.

DECLARATION

I, Donasian Severine do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

Donasian Severine — Date

(MSc. Candidate)

The above declaration is confirmed by:

Dr. Evelyne Lazaro — Date

(Supervisor)

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DEDICATION

I dedicate this work to my parents Severine and Maria Kimario, my kindergarten school teacher Edward Nabaku, my brother Justine Liberio and his family, my late young brother Fulgence Severine, my beloved sweet heart Catherine Morrice-Kimario and all academic mentors and friends who have been part of my academic development since I started my educational journey.

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LIST OF ABBREVIATIONS AND ACRONYMS

CBO	Community Based Organisation
EPOPA	Export Promotion of Organic Products from Africa
EU	European Union
FAIDA MaLi	FAIDA Market Link
FAOSTAT	Food and Agriculture Organization Statistics
FBO	Faith Based Organisation
GFP Limited	Golden Food Products Limited
LDC	Least Developed Countries
LGA	Local Government Authority
MFI	Micro Finance Institution
N/A	Not Applicable
NGO	Non-Government Organisation
NIE	New Institution Economics
NMB	National Microfinance Bank
NOAD	National Organic Agriculture Development
PADEP	Participatory Agricultural Development and Empowerment Project
PASS	Private Agricultural Sector Support
PGS	Participatory Guarantee System
PPP	Private Public Partnership
ProGrOV	Productivity and Growth in Organic Value chain
SACCOs	Savings and Credit Co-operatives
SHF	Small Holder Farmer
SIDO	Small Industries Development Organisation
SME	Small and Medium Enterprises

SUA	Sokoine University of Agriculture
TC	Transaction Cost
TIP	Traditional Irrigation Program
TOAM	Tanzania Organic Agriculture Movement
Tsh	Tanzania Shilling
URT	United Republic of Tanzania
VC	Value Chain

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

1.1.1 Potential for organic production in Tanzania

Chemical inputs use by farmers and cultivation areas in Tanzania is very low. According to URT (2006) 2002/03 National Sample Agricultural Census about 32% of all farming household in Tanzania used composite or farmyard manure. Also in 1990s Tanzania adopted Structure Adjustment Policy that emphasised privatisation and free market, as a result amount of free inputs that go to farmers were significantly reduced (TOAM, 2009). This made the potential for agricultural transformation into organic farming prominent and potentially less challenging. Organic agriculture is an agricultural system for sound production of food, feed and fibre, and feedstock for industrial and specialty products such as pharmaceuticals (NOADP, 2008).

1.1.2 History of organic farming and its development in Tanzania

History shows that the earliest organic garden in Tanzania was introduced in Peramiho mission in 1898 (Mella *et al.*, 2007). It took a long time (More than 90 years) before large efforts started to be taken (Mjunguli and Match Maker Associates Ltd, 2004).

In 1990s the government of Tanzania launched a campaign that aimed at promoting organic agriculture and related services. In turn the efforts managed to attract donor support. In 1994 a program called Export Promotion of Organic Products from Africa (EPOPA) was created by the Swedish International Development Cooperation

Agency (Sida) (EPOPA, 2004). In 1990s Tanzania did policy reforms through liberalization of her economy (TOAM, 2009). Farmers no longer received free inputs and hence they had to halt amount of inputs application and turn into different other means of agriculture.

In 2000s efforts intensified; several local shops opened such as Mum's kitchen in 2000, natural products shop –Envirocare in 2003 and Vitality in 2004 which started to trade organic products. By 2003, Kilimanjaro Natives Cooperative Union (KNCU) had five of its 67 active primary cooperatives with organic coffee; this grew to seven in 2007. The same period Tanzania Organic Agriculture Movement (TOAM) was established. In 2005 an initiative (called "Promoting Production and Trading Opportunities for Organic Agriculture in East Africa") undertaken by the United Nations Environment Programme (UNEP)-United Nations Conference on Trade and Development (UNCTAD) Capacity Building Task Force on Trade, Environment and Development (CBTF), in collaboration with the International Trade Centre (ITC), the Food and Agriculture Organization of the United Nations (FAO), the International Federation of Organic Agriculture Movements (IFOAM), and national institutions, was launched to be implemented in Kenya, Tanzania and Uganda likewise researchers' and other stakeholders' efforts increased (EPOPA, 2004; Kledal and Kway, 2010). Certified organic spice production and trade were until 2007 dealt with mainly by two companies M/S TAZOP Ltd and ZANGERM Ltd; who did capacity building and contracted the farmers (Akyoo and Lazaro, 2007).

In 2009, around 85 366 farms were active in certified organic farming making Tanzania the third largest number of organic farms in Africa (After Uganda and Ethiopia), and fifth in the world (TOAM, 2009). Certified organic agricultural land amounted to 72 188 hectares; only 0.21% portion of the country's total agricultural land. Tanzania recently included in her agriculture policy statements to promote organic by promoting accreditation of products, regulation and a reduction of costs (IFAD, 2008). Up until 2012 and on, a range of organic products are exported from Tanzania. Some of these include, but not limited to, dried fruits, jams, edible oils, vegetables, spices, drinks, and animal products. Until 2012 certifiers operated in Tanzania including TanCert for local organic markets; IMO, EcoCert, KRAV and Soil Association or Bio-Inspecta who certified exclusively for export markets (Kledal and Kway, 2010), (Mjunguli and Match Maker Associates Ltd, 2004). The efforts came in most aspects step by step.

1.1.3 Ginger production and trade in Tanzania

According to Magai and Joseph (2010), most of the spices, including ginger, traded in Tanzania were introduced far back during old trade link across the Indian Ocean. Ginger, as one of the spices, is currently produced in almost all regions of Tanzania; the most pronounced producer regions in order of importance are, Tanga, Kilimanjaro, Kigoma, Coast, Morogoro, Mbeya, Ruvuma, Zanzibar, and Kagera regions (Figure 1). Production is done by smallholder farmers who are organised in a household as the main business unit and for a few farmers in groups which forms to aggregate individual efforts.

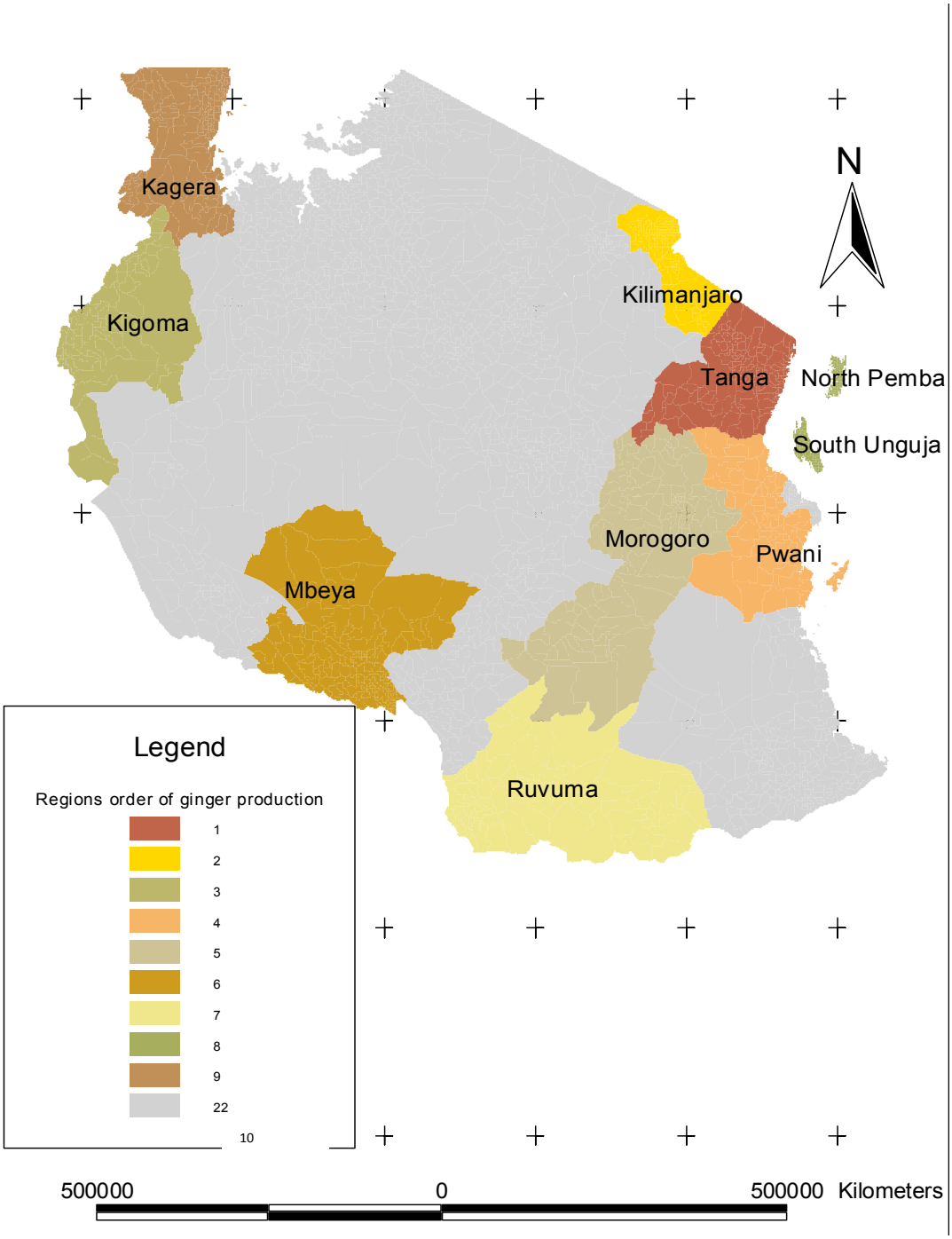

Figure 1: Map of Tanzania showing ginger growing regions in ranking

In 1990s ginger industries were the most payable Agro-firm in spice businesses raked with higher prices in the markets range from US$ 204.0 to 323.5 per unit of 100 kilogram bags produced (TOAM, 2009). Computed statistics of show that ginger exports contributed to over T.shs 33.0 million from exports of 255.9 tons in 2008 to Germany and Netherlands; the ginger were produced by farmers in small plots ranging from 0.2 - 1ha; utilizing family labour, to generate household incomes (Magai and Joseph, 2010).

Findings of the 2002/2003 agriculture sample census released in 2006 (URT, 2006) shows that only 2584 households cultivated ginger in Tanzania and the area under ginger cultivation was 770 ha out of which 381 ha were irrigated. Total amount of ginger produced was 1801tonnes.

In 2007 a Germany company called TANTRAUM TEA wanted to buy Ginger from Tanzania to be used in its tea factory. After contacting TAZOP and Chai Bora Tea Companies based in Tanzania and with a certificate to organic export, the companies failed to source ginger to suit the order needed for export. Before, TAZOP were buying from Kigoma (Western Tanzania) for her internal organic markets. In 2007, about 6000 households cultivated ginger in Same and Lushoto and various interventions including, training, asset investments, certification and institutional developments had started (TOAM, 2009). Country's production of ginger reached approximately 4.3 thousand tons in the 2010/2011 production season (Table 1).

Table 1: Local ginger production 2006-2011 in tons

Years	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Tonnes produced	2694	2700	1485	2876	4267

Source: Ministry of Agriculture, Food Security and Cooperative (2012)

Also generally production of ginger decreased over the years (Figure 2) but it have been increasing from 2006/2007 as in (Figure 2). Despite the availability and the improvements that had already been made and the growth that had occurred it wasn't until 2010 when TAZOP exported for the first time her organic ginger for Tantraum tea.

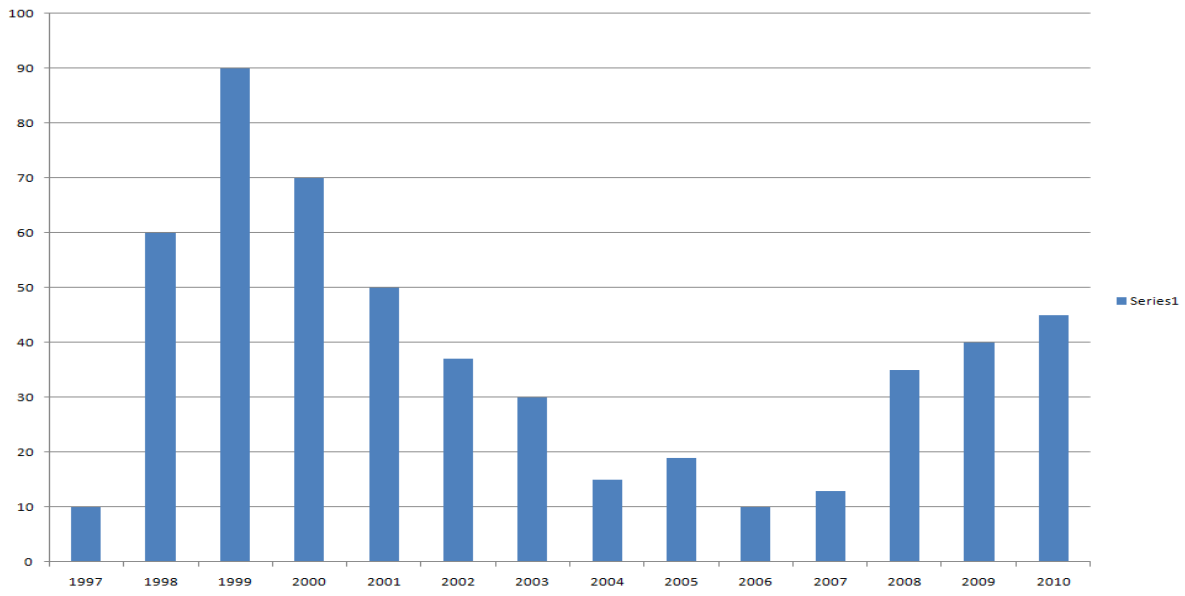

Figure 2: Local production of ginger 1997-2010

Source: Own computation from FAOSTAT database (2013)

1.1.4 Ginger production timeline

In Same and Lushoto, ginger production starts around August and September until around July/August; ginger fully mature in eight months. August/September ginger plots are prepared and dressed with manure. From September/November small pieces of sprouted ginger are planted (Figure 3). September/October the terraces are flooded. Then the fields are weeded and irrigated as the ginger grows.

Raw ginger is harvested April/May until August/September (Figure 3). Surprisingly harvesting takes too long because of price fluctuations. Farmers maintain the crops in the field while anticipating for a higher price at sometimes later. However during the time when the crops are not harvested the farmers apply the same treatments to the plants as if they planted new ones. When retaining the plants on the field yield increases.

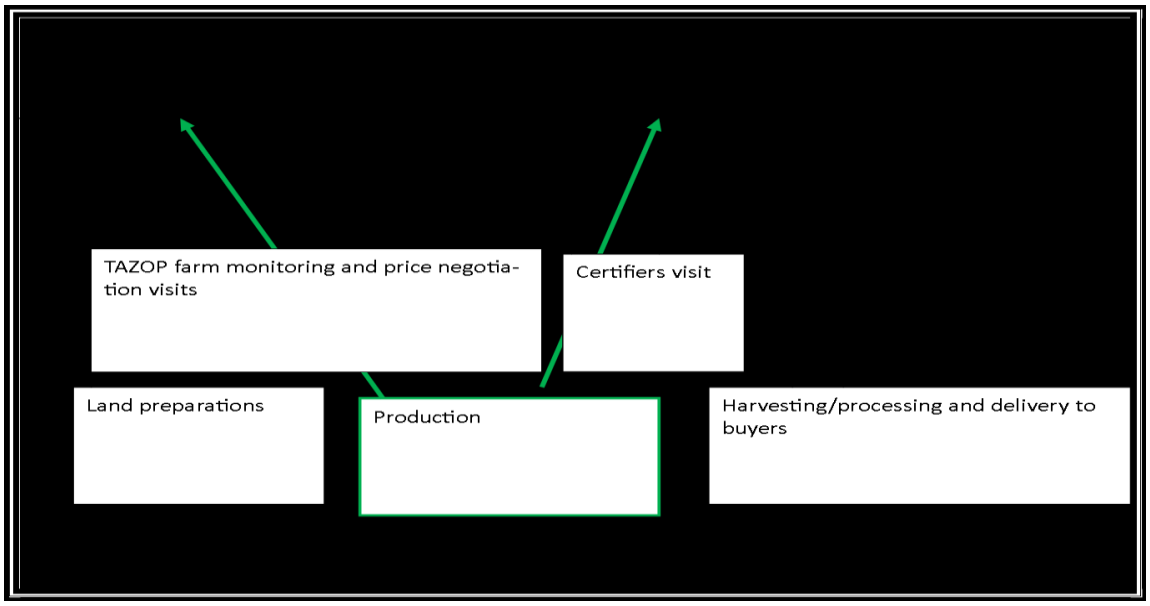

Figure 3: Ginger production timeline

1.2 Problem Statement and Justification

Market failures constrain agriculture sector development. Studies have suggested ways to reduce market failures, including those that seem to be caused by transaction costs. A study by Williamson (1991) argued that for transaction to take place when it has been confronted by market failure specific investment have to be made, others have to be reorganised and be owned by specific actors. For this to be possible, the value chain in reference has to be specific and be clearly known in terms of its governance, the specific transactions that are taking place and associated transaction costs, which was missing for Lushoto and Same value chain.

Transaction costs depend on the governance of the value chain and the trading environment. They result from constraints along the value chain (the supply system); the requirements from the export market (demand systems) and the lack of supporting resource environment in terms of finance, advisory and reliable infrastructure for the flow of commodities, information and knowledge along the chain.The very high transaction costs lead demand not being able to meet the supply which leads to what several authors (for example Albeiu, 2009 and Michelson *et al.,* 2011) call market failure.

Understanding how conducive for particular value chain is the environment and proper are the institutions, by studying their governance structures, would help device a way to reduce the constraints and suggest ways to increase participation of transacting (sellers and buyers) and non-transacting actors in the value chain there by creating a proper economic organization able to allow transactions to take place smoothly. Since in this case constraints along the demand systems were difficult to

alter from the smallholder farmers' point of view, this study focused on mainly the governance and governance structures and the respective institutions along the supply systems which were used to help small holder farmers participate into export market. Williamson (1991) showed how governance structures emerge and make trade possible as efforts to limit or reduce transaction costs are employed.

In literature, two important gaps existed:

(i) One, for this market failure case in Lushoto and Same there was no study on governance of the value chain found yet that had clearly assessed the transaction costs (TC), showing how they relate to participation related developments of particular governance structures of the organic ginger value chain.

(ii) Two, there was no study that assessed for this specific case the influence of institutions (that is the organisations and their operating environments) in forming business supporting environment, influencing the Transaction Costs and affecting the participation of farmers into the export market.

The main problem of study was demand and supply misconnect due to transaction costs as both demand and supply existed. This was the case of demand by Tantrum Tea Company in Germany to be supplied from Tanzania and the failure of the farmers, and companies such as TAZOP to consistently supply. There was a demand in one side and supply in another but market mechanisms fail to make them meet. Traders who needed organic ginger failed to source for export market meanwhile

producers/farmers faced a lack of market for their produce. This happened while production was growing and demand for export was offering a price that favour export (TOAM, 2009) (Table 1). This study aimed at understanding this failure paradox by focusing on the problems of large transaction Costs that hinder participation of the farmers into export markets.

Researchers have examined governance structures of individual transactions and their implications for firm and market performance (Joskow, 1991) projecting how individuals' decisions influence performance of the whole chain and how institutions and institutional arrangements influence individual (business unit) decisions (Dorward, 2001 and Coase, 1992). They have studied how do transaction cost impede smallholders in marketing (Kledal *et al*., 2009; Blanc and Kledal *et al.,* 2011; Kledal, 2012) and shown how under different forms of governance (like contracts, and vertical integration) trade is influenced by transaction costs. Out of the surveyed literature none had studied the specific case that this study ought to analyse. Also most of the studies used econometric modelling to show relationships by specifying several independent variables and transacting as a dependent variable, but they did not detail transactions governance to be able to recommend accordingly beyond the use of econometric values. For example presence of contract may be plausible in affecting participation, but a study of the kind is more important if we understand how the contract should be structured (Mastern, 2000 and Laffontaine and Slade, 1997).

This study was vital in helping to advice on support resource environment necessary for policy makers and NGOs to support the overall organic ginger value chain development activities, understanding and influencing the governance and design governance structures and contribute a discussion on the effect of contracts in transaction costs reduction or increasing paradox in foods value chain as well as showing how decision of farmers to sell into organic markets are affected by presence of the transaction costs. Case study design is more appropriate to clearly understood what happened in the past and why; governance study tells of the perspectives of every single transaction node.

1.3 Study Objectives

1.3.1 Main objective

The main objective of this study was to analyse governance of an export value chain in organic ginger export from Lushoto and Same districts in Tanzania.

1.3.2 Specific objectives

Specific objectives of the study were to:

i. Map the organic ginger value chain in the north eastern Tanzania

ii. Assess the transaction costs, specifically, in the export organic ginger value chain leading to the market failure.

iii. Assess the contribution of facilitating institutions in influencing the Lushoto and Same organic ginger value chain.

1.4 Research Question

1. How is the ginger value chain in North Eastern Tanzania (Lushoto and Same districts) described?
2. Which transaction costs are influencing marketing of organic ginger value chain in Lushoto and Same and why?
3. What are the influence of facilitating institutions on the Lushoto and Same organic ginger export value chain?

1.5 Research Hypotheses

Two hypotheses were specified to further meet the specific objective number two:

1. The decision of farmers to participate into export organic market is a constant value that cannot be varied by deterministic variables.
2. There is no significant relationship between transaction cost proxies and participation of famers into export organic ginger market.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Definition and Operationalization of Terms

2.1.1.1 Value chain

Value chain is indeed a vast area of understanding, especially when designing and implementing various development interventions where a multitude of conceptualizations arise. This can be due to its vast areas of applications, commodity types, geographical locations, target groups and desired outcomes (Stamm and von Drachenfels, 2011). Value chain means the whole range of activities involved in the movement of the product form production to consumption, when the real value of the product move from consumers to producers. When value chain is taken as a study approach it captures interactions complex and dynamic markets in countries and examines the inter-relationships among actors along the production and marketing channel (Rich *et al*., 2011).

According to Gereffi *et al.* (2005) value chain operates within a range of institutional environment which affects its performance. Within the institutional environment operates various institutions that comprise a separate set of laws, social norms, customs, rules, regulations, trade agreements, organisations, policies, and a range of public goods and services; where each one affect the performance of the value chain. Value chain differs from Supply chain where by supply chain entails vertical supply channels for the movement of a product from one hand to another while Value chain

is a spread of value from the end user to the producer (Feller, *et al.,* 2006). Further, Feller *et al.* (2006) stipulate that value chain and supply chain moves in opposite directions, where value chain moves from the upper level of the consumers to the level of the inputs suppliers. Supply chain moves to the opposite of the Value chain from inputs supply to the consumption level.

2.1.1.2 Global value chain

A global value chain is distinguished from other value chains by the fact that it is affected by institutional environments that exist across borders of different countries. In trying to explain the global value chain an impression is drawn to show that global value chain involve, in a number of dimensions, activities of a firm from production to conception but across a number of industries. The dimensions which are used in analysing global value chains are (a) Input-Output structure to represent the entire process of product development from inception/concepts to products at the hands of consumer (b) Geographic Scope to imply that activities in that value chain are taken across geographic boundaries for example packaging may be done at this end but product may be repackaged at other are. This is made simple as technology in transportation industry has developed (da Silva and Saes, 2007; Gerreffi *et al.,* 2005). Development of a global value chain takes into consideration the differences in trade environment between the different countries and a harmonization of the institutions (rules of the game) for trading of that particular value chain product (United Nations, 2010).

2.1.1.3 Transaction

A transaction involves any activity carried by two parts whereby that activity is aiming at changing the ownership on-spot or sometimes later of a product or material. Any transaction is associated with costs that can or cannot be quantified (Humphrey, and Schmitz, 2002). The costs are called transaction costs, without which economic organizations become irrelevant/ideal (Gereffi *et al.,* 2005). Any transaction that is carried between firms is associated with shift of property rights, the shift can be whole or part. If it is impossible to shift the property right at least for sometimes it becomes impossible for trade to occur. In this study a transaction is the whole exchange process of organic ginger

2.1.1.4 Value chain governance

It is the organization of a particular transaction. Governance within value chains reflects the distribution of power and information among various actors. According to Gereffi *et al.* (2005); alternative types of vertical coordination emerge depending on the distribution of market power (that is the ability of the parts to set prices, quality standards and minimum delivery quantities), political power (that is responsible in setting policies and general institutional environment) and information (on standards and alternate market prices).

Humphrey and Schmitz (2002) stressed that "inter-firm relationships and institutional mechanisms through which non-market coordination of activities in chain takes place" is typically governance. The coordination is achieved by parameters of products and process with which the coordination exist. It is also explained in several

literature that governance is a dynamic feature of value chains. It characterizes the relationships or linkages among stakeholders in the chain. Ability of a stakeholder to determine, control and/or coordinate the activities of other actors in the value chain is determined by governance (Gerreffe *et al.,* 2005). Surveyed literatures such as (Simon, 1996; Stam and von Drachenfel, 2011; Zylbersztajn, D. 2008) agree that governance is important in value chain and they all point it as important in relationship building far beyond the intended trade.

2.1.1.5 New Institutional Economics and theories underlying the study of value chain

The theoretical background used for this study in connection to the Transaction Cost Economics theory. Transaction costs Economics theory tries to match transactions to their best value chain governance structure (Mastern, 2000). If a transaction has to be organized it implies that costs are anticipated ex-ante and ex-post that particular transaction has to incur.

There are a number of theories underlying the study of value chains and market. They emerged from New Institutional Economics. NIE places governance structures in their wider institutional context, constraining (or facilitating) the choice of governance structure. Both governance structures and institutions safeguard exchange (Mastern, 2000). Main development in the body of NIE has been on theories of imperfect information, transaction-costs economics theory, moral hazard and agency theory, property rights, and Networks theory all which has been used by scholars to explain exchange and market development.

(i) In imperfect information theory the main argument is that; lack of perfect and freely available information leads to risk and uncertainty in transactions. Buyers have more information than sellers on their purchase ability, intention to purchase and characteristics of the merchandise. The sellers have more information about the product in-terms of availability and characteristics of the products that they are supplying. Searching for this information by either part involve a risk and cost that can be minimized by agreement of the parts to share the information prior and hence give each one a wider range of choice and structuring a robust governance structure (Samm and von Drachenfels, 2011).

(ii) In moral hazards and agency theory; Agency theory studies the design of ex ante incentive-compatible mechanisms to reduce agency costs in the face of potential moral hazard by agents. The agency theory explains a more complex market exchange where a third-part-player called agent is required to infect the economic exchange while it is also anticipated that the third party player can conduct an act of intentional fraud that can sink the other parts into costs Michael (1976).

(iii)Transaction costs economics matches transactions to their optimal governance structures (Williamson, 1981; Mastern and Saussier, 2002, North, 1989). According to Coase, (1937), in transaction cost theory the main hypothesis is that institutions are transaction-cost–reducing arrangements that may change

and evolve with changes in the nature and sources of transaction costs. This is further explained in the theoretical framework of this study.

(iv) Property right theory: Property rights are a fundamental institution, governing who can do what with resources. Property rights may be defined as "the capacity to call upon the collective to stand behind one's claim to a benefit stream" (Bromley 1991) or "the claims, entitlements and related obligations among people regarding the use and disposition of a scarce resource" (Furubotn and Pejovich, 1972).

(v) Networks theory seeks to explain vertical and horizontal relationships between different players in the value chain (Law, 1992). In analysis of social networks several models can be used (Wegner, 1995; Carley, 1997) such that they all dwell their efforts into analysis of relationship.

The economic theory used for study was Transaction cost economics Theory. This is because (a) It was a market failure case where by demand and supply existed and without any form of government intervention, (b) Transaction costs theory is the only among the NIE theories that dwell into analysing transactions of partners. This analysis brings about an understanding of the transactional characteristics and the way transactions are organised. To be able to analyse transactions there should be enough knowledge of that particular value chain to identify the specific nodes where the transactions occur.

2.2 Transaction Costs, Institutions and Relation to Investments and Governance

2.2.1 Transaction cost, governance, and investment

Transaction Costs are costs incurred in making an economic exchange. It is the cost of participating in a market. It differs by type of Value Chain Governance (Gereffi *et al*., 2005; Zylbersztajn, 2008) and depends only on the way transactions are organized. The transaction costs influence trade ex-ante for example influence of bargaining costs, during the transaction example hold up from partner underperformance and ex-post the transaction such as monitoring the relations after the transaction. It is the existence of transaction costs that calls-for economic organisations and existence of firms (Coase, 1937).

Transaction costs have a close link to institutions and institutional arrangements of economic systems. For that relation studies drawn from transaction cost economics try to explain how trading partners choose, from the set of feasible institutional arrangements, alternatives that offer protection for their relationship-specific investments at the lowest total costs possible (Shelanski and Klein, 1995) this is because of the existence of transaction costs such as that which occur from possibility of partner misconduct when every partner is trying to exploit the biggest share possible from the trade benefits, hence knowingly or unknowingly sinking the other partner into a loss. The Transaction costs such as costs of misconduct, however, differ between formal and informal institutions (Poulton *et al*., 2006).

Transactions are logically designated to infect trade. According to Williamson (1991) efforts to align transactions differs in their attributes with governance structures, and their cost and competencies, in a discriminating (mainly, Transaction Costs

economizing) way. Certain economic organization influences the governance, designation and carriage of transactions better than others (Shelanski and Klein, 1995). When it is difficult to carry the transaction; institutions must be defined and specified by the transaction partners and other supporters so that to make trade efficient (Masten and Saussier, 2002). In the redefinition and specification of the rules and responsibilities of the partner it leads to emerging of the governance structure and mould a kind of governance in which the kind of transaction cost that caused market failure will no longer be a problem. For example in Value Chain it may happen that a firm involved in buying products decide to invest into the production of that products, this is called vertical integration and it emerges to minimize or do away the transaction costs that result from hold up from the other partner misconduct which a proxy term for the kind of transaction cost is opportunism.

The efforts to align transactions with a more robust governance structure tend to therefore differ and become sometimes subjective. In some circumstances occurrence of a transaction costs at a certain levels of value chain may prompt the partners to enter into various investments depending on the kind of costs and anticipated benefits. In some other circumstances partnership and joint ownership of the assets may be the only optimal solution.

2.2.2 Transaction costs, institutions and coordination of economic organizations

It is difficult to separate transaction cost theory and institution. There are several definitions that are delineated for institutions. New Institutional Economists recognize institution as "rule of the game" in a society and recognize that institution reduce uncertainties in human interaction (Kherallah and Kirsten, 2001).

Hodgson (2003) defines institutions as (basic and resilient, evolved and designed) system of running relations; evolved institutions have their counterpart in habits and routines; and designed institutions are the result of reflexive or deliberative actions and policies. North (1993) defined it as "constraints that human beings impose on human interaction". North depicted it to consist of formal rules (constitutions, statute law, common law, regulations) and informal constraints (conventions, norms and self-enforced codes of conduct) and their enforcement characteristics. Those constraints define (together with the standard constraints of economics) the opportunities set in the economy.

North (1993) separated institution from organization. He said that organisations consist of groups of individuals bound together by some common objectives. He separated economic organisations from social organisations and political organisations. He named Firms, trade unions, cooperatives as examples of economic organizations; and Political parties, the Senate, regulatory agencies as political organizations; religious bodies and clubs as examples of social organizations.

This study adopted the definition of institution by Hordson and organisation definition by North. It is noted in this study that organisations run within a system called institution, and is affected by other systems formed in that society. Institution definition is simplified in this study to mean a set of structures and rules that govern behaviour of individuals in a community in accomplishing a certain objective or in determining how joint community objectives are attained. In economics the systems govern individuals' behaviour in attaining economic objectives; in religion it governs individuals' in attaining religious objective etc.

Institutions can be grouped for different purpose into several categories. For the purpose of this study they are grouped into formal institutions meaning those which contain organizations that were purposely established and they are registered or do contain by-authorities-recognized-systems of (actors/organizations) relations. The second are an informal institution forming the group of those which contain systems and organizations that automatically emerged and does not have a legal recognition. In some literatures organizations are also termed institutions. But conceptually in this study institutions and organisations definitions are separated to gain insights in analysing governance structures, because organisations sometimes runs as firms and hence transaction partners.

The structures contained in any institution are regarded to be regulative, normative, and cognitive in nature (Bitzer *et al.,* 2009) they are influenced by physical structures that have to prevail; regulative to mean that they are maintained or controlled by a system of authorities and/or regulations; normative to mean that they are derived and related to a certain standards that the whole community agree upon; and cognitive to

mean that they have a relation to the mental process of an individual to acquire knowledge in its formation and running. Transaction costs suggest the changes in institution.

Many institutions form an institutional environment, a broad ground in which economic organisations exist. Trade (occurrence of transactions) continues because of existence of economic organizations and therefore institutions. Note, what was stipulated earlier that without transaction costs economic organisation is not ideal (Williamson, 1991).

2.2.3 Transaction costs, institutions and investment

Studies and theorists have developed the linkage and relationship between investment and Institutions influences in societies and particularly in trade. Institution influence can be infected by investments (Omamo, 1998; Renkow *et al.,* 2004) that should aim at reducing transaction costs (Coase, 1992).

Understanding economic organisation and institutions that are involved in a community is important in devising appropriate strategies to develop any organisation or favourable institutions so that carrying a certain transaction is simple, and appropriate investments are made. North (1989, 1993 and 1994) agued the following notes on institution: one institution that evolves to reduce transaction costs is key point to the performance of economies. Two; not all institutions that emerge are efficient. Three; the role of government in institutions is crucial in specifying property rights and enforcing contracts. In his further explanations North, stressed out

that the inability of societies to develop efficient institutions with effective, low-cost enforcement of contracts is the most important source of both historical stagnation and contemporary underdevelopment in the third world. When institutions work effectively variables in neoclassical economics have no reason for being considered.

Value chains of any product in a community contain either one institution (formal or informal) (e.g. a system containing business organizations running their simple business mainly in spot transactions) or a number of institutions that contain several other organizations doing several different activities in it and in a complex vertical and horizontal linkages. To confer with North and other institutional economists the study note that developing a chain entails investment in the existed institution either to improve it or transform it into another form of institution that will work more efficiently, that is simply to say developing a value chain has to start with the existing institution. Within the institutions, economic relationship is attained by doing business exchange which is only possible if there are anticipated benefits between the parts involved in such an exchange. The whole business exchange process is called transaction. These parts may have been coordinated automatically or may need efforts of a third part/player to help them coordinate.

Coordination between two parts with different properties for purpose of exchange occurs happens in a juncture called transaction nodes. When this coordination is complete and efficient, it is easier for transaction partners to effectively trade, efficient coordination happens by specifying structures in a juncture of transaction nodes and within the transaction nodes that reduce some of potential transaction costs

and this make a certain governance structure. There always arise problems in coordinating vertical exchange wherever two or more parties transact across a technologically separable interface (Mastern, 2000) whereby the parties are facing a decision of how to govern their relationship. If these situation happens and makes it difficult to transact-in-spot transaction parties have to, for example, enter into contract for a future exchange (Williamson, 1988) also if it is difficult for an actor to deal individually and when there are possibilities of loss if partner acts different from the initially expected contracts some investments may be specified or jointly be made at different levels. Researchers support investment in institutions because they reduce these transaction costs arising (Omamo, 1998; and Renkow *et al.,* 2004). Theories explain how contracts can foster reduction of investments problem of coordinating actors; these are like Agency and Transaction Cost theories discussed by Mastern and Saussier (2002).

A contract is a structural investment. Contracting may happen for risk transfer (insurance), incentive alignment (Hart and Holmstr¨om 1987) and more other reasons (Mastern and Saussier; 2002). Transaction cost economists tend to view contracts more as devices for structuring *ex post* adjustments and for constraining wasteful (rent-dissipating) efforts to influence the distribution of gains from trade, including, especially, *ex post* bargaining and hold-ups (Williamson, 1975; 1979; Klein, Crawford, and Alchian, 1978) and *ex ante* sorting and search in contexts where additional information serves merely to redistribute rather than expand the available surplus (Barzel, 1982; Kenney and Klein 1983; Goldberg, 1985). The more is the risks associated with defining the partners' relation in trade, the more complex is the

contract. When it gets to a point where the transaction partners cannot afford the costs of the contract they tend to get into vertical integration.

Transaction Cost Economists hold that choice of mode of coordination should be derived by recognizing that the adaptive needs of transactions vary with the attributes of transactions and that the adaptive capacities of alternative modes of governance also differs; efficiency gains are realized by aligning transactions with governance structures so as to effect an economizing outcome (Williamson, 1991) for example obeying country rules.

2.3 Determinants of Transaction Costs Analysis

Various determinants are used by different researchers for transaction cost analysis. Empirically transaction costs are not all be directly easily measure and assign numerical values. Some can directly be measured, but given their complexities in measurement instead proxies are used (Wang, 2003) to generally point on the existence of transaction costs of the same kind under the same group.The most and commonly used proxies are bounded rationality, uncertainty, asset specificity, frequency of transaction and opportunism. In transaction costs theory three of these determinants (asset specificity, transaction frequency and uncertainty) are identified as determinants of governance by Williamson (1985). A wider range of determinants are also stated, by Wang (2003) to that of Williamson (1985). Wang pointed the five determinants that are used in this study. Wang in his paper, noted that what matters is not the absolute amount of transaction costs, but the relative ranking of transaction costs associated with different organizational or contractual choices, such as

uncertainty, transaction frequency, asset specificity, opportunism, and so on, are used instead, which are believed to critically affect the cost of transactions (Wang, 2003). In this study the focus will be on three arena whether they existed, their level of effect and reasons for existence.

2.3.1 Bounded rationality

This is a situation where by people who are intending to make rational decision are unfortunately irrational from the utility model (Jones, 2002) that is instead of maximizing their utility they unfortunately minimize it. Bounded rationality occurs as a result of important mismatch between decision making environment and the choice of the decision maker because of the characteristics bounded to:

(i) The decision maker himself such as self-control, cognitive illusion and framing, calculation and ability to understand the problem.

(ii) The decision making environment such as environmental ambiguity and uncertainty and

(iii) The interactions with other people (Simon, 1996).

In transaction costs theory limited rationality is important because it impose necessary chance to influence transaction costs, such that the costs of transactions become large if the decision is irrational and small if otherwise. In classical economics every firm is considered a rational decision maker. Also in transaction cost theory every governance structure have a rationality for its existence (Williamson, 1979), but it does not guarantee that decision makers' utility in that economic system is optimised. The classic economic assumption is true if we judge by process but it

contradicts the reality when really the outcome proves that the decision was wrong, or not well informed.

2.3.2 Uncertainty

Uncertainty is the situation that actors have low knowledge of how the other actor/part shall behave. In Williamson (1985) uncertainty is identified as one among three determinants of governance performance together with asset specificity and frequency of transaction. In transaction costs theory uncertainty is expected to increase transaction costs the more assets are specific (Kledal, 2006); and will therefore only have effect if there is assert specificity (Williamson, 1985).

2.3.3 Asset specificity

Asset specificity is defined by Williamson (1985) as "durable investments that are undertaken in support of transactions". It is "both the most important dimension for describing transactions and the most neglected attribute in prior studies of organization" (Williamson ,1981). Asset specificity is the most important determinant of vertical integration according to transaction costs economics. In food value chains, this is not a very big problem because of the alternatives that can be taken for the investments made in one kind of product, but it poses a big constraint if specific investments have to be installed and need specific treatments from the form that they were prior invested.

2.3.4 Opportunism

An opportunistic transaction partner is the one who try to avoid dealing in the ways initially agreed with the other transaction partner(s). When every partner is trying to exploit the biggest share possible from the transaction benefits they knowingly or unknowingly sink the other partner into a loss. According to Williamson (1979) "opportunism is especially important for economic activity that involves transaction-specific investments in human and physical capital" if in a pure spot market transaction, firms/transaction partners are offered no any protection against opportunistic behaviour (Williamson, 1985).

2.3.5 Frequency

In transaction cost economics frequency refers to the rate of carrying a particular transaction or the rate of taking a certain activity before the overall transaction is infected; this is particularly the rate by which the transaction partners have to meet to perform a certain element that will cause the transaction to occur. Examples are the rate of delivering the products, the rate of bargaining etc. According to Baker, *et al.*(2002) a particular notion in the game of property right change is the frequency with which the exchange is occurring and according to Williamson (2010) the frequency influence transaction in such a way that the more the real trade occur the more it tend to substitute the hierarchy form of governance and therefore trade may still take place without even a formal contract. With repeated interactions reputation is maintained which may be sufficient to mitigate the risk of opportunism. In its form if frequency is still very high and that it is costing, the transaction partners need to substitute with some other forms of governance such as construction of specific

assets. Potentially high frequency in the begging/ex-ante influence and cause fewer need for direct interactions later, and/or less monitoring costs ex-post. Williamson further maintains that the governance structures are easier to justify if frequencies are high (Williamson, 1985; 1979).

2.4 Power, Networking and Emergence of Governance Structures

2.4.1 Power and networking in value chain

Power exist in value chain exerted from two fundamental control points, the first is from supplier of row materials used in the chain and the other from the end user or/and other firms in touch with the end user Boehlje and Schrader (1995). A transaction partner is powerful if he/she have property rights for some materials that are used in that chain. Power with other factors embedded in Transaction costs variables determines the structure of a value chain. They also determine the governance structures that can serve best the transaction partners and hence the trade at large.

According to Williamson (2000) there are three types of governance structures. Simple market exchange, contracting and internal organization (vertical integration), because of power, it is expected that farmers will tend to be forced to change their organizational structures easily as more powerful nodes exercise power on them. In New Institutional Economics shift in the governance structures are driven by the efforts of actors in trying to maximize their share in the benefits of trade in a particular transaction and in safeguarding themselves from losses of transactions benefits because of transaction costs. The safeguarding means (mechanisms) are

derived basing on the risk the transaction partner anticipates. The kind of governance structure also will depend on the kinds of transaction costs that are existent in that chain. One note in the effect of change in the governance structure is by da Silva and Saes (2007) who said that efficient economic organization (efficient ways/means of economies) may be attained by convergence of different governance structures into one structure more efficient.

2.4.2 Emerging of governance structures

In this study governance structure is defined as the organizational forms that the value chain takes and the way they choose to relate. The structures may be internal of a firm or external as according to Williamson (1991).

In *simple market transaction* parts are free to exercise their transactional alternatives from trade (for example decision on when to sell or how to sell, to bargain or not bargain) and that their relations with the other partner ends with very little or no obligations once transaction is consumed. This may occur haphazardly as long as supply and demand exist. When simple transactions are difficult the other governance structure most likely and simple has to emerge which is contracting (da Silva and Saez, 2007).

In *contracting* transaction partners define the range of acceptable behaviour and how to impose a control on them ex-ante to limit losses from transactions during and ex-post that may or may have not been anticipated ex-ante. Attenuation of hold-up problems, shirking problems and others, for example, which may arise from low level

of trust are reduced by stipulating terms of trade ex-ante (Kledal, 2006) that improve trust and their redefinition and reorientation even ex-post thereby reducing chances of costly repetitive bargaining. Klein, *et al.* (1978) and Williamson (1979) noted that the shorter the contract is the more it will hold the transaction partners in negotiation. Past experience in transaction between the actors will also determine the needs for negotiation and importance in shifting between the governance structures.

In *vertical integration* transaction partners may attempt to design open relation especially in the way they own specific assets that are used in trade. Firms by running as sole proprietors may, for example, attempt to involve their transacting partners in the ownership of some assets there by creating a more rigorous economic relation. Example is as noted by (Kledal, 2006) that hold-up opportunities can be limited by allocating residual rights of control over the use and disposition of assets, and thereby restrict the ability of non-owners to withhold assets from production. In other circumstance another form of vertical integration is when a distributer of processed products decides to own the processing facilities so that to process the products that he formally sourced from his transaction partners.

2.4.3 Research gap

Two gaps were identified in the statement of the research problem and justification; it was not clear on the relationships and details of transaction costs that caused the market failure. It was not understood clearly; the way the transactions were organised prior and restructured later had not been studied. In the literature if it is you ought to develop this specific ginger value chains, questions could be Is it the problem with

the transaction costs? Or is it with the institutions? Or is it with the Organisations/firms (farmers included)? Or just with the governance? Refer different notes stressed by Institutional economists such as Williamson and Masten. The Secondly, part of the institutions/game players were known, some were not (rules of the games and the game players) rules of the game were not clearly stressed; generally the institutions influence and functions in reducing the market failure had not been studied.

In discussing the role of Transaction costs Economics in antitrust and public utility policies Joskow, (1991) pointed out that whenever a utility maximisation game emerge and that it has to touch the public, every social dimensions of it have to be considered provided that information and knowledge are enough to satisfy its actual development. He further noted that there are costs that can be contained if measures are taken ex-ante. Joskows (1991) observation conforms to the observation by Williamson (2000) on the interrelated nature of transaction cost proxies where for example

This study were commissioned to be able to understand governance structures of the specific export organic ginger value chain confronted by market failures and hence be able to draw recommendations that would sustain the transactions along and potentially end the market failure.

2.5 Conceptual Framework

In accordance to the research question stated, to be able to address and develop a conceptual framework a number of concepts and Ideas have been reviewed to explain the market failure case under the study and deduce the theory that has been used. Figure 4 bellow is an illustration of the conceptual framework developed by adapting Guidi 2011 which is a good elaborate for development in sustainable agriculture.

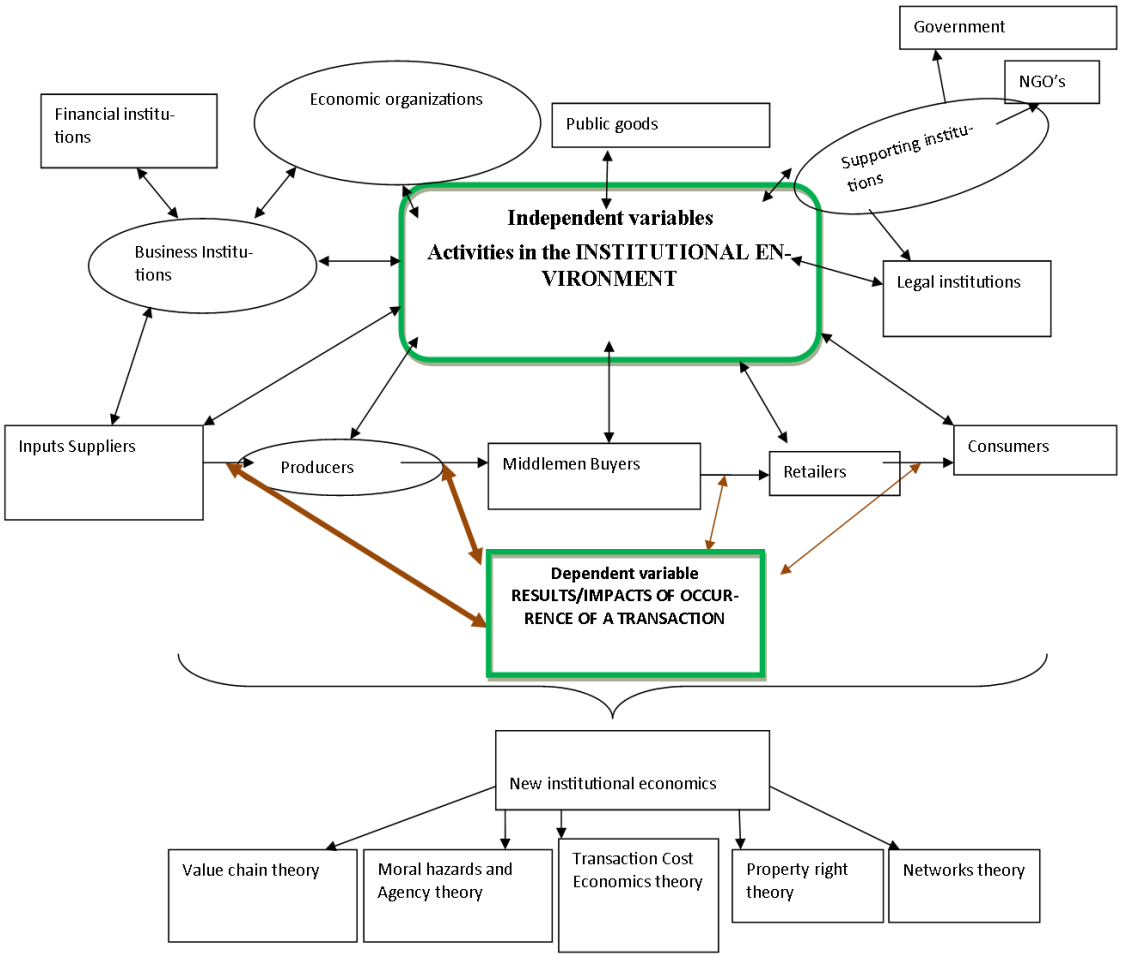

Figure 4: Conceptual framework

(Source: Adapted from Guidi 2011)

This conceptual framework (Figure 4) is in connection with the New Institutional Economics. From the inputs suppliers to the final consumers of any value chain, is

the network of different actors vertically and horizontally coordinated who brings about the movement of a product in different forms, type or location from one hand of one player to the hand of another player. Inbound Logistics (Activities at farm level), Operations, Outbound Logistics, Marketing and Sales, Service Procurement, Technology Development, Human Resource Management and Infrastructures form the realm of the independent variables of which all together determine the occurrence of a transaction. The results and impacts of occurrence of the transaction (such as increased profits, changed livelihood, increased production and productivity) are the dependent variables (See for more clarifications Guidi, 2011) if we are to analyses the governance and understand why, while there are production somewhere that meets requirements of a particular demand still the trade connections between the two parts do not occur.

In a simple two countries global value chain, the institutional environment for which a product has to be traded across a border of the two countries is composure of the two institutional environments one in each country. Global value chain is affected by institutional environments between the two countries.

Institutional environment is the general-realm where the interplay between the institutions (rules of the game) and the organizations/firms (game players) occur. The organization of the game occurs because there are certain costs/gamming costs that have to be incurred by the game players (Gerreffi, 2005). The institutional environment affects and is affected, by the institutions that it is composed of and other factors such as public goods which have a direct connection to the cost of making exchange.

The NIE theories particularly the Transaction costs theory provides a better ground to explain the transactions relations that bind different actors in the value chain as it has been used by different economists (such as North, 1989; Williamson, 1985 and Mastern, 2000) amongst many Institutional and political economists and therefore, taken for this study. The theoretical framework explains in details the activities that are carried and the changes that occur in the exchange process as due to various interventions.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Description of the Study Areas

The study was conducted in two wards. The Mamba ward in Same District, Kilimanjaro region and Mnazi ward of Lushoto District in Tanga region (Figure 5).

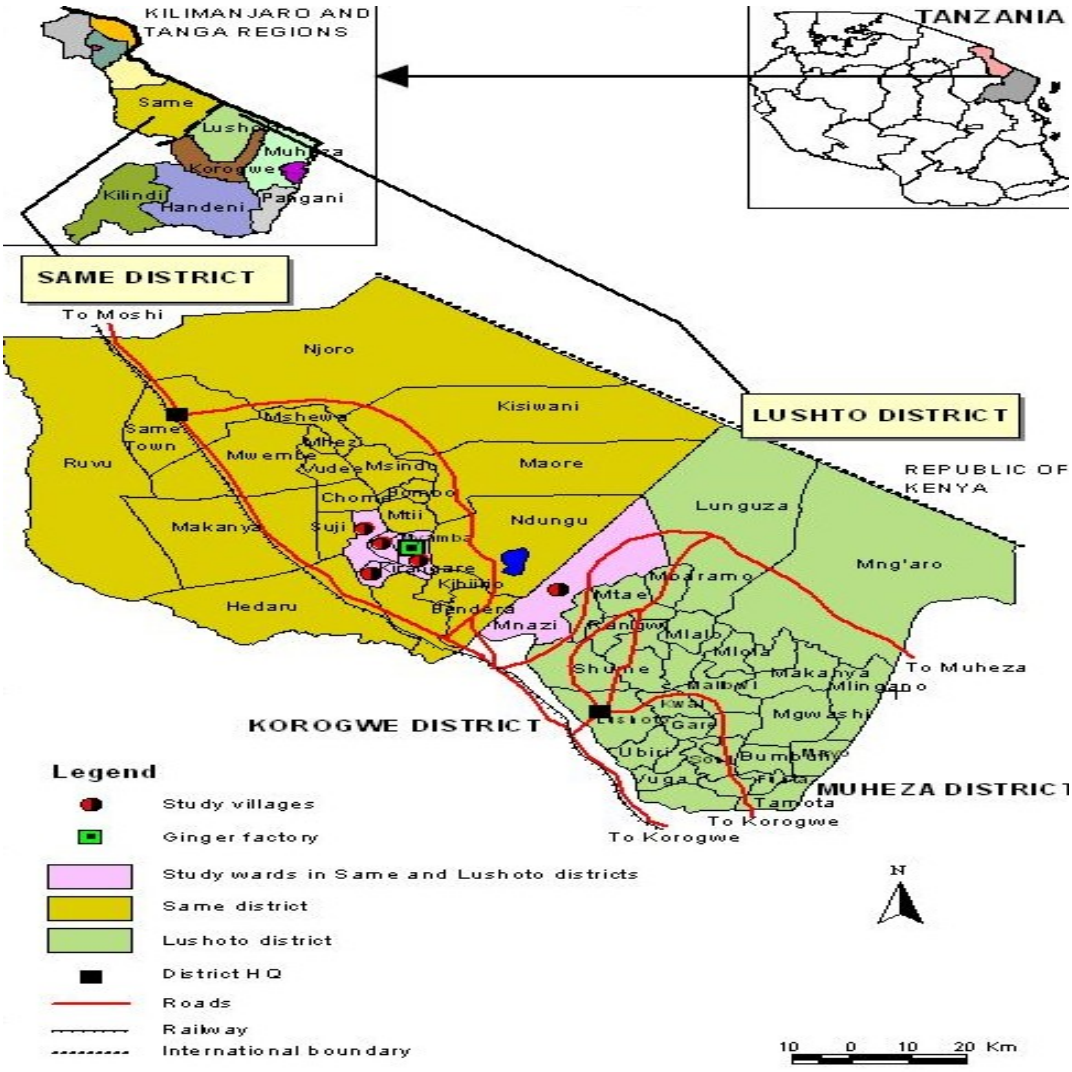

Figure 5: Map of North-Eastern Tanzania displaying Mamba and Mnazi

Mnazi ward is found at the foothills of Usambara Mountain; that range to an altitude of 2440 m above sea level. Mamba ward is found in the Pare Mountains that goes up to 2463 m above sea level at Shengena Peak. This altitude gives the area a conducive temperate climate with mountainous rainfall and standing as water catchment that the people at the foothills use for agriculture. The Pare and Usambara Mountain ranges are among the eastern arc mountains that compose a lot of flora and fauna. Both Mamba and Mnazi are 200 km away from Tanga city.

The two study areas experience bimodal rainfall patterns, the Long range rainfall period “Masika” and short range “vuli”. In the hill slops and up-hills most cultivated crops are sugar canes, ginger, coffee and banana; in these areas also different varieties of natural trees and bushes/forests exist which give source for organic mulches and materials for green manure manufacturing. In the low lands of the areas farmers cultivate maize, rice, and yams and also keep livestock. The manure from the livestock in the low land are sold for agriculture in the upland.

3.2 Research Design

The study was designed as a two-step design such that the first round of collection of data aimed to understand the market and value chain structures of organic ginger value chain. Then the second was cross sectional collection of the main data. The data were collected in view of an ex-ante situation, during and ex-post the transaction. Main reference points were the formation of the organic ginger value chain and the carriage of the necessary transaction along that value chain. Before the establishment of the value chain was dated the period before 2007 and after the establishment to

mean the period after 2010. In between 2007 and 2010 this time lapse is taken to mean during the carriage of the organic ginger transaction, and during when live organic trade were conducted.

3.3 Sampling and Selection of Study Units

The study unit for this research were farmers involved in the organic ginger value chain particularly for export. Mamba and Mnazi wards were selected because of live organic business and the areas are specialised in organic ginger production and export.

The populations for which this study drew its sample from is the tatal number of organic ginger farmers who were organised into two cooperatives and situated in two different wards of Mamba and Mnazi. The Mnazi cooperative had 68 member farmers and Mamba cooperative had 150 member farmers. The formula (1) below were used for determination of sample size (FAO, 1990).

$$N = \frac{Z^2 * P(1-P)}{M^2} \quad \text{.....(1)}$$

Where by:

N is sample needed

P is the estimated prevalence of farmers who sold organic ginger to TAZOP every time when they buy (for this study was 46%)

M confidence interval for our case is + or – 9.8

Z is Z value (level of confidence) for this case is 99%

The sample size is corrected for finite population using the formula (2).

$$New\ sample\ size = N/(1 + \frac{N-1}{population}) \quad \text{.....(2)}$$

These two sets of population together formed a total of 218 people. From 218 farmers 96 were taken as sample farmers calculated using the sample size determination formula suggested for use by FAO (1990). In this process 37 farmers were interview in Mnazi and 59 farmers were interviewed in Mamba. Also their cooperative leaders were interviewed to gain understanding of their cooperatives.

3.4 Data Collection

Primary and secondary data were used in this study; main sources of these data were organizations (such as TAZOP, Mnazi and Mamba cooperatives, NGOs) business individuals and ginger farmers who are working in the organic ginger value chain. These farmers were members of the Mnazi and Mamba cooperatives. Primary data collected were demographic data including, age, sex, marital status and number of people from where the respondent lives; also primary data on production and land ownership were collected. Secondary data collected were information stored by TOAM and FAIDA MaLi on records of farmers' production, productivity, selling and backgrounds history of ginger production from the two study areas. Also during data collection information of various efforts done by different institutions including the Local Governments were collected.

Data collection was preceded by preliminary field survey in September/November, 2011 and report was produced in 2012 that aimed to understand nature of the study

areas and breadth and depth of the study at large. The preliminary survey used checklist, direct visits and observations to the offices and fields to set appointments and identify involved persons in the chain. District officials from Same and Lushoto, TOAM staffs, Mnazi and Mamba Cooperative leaders and Village and ward leaders were involved in giving information during the preliminary survey. Also the preliminary survey was conducted to lay way for refining data collection tools and assist in establishing the organic ginger value chain map. The preliminary survey was followed by the main survey and presentation of the findings in the organic stakeholders' workshop in Arusha in September of 2012.

Primary data were collected using questionnaire, face to face interviews and observations (Appendices 1-4). Secondary data were collected from different publications, documentations and store achieves/files of TOAM, FAIDA MaLi, TAZOP, and the Mnazi and Mamba cooperative. Data were collected between November, 2011 and may, 2012.

3.3 Data Processing and Analysis

3.3.1 Data processing

Processing of data involved coding of the collected field data and entering them into Statistical Package for Social Science "SPSS" for easy analysis. Open ended possible responses were identified and assigned values before they were entered into SPSS.

3.3.2 Data analysis

The study was a case study of market failure. Analysis of data collected observed the asked research questions so that the answer for these questions composed this

manuscript and also to fulfil the specific objectives that were set. Case study requires study of the particular case in breadth and width. This was conducted in order to obtain enough information about the cause of the market failure and different interventions that has helped in minimising it and hence cause the business to go and which are appropriate interventions based on literature and the findings/variables observed.

3.3.2.1 Map the organic ginger value chain in the north eastern Tanzania

The first part of the data analysis was to provide detailed understanding of the north eastern Tanzania organic ginger value chain. Participants and their functions in the value chains and the nature of the ginger value chain were observed. The entered data in SPSS were analysed to obtain computations of percentages. These percentages were presented in tables for different descriptions of variables in ginger farming such as description of production and land ownership by farmers in the study area. Computations were made for the sizes of land owned and also here the different data obtained from documents of the organizations were put together to obtain a flow that would allow understanding of the organic ginger value chain.

3.3.2.2 Assess the transaction costs in the export organic ginger value chain.

Transaction cost proxies were established and explained in the literature review chapter to guide the analysis. The findings in the survey data and presented tables were examined for their reflection into causing the costs impliedly represented in the transaction costs proxies to be high or low. With the transaction costs proxies the environment which were causing them (the proxies) to be high were studied then

establish how facilitation of chain partnership by facilitators such as FAIDA MaLi and TOAM had helped to reduce the prevailed transaction costs ex-ante-the trade and ex-ante the carriage of particular transaction.

To further understand the participation of farmers into organic ginger export and effects of transaction costs on the participation, an econometric model was specified to test the relationship between the decisions of farmers to participate into exporting organic ginger and deterministic variables. The dependent variable specified was whether the farmer would sell into the organic value chain or otherwise. The model was tested where by the decision to participate were determined by presence of transaction cost at the farming level, and other regressors as indicated in Table 2.

The underlying assumption was that the decision of the farmer to sell into export organic market has variables that are significant in dictating the decision of the farmer. The expectation was that presence of transaction costs would decrease probability of the farmer to sell into export organic market than to sell otherwise. To best suit this an econometric model for utility maximization was specified, the decision to consume a transaction or any product are in consumer theory derived from decision making and/or a set of economic constraints for a set of options that maximize utility (Dwived, 2004). Farmers are provided with a set of options to sell their ginger, our interest was on organic channel, but they may channel their ginger into other channels such as numerous local informal buyers. Also the decision of the famer is determined by a set of constraints which are of different nature some being dummy, by their existence while others being categorical (See Table 2). The

econometric model that would suit the analysis where the dependent variable is a binary value was a binary logistic regression (Besag and Green1993).

(i) **Binary logistic regression model**

Binary logistic regression was carried to express the relationship between willingness of the farmer to participate into export organic ginger value chain and the group of variables such as existence of transaction costs, proximities to the ginger collection centre, whether someone owns the land, size of the land he/she owns and a range of transaction cost proxies which were likely to determine whether someone will participate into selling her ginger organically or not as the chain is controlled by regulations and principles beyond other/conventional value chain.

Transaction costs were the variable of interest in the participation of farmers into the organic value chain; apart from transaction cost variable of whether it existed or not at the production level, the study also looked at the extent at which perception of the farmers on the level of the transaction cost proxies affected the decision of the farmer to participate into the export organic ginger value chain.

The study adopted binary logistic regression model as presented in equation 3

$$\ln\left(\frac{p}{1-p}\right) = \beta 0 + \beta txt + \beta axa + \beta uxu + \beta bxb + \beta oxo + \beta fxf + \beta lXl + \beta lsxls + \beta dcxdc + \beta dpxdp + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where:

$\ln\left(\frac{p}{1-p}\right)$ Denote the odds of participation, whereby p is a success factor that the probability of a group member to participate into the export organic value chain is one, expressed by her/his willingness to participate into selling organic ginger into the established value chain. The collected data values are1 if he/she is willing and 0 if otherwise. The established organic ginger value chain was the one that was created by TAZOP. Therefore the readiness measured was to sell into that system.

$\beta 0$ Denote the model intercept, which is the value of probability of participation regardless of the existence of the independent variables that would determine participation.

βtxt Denote an independent variable, Transaction cost, which is existence of transaction costs whereby if any of the transaction cost were available the probability is 1 and 0 if otherwise.

The five transaction cost proxies were entered in the model as separate variables 1 to indicate extent the proxy were high 0 to show that the extent were low

βaxa Denoted an independent variable of transaction cost proxy, asset specificity, the extent to which a farmer felt the level of asset specificity to be in a range of very high to very low were collected but treated in a form of 1 for high and 0 for low.

βuxu Denoted an independent variable of transaction cost proxy, uncertainty, as is for the case of asset specificity were treated in such a way that the extent were treated as 1 if high and 0 if uncertainty were low.

βbxb Denoted an independent variable of transaction cost proxy, bounded rationality, the value here were treated as 1 if the extent of the cost proxy were high and 0 if it were low.

βoxo Denoted an independent variable of transaction cost proxy, opportunism, the value were treated 1if the costs were high for the transaction actors to be opportunistic and 0 if it were low.

βfxf Denoted an independent variable of transaction cost proxy, frequency; frequency were treated in such a way that if the frequencies of performing actions that led to an exchange were high the value were 1 and if the frequency were low the value were 0.

The value of every transaction cost proxy were 1 if the cost were high and 0 if the cost were low.

βlXl Denoted land ownership, which is 1 if the land cultivated organic ginger was owned by the farmer, and 0 if otherwise.

$\beta lsxls$ Denoted the size of land by the farmer; this were a continuous variable where by direct numbers/values of the size of land owned were entered into the analysis software.

$\beta dcxdc$ Denoted the vector of the distance the respondent expressed from his/her farm to the ginger selling point. This is a continuous value expressed in kilometers.

$\beta dpxdp$ Denotes the value of the distance of the farmers/respondents farm to the crops processing centre/point in kilometres this is a continuous value expressed in kilometers.

ε - Denote an error term; this is a combination of all other factors not in the reach of this model that determine the probability of someone to participate into the export value chain.

Direct entries were selected from an SPSS data base that was developed after collection of the data from the field. The variables are further described in Table 2.

Table 2: Description of variables used in logistic regression

Variables	Explanation	value	Type
Dependent variable			
whetherfarm	Whether the farmer will sell in organic channel	1=yes 0= no	Dummy
Independent Variables			
sizelandown	Size of land owned by the farmer	Acres	Continuous
landowner	Whether the land is owned by the farmer or not	1=yes 0=no	Dummy
Trnsexist	Whether the transaction cost exist or not	1=yes 0=no	Dummy
Exttransa	Perception of the farmer on whether asset specificity were high or low	1= high 0=lo	Dummy
Exttranu	Perception of the farmer on whether uncertainty were high or low	1= high 0=low	Dummy
Exttranb	Perception of the farmer on whether bounded rationality were high or low	1= high 0=low	Dummy
Exttrano	Perception of the farmer on whether opportunism were high or low	1= high 0=low	Dummy
Exttranf	Perception of the farmer on whether frequency were high or low	1= high 0=low	Dummy
Distancet	Distance to selling point	kilometer	Continuous
Distancett	Distance to processing unit/point	kilometer	Continuous

a. Size of land owned (sizelandown)

The size of land owned by the farmer is a continuous variable measured in acres. Size of land is a primary factor for quantities of production. It is expected to have a positive influence on the decision of the farmer to sell into export organic market as the farmer will have more product. Bandiera, 2002 studied land distribution incentives and choice of production techniques. In the study she included plot size as one of the variables that determine farmers' choice and found that plot size was significant in affecting farmers' choice. It was explained that the effect would be because farmers who own large plots of land have a wider choice of cultivating different crops vis-à-vis those with small plots. This study included the land size variable as it was expected that choices of the farmer and transaction costs of opportunism, would be spurred by size of land owned, while at the same time if prices are stable across a wide range of markets large quantities produced would be an important motivator for farmers to participate hence higher probabilities.

b. Landownership

The variable whether the farmer owns the plot in which he cultivate ginger was expected to have a positive relationship because when the farmers/land lord are to enter into organic markets, costs of investment and possibility of accessing the land is much more decreased. Maristella, 1999 studied choice of agrarian contracts and included landownership in analysis; she observed that land ownership was an important determinant of choice of a contract that a farmer is likely to pursue in markets. She further substantiated that land owners have improved bargaining powers and more options in markets than non-owners.

c. The existence of transaction cost (trnsexist)

The existence of transaction costs were expected to have a negative effect on the decision of the farmer to participate. Since it is argued in literature that assumption of a zero transaction costs at any level of transaction cost is not ideal (Williamson, 1991) the study included levels of the transaction costs proxies in the analysis.

d. The level of transaction costs

The levels of transaction costs were measured using five transition cost proxies as individual determinant of participation. Since they are all under the transaction costs, they are discussed in this study under the same heading. The level that the farmer perceives on the transaction costs was expected to have a negative relationship as when the levels of the costs are high the farmer becomes discouraged from selling to that particular value chain. Also separate variables of proximities were included in the analysis.

Jangwe, (2011) in the study of transaction costs effects on influencing farmers' participation into markets of banana and beans in Rwanda, Burundi and Democratic Republic of Congo, generally substantiated that transaction costs significantly affected the decision of the farmer to choose marketing channels for her products. Further continuous variables linked to transaction costs were specified where proximity to the selling points and assets costs were found to be significant in affecting famers choice. In this study apart from specifying the farmers' perception on the proxies as individual factor that would determine participation, some continuous variables were specified.

e. Distance to the selling point (distancet)

Proximities were expected to have a negative effect of participation of the farmers into the export markets. The distance to the selling point was expected to reduce probability to sell into the export market it will imply more costs and risks accessing the market.

f. Distance to the processing point (Distancett)

Proximity to the processing unit was also expected to have a negative relationship with the probability of the farmer to participate into export market.

3.3.2.3 Assess the contribution of facilitating institutions in influencing the Lushoto and Same organic ginger value chain

The organisations involved in the organic ginger value chain were studied along with the value chain governance structure that the chain had and the kind of governance that was leading the chain. Also the rules of the game for organic ginger trade were studied. Direct contributions of organisations and their institutions to reduce transaction costs and also indirect contributions that later led to influencing the transaction costs were critically studied and presented in clear narrations.

The study generally hypothesis that transaction costs are often not too high for private actors to deal with; while (an actor neutral support resource environment) facilitated chain partnership reduce them significantly was tested by examining the prevailed situation before the selling of organic ginger started, when the selling of organic ginger started and after the trade started and even before and after the carriage of the

particular transaction. Then it was possible to tell as to whether an individual farmer could pursue the trade the same as for the stakeholders to facilitate the chain partnership and hence influence the trade.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

This chapter is organised and discussed according to the specific objectives of this study. The first part begins with description of the ginger sector which gives mapping of the value chain in Mamba and Mnazi and the second part gives analysis of the organic ginger value chain governance structures and third on analysis of the transaction costs and institutions influence on the transaction costs.

4.1 North Eastern Tanzania Ginger Value Chains

The map (Figure 6) shows that ginger originated from farmers and passes through several transactions channels before it come to the final consumption. A detailed description of the different flows of ginger in its different transactions is provided in part that follows.

It can be noted From Figure 6above that there were three main value chains observed in the two study areas if we consider the end destination of the ginger and the forms in which the ginger is delivered. But if we consider the kind of ginger traded there were only two chains. These were conventional ginger chain and organic ginger chain.

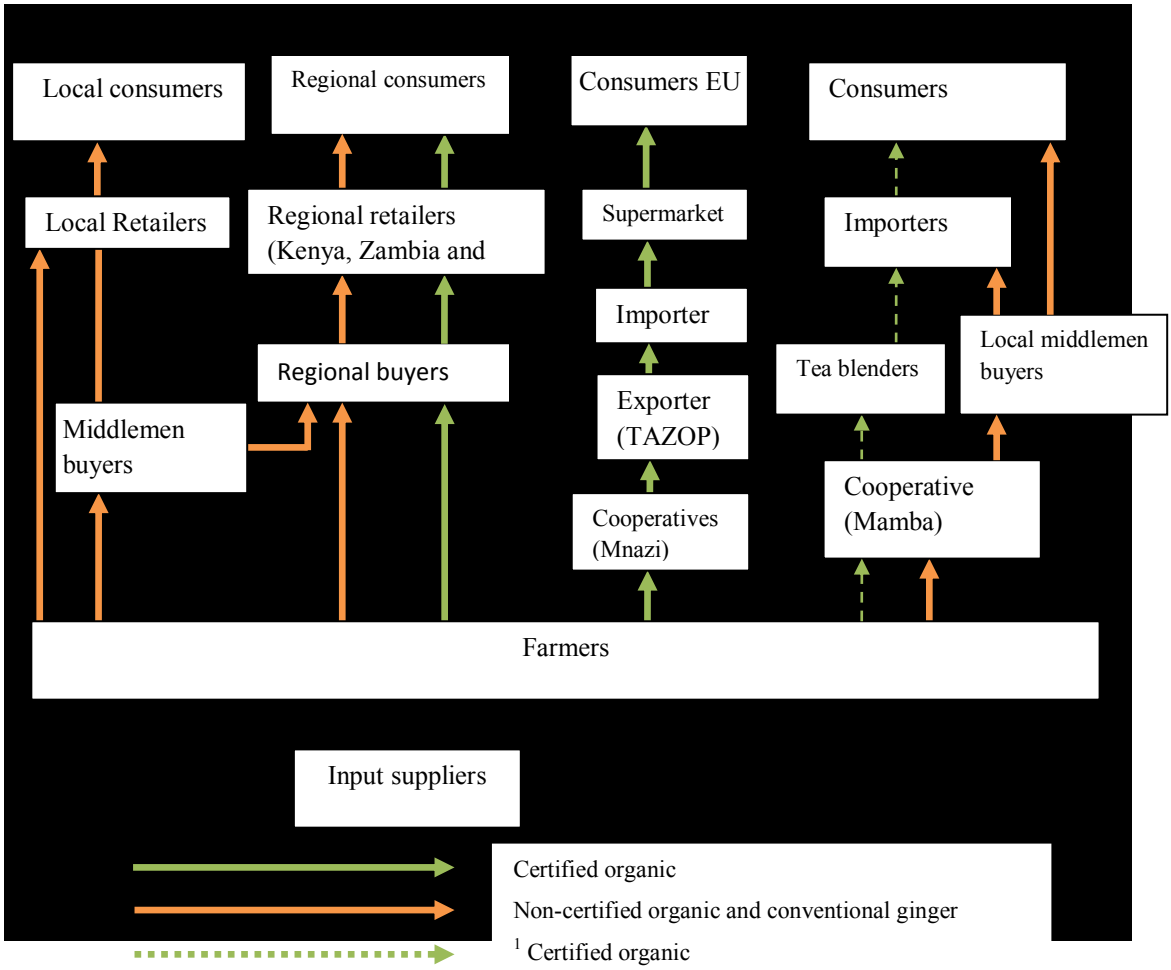

Figure 6: North-eastern Tanzania ginger value chain map

4.1.1 The conventional ginger chain

Tanzania's conventional ginger was delivered into local and export market. Ginger delivered in this chain outlets were in two forms: one was fresh unpeeled ginger and the other one was processed ginger. The fresh unpeeled ginger and the processed ginger were delivered to both local markets situated in the village vicinity and the urban centres such as Tanga, Arusha and Moshi and export markets. The export for this form was into neighbouring countries such as Kenya, Uganda and Zambia.

In this chain, there were two modes of selling, the first one was when farmers deliver the ginger to retailers in the urban and rural market places directly, and the second

was when the farmer delivers the products to a local buyer. Both farmers and Local buyers did not make arrangements with the local retail buyers before. But it was found that farmers would sometimes contact anyone in the market place to get information on price. Transactions carried in this form are in most cases expensive as there are a lot of uncertainties and information costs during negotiations and delivery on the side of farmers and a lot of potential hold up from underperformance such as adulteration of the ginger by the suppliers.

In Mamba farmers' cooperative buys from farmers and deliver to local buyers. There were no established quantities that the cooperative bought because the cooperative started operation in May 2012 when the study was carried. But the cooperative planned to buy all the ginger produced by the member farmers.

4.1.2 The organic ginger value chain

This was the second chain that the study found and that can be traced from the fig. 5 in terms of ginger delivery. In this chain organic ginger was traded into markets that are within Tanzania and export markets. Example of markets for organic ginger in Tanzania included supermarkets, hotels, tea blenders, and restaurants. In Mnazi, organic ginger was sold to local buyers and to TAZOP who delivered it as organic ginger to German.

The organic export chain originated at the farm level comprising small holder farmers who traded to TAZOP and regional buyers. From conversations with TAZOP

managing director, the study found that sometimes TAZOP collected the ginger and export into the Regional markets. The simple description of the chain was from:

Small Holder Farmers ⟶ Processors (farmers and cooperatives) ⟶exporters

4.1.2.1 Organic ginger value chain transaction nodes

Organic ginger in north-eastern Tanzania was found to comprise five different transaction nodes. These were: Factors of production and input transaction node, production node, farm level assembling and processing node, buyers assembling and packaging node and importers node. These were identified when specifically categorizing the similar transaction related activities at a particular point. Also in this transaction node there were contracts that were identified to help in making transactions possible.

(a) Input supply

In transaction cost approach the firms that supply factors of production and inputs are considered in a separate node. Transactions which occur here aim at providing inputs that are used in the other nodes of the chain by different participants.

In classic economics, land, labour and capital are recognised inputs traded in various forms in a particular chain. In some other circumstances the inputs were just exchanged between farmers without a tangible return. The study found that most frequently bought capital inputs in this node were hand operated cultivating tools such as hoes, machete, and iron mattock. Also finance and labour were traded in little quantities.

(i) Farm implements, tools and machinery were used in value chain for generally production and value addition purposes. Their utilizations were important in fulfilling conditions of a particular transaction. It was found in the study that farmers bought farm tools from retail shops around Mnazi town. There were six retail shops around which were selling farm inputs. Out of these shops none was owned by the cooperative, but it was owned by people, some of them were members of the cooperative. This therefore shows that some farmers were vertically integrated in such a way that they were both farmers and input suppliers, in most cases supplying inputs to them. In transaction cost theory vertical integration come to reduce transaction costs which makes sourcing from another node difficult. Implements, tools and machinery were also supplied by Small Industries Development Organisation (SIDO), especially those that were installed in factory.

(ii) Also the study found that there were local traders who supply farmyard manure (cattle manure) from the lowlands to the uplands where ginger is cultivated. Their transactions were found to be spot market transactions therefore increasing uncertainty on their consistency of supply, as the result farmers focused on training to making their own fertilisers such as compost. The farmyard manure and other fertilisers used in organic farming were not certified organic but are recognised as organic means to raise organic crop.

(iii) Seeds were prepared by farmers themselves. This was because there were no seed producers who operated as business firms in the study area, also this may

probably be due to high uncertainties that constrains someone who wants to invest in seeds multiplication.

(iv) Transport facilities like bicycle were services provided by farmers and local middlemen traders such as truck owners. Farmers acquired these services individually in case of transport before they could export the ginger and collectively when delivering to TAZOP.

(v) Ginger production was also dependent on land as a factor of production along line with labour and capital. The study found that farmers in Mnazi own on average about 6 acres of land that range between 1.25 and 15 acres. But ginger was cultivated on average in land size that range from 0.25 acres to 2 acres. This is probably due to difficulties in developing arable plots and the uncertainties. That is investors would ask; what if I develop the land and yet nothing is bought?

There were various forms for exchange of land. The land tenure system in the study area allows people to access land through inheritance, hiring and purchase. The opportunities for hiring land were on seasonal basis. Hiring price for an acre of land, about 0.4 ha, ranged from 50 000 to 100 000 Tsh. per season.

Land market in the area was well elaborated-pricewise where an acre of land costs about 1.5 to 3 million in Mnazi and 3 to 4 million Tsh. in Mamba. This compares to around 200 000 Tsh. to 1 million in other parts of the country

such as villages in Morogoro for land of the same purpose. The price is Mamba is probably high because of literacy and high population. The values of land are relatively high and it depends on whether it is improved for ginger farming and whether it is accessed by irrigation channels. It is also influenced by other factors such as distance to road, human settlements and topography of the land.

The general market structure for land was a complicated one. Apart from paying in cash some farmers agreed with other farmers' mostly neighbouring households to higher land. Where this transaction occurs, one of the farmers provides the land and/or inputs such as fertilizers that the other farmer use for cultivation. The payments are not cash but during harvesting they share the produce equally by selling the crops and share the money by half.

(vi) Household labour is the main source of farm labour in rural Tanzania. The study found that households were the main supplier of labour. There were different forms of labour sharing between households such as group cultivation where a date is set and a group of people and cultivate on the farm of their fellow member and also sometimes some people were helped for free, mostly the aged and people with certain problems. This has therefore been part of continuous increase of farmers' involvement in agriculture production. Some farmers join and cultivate ginger together for the sake of sharing cultivation costs and averting large investment costs that are required to establish a new farm.

Labour market in agriculture production exists to a large extent in the form of casual labour and to a minor extent in the form of wage employment. The price of casual labour in Mnazi ranged from 3000 Tsh to 5000 Tsh. in Mamba it ranged from 3000 Tsh to 7000 Tsh for one day that has to comprise six working hours. The wage for employed labourers ranged from 30 000 Tsh to 150 000 Tsh per month depending on the nature of the job. The low wage for labourer may be the reason for few people to opt to be wage employed.

The wage employment is different between Mamba and Mnazi wards probably because there are more employment structures such as dispensaries, more schools and restaurants in Mamba than in Mnazi. This has affected also the saving behaviour of the farmers from the two areas.

(vii) Financial capital was also important input for organic agriculture production and marketing. The study found that in Mnazi 94.6% of farmers used capital from their own savings; about 81% of them saving from ginger sales the case which in Mamba was 79.65% where 54.23% saved from ginger sales. The difference is noticed probable because Mamba had wider income opportunities.

The market for financial capital is of different structures. It is categorised as formal financial system containing Micro Finance Institutions, Banks and SACCOs and Informal financial system comprising of local unregistered money lenders. There were no farmers from Mamba and Mnazi wards found to use capital from banks for cultivation. When in need of the money the

farmer goes to a money lender, mostly shop retailer or a friend to borrow the money. There were no specific price for lending the money especially for the informal money lending but it was expressed by the farmers to be ranging from 50% to more than 100% interest per annum depending on negotiations. The farmers reported that when it is harvesting time for ginger the debtor pays the creditor the money informs of produce worth the money the debtor owes the creditor, but at a price predetermined at the time of lending. In the formal financial market, price ranged from an interest rate of 6 to 24 percent per annum in SACCOs and Banks to 36-60% of the Microfinance institutions.

Formal financial systems like banks and microfinance institutions were limited in accessibility by probably high levels of insecurity the lenders feel against lending to the farmers, the historical perception about micro-financial institutions and low comfort farmers feel to borrow. The study thus found that all interviewed farmers who borrowed for cultivation in the 2012/13 season obtained the service from the local money lenders.

There were different means for obtaining financial capital. These were (a) Taking loans and (b) selling household assets. The distribution for capital availability was as in (Table 3).

Table 3: Source of farming capital

Source of capital	Percentage of respondents	
	Mnazi (n=37)	Mamba (n=59)
Wage employment	2.7	11.86
Saving from ginger sales	81.1	54.23
Saving from casual works	10.8	13.56
Loan from local lenders	5.4	8.47
Different other means (such as selling assets	0	11.86

(b) Production node

Production in transaction cost theory is organized as a different node because of the nature of players who have to relate with other players in the chain and the kinds of transactions that take place. At this node the key players were smallholder farmers. In Mnazi there were 68 certified organic ginger farmers. In Mamba there were 158 non-certified organic ginger farmers and they operated in participative guarantee system. On May 2012 another group of 108 farmers joined organic farming from Mnaziand they were on process of certification to supply a company known as Global Food Products (GFP) Limited. This company was yet to have its effect in the area and was in the initial stages of establishing organic ginger chain in Mnazi. TAZOP supplying farmers organized for organic production and produce in compliance with the organic standards.

Organic ginger farmers get services such as extension services, business development and other technical trainings from TAZOP and Government extension officers. They have also access to public extension services from trained village agriculture facilitators who are paid by TAZOP. These facilitators were trained by in a collaborative approach by TOAM, TAZOP and FAIDA MaLi.

Monitoring of organic standards was important at this node. The certifier (IMO) and buyer (TAZOP Company) visit the farmers during production season twice for certifiers and thrice for the buyer. Apart from the buyers the farmers have close link to input suppliers by their living closely to their inputs supplying shops and relationship in terms of some the inputs suppliers being also members of the farmers' cooperative.

Farmers in Mnazi were related in terms of their social status, religion and level of their education. The case was different in Mamba where 26% had education above primary school, 72% had primary education and 2% had no formal education. These have therefore affected the saving and employment behavior of farmers in Mamba where the condition is different between these two areas.

Mean production has been increasing since 2007. Before 2007 there was no organic ginger production. In between 2007 and 2011 production of organic ginger faced a significant increase having a significant change between ex-ante production and ex-post (Table 5).

Investment in farming organic ginger by the smallholder farmers interviewed was also increasing. The study found that in Mnazi there were increase in farming ginger from around 800 000 Tsh to around 1 million on average of the farming households for a period of four years (Table 4).

Table 4: Amount of money committed to organic agricultural by farmers

Item	Money invested in Tsh	
	Mnazi (n=37)	Mamba (n=59)
Mean investment:		
Ex-ante (before 2008)	844 117 Tsh	743 000 (n=49)
During (2008-2011)	706 621 Tsh	--
Ex-post (2011 above)	1 004 054 Tsh	1 209 080 (n=56)

Table 5: Average quantities of ginger produced in Mamba and Mnazi

Item	Quantities produced (Kg)	
	Mnazi (N=37)	Mamba (N=59)
Ex-ante (before 2007)	5176	3679 (n=49)
During (2008-2011)	8632	--
Ex-post (2011 and above)	9564	5025 (n=56)

All ginger sold in between 2008 and 2011 through the long term contract between smallholder farmers and the exporter (TAZOP Company) was dried (processed). The differences between the raw and dried ginger are that the dried have a low volume and high shelf life.

Transactions related to ginger at the production node were of different forms. Some farmers sell their crops to local buyers directly when the crops are still on-field, these buyers make arrangements to harvest, pack and transport the ginger. The buyers may come by contacting brokers who also may persuade farmers to sell. This mostly occurred in Mamba. In Mnazi once organic farmers harvest they dry the ginger and transport it to the TAZOP in Tanga, after they have reached an agreement on price and quantities to buy.

(c) Farm level assembling and processing node

Assembling of ginger involves transportation from the fields to the processing areas which are the factory in Mamba and the selected processing area in Mnazi and from the processing area in Mnazi to TAZOP Company in Tanga.

Each farmer assembled and processed the ginger individually. This therefore implied that delivery of the crops had to be arranged to suit the farmers' assembling and processing. Investments done at this node involved training on organic farming and construction of physical infrastructures for drying and storage by TAZOP Company and farmers. Processing involved hand processing where farmers used tools such as buckets knifes and simple assembling tools such as buckets.

(d) Buyers' assembling and packaging node

At this point buyers received the primarily processed ginger from farmers and then grind it and/or pack for sale. Two organic buyers were known to be active from the two study areas, but they had only bought ginger organic from Mnazi. These buyers were Golden Food Product (GFP) and TAZOP. GFP joined organic ginger business in May 2012 the week the survey started and had registered 108 farmers but only TAZOP had actually, exported organic ginger from Mnazi and Mamba. TAZOP had a collection centre in Tanga city where crops were assembled and packaged before they are shipped outside. At this node farmer carry the title of the goods until they are checked and accepted for packaging. Purchase arrangements were that TAZOP representatives visit and sit in the harvesting season with farmers and negotiate price. Once is agreed the farmers harvest.

The exporters' node is treated under buyers assembling and packaging node because, it is the exporter, TAZOP Company who buys the organic ginger, assemble and package it. Also the exporter once has packaged, ships the ginger to the port for transport to Germany.

(e) Importers node

Importation in a value chain contains transaction characteristics that suffice it to be considered as a different node. These nodes are situated outside Tanzania. The certifiers, governments and international standards (Codex Alimentarius) national standards (such as the US NOP, the Japanese JAS or the Indian NOS) and regional level (e.g. EU-Regulation), as well as for private labels (Soil Association, Naturland, BIO SUISSE etc.) Conditions are prevailing institutions (facilitators and rules of the game) that should hold for this node and affect the other above nodes in particular. This node is barely touched, in this research. Only necessary issues pertaining in this node were brought into discussion with care and precaution that much might have been skipped as it is situated beyond the study. The internet helped to provide necessary information to discuss the necessary issues of transactions in this node

4.2 Transaction Costs in the Export Organic Ginger Value Chain

Transaction costs proxies were used in analysis of the transaction costs. This was because in studying the transaction costs as a cause of failure of farmers participation, what matters is not the unit measure of the transaction costs, but the relative ranking related to that transaction cost and their influence on participation of the transaction partners. Important indications were whether they existed or not and whether they were high or low. In the literature review it was noted that several proxies may be

used but they are subject to criticisms. In this study five proxies were used; these five proxies were: asset specificity, bounded rationality, frequency, opportunism and uncertainty. Related direct costs that could be captured were shown. The extent of transaction costs in affecting market participation is summarized in Table 6.

Table 6: Summary of the transaction costs

TC High/low	Ex ante	During	Ex post
Frequency	**Low** TAZOP and farmers only meet once to negotiate price	**High** farmers travel 7-15 times for delivery of crops due to their not using the advantages of using the cooperative	**Low** TAZOP and farmers meet once for planning next season, also little obligations are held with the farmers. Communications are done with the cooperative **High** as farmers who are not paid at the time of delivery make telephone follow-ups to the cooperative leaders and to TAZOP
Asset specificity	**High** in terms of investing building and drying place (made by buyer TAZOP) to reduce monitoring costs for buyer and avert the risk of contamination of crops **High** in terms of cultivation because of the nature of location specificity of ginger production		**High** in case farmers want to establish the relation with other buyers because the owner of the organic certificate is the buyer TAZOP
Uncertainty	**High** in the farmer node concerning levels of price and sale	**High** in the farmer node concerning if TAZOP actually buy	**High** especially for those who are not paid at the time of delivery
Bounded rationality	**High** in the farmers node as they had little information about organic farming	**High** in the farmers node concerning their low level of education about the use of cooperative in marketing	**Low** as cooperative made it possible for flow of information and that TAZOP maintain a field worker to educate the farmers about organic farming
Opportunism	**High** among farmer and buyer (TAZOP)	**Low** no case of misconduct	**High** as TAZOP uses money to buy other crops and delay paying the farmers

(a) Asset specificity

The study found that, in terms of the formation of the ginger chain there were no private investors that committed resources to invest in value addition of export organic ginger. Note that asset specificity is durable investments that are required for carrying a particular transaction (Williamson, 1999). Investment was lacking in various areas such that there were low productivity per acre (1 to 4 tons per acre instead of 6 to 8 tons recommended) also production per farmer were low (4 tons of raw ginger). Means of transporting inputs such as roads, and machinery were not good. Processing to meet organic standards were not done.

The study found different investments on the organic ginger value chain that otherwise would not be there, after the trade had commenced. There was the invested construction of the ginger processing in Mnazi which TAZOP contributed 15million T.sh in its contraction; in anticipation that the cost would be recovered as trade goes on from the trade benefits. The total investment costs were anticipated to be 25 million. The actual cost of the investment up to the time of this research was not obtained because farmers' contributions varied greatly ranging from various labour contributions to building materials. It can be noted that the investment costs for ginger in Mnazi was all transaction cost because it aimed to make it possible organic ginger trading especially because the structures cannot be used for other crops.

On the side when considering irrigation and mechanisation, topographical features and nature of agriculture investment needed in making them point asset specificity in terms of location of the investments made. This makes it difficult for large area

irrigation. To avert this as water shortages becomes a problem also; farmers join in groups and manage a night pond called *ndiva* in Mamba. The fact that farmers' plots are scattered in different areas in a size of around 0.25 to 1 acre force farmers to join several groups in order for them to get water. This makes it difficult for mechanization and also the structure limits the size of land that someone can access from the fellow farmers to about the size of a single plot in case he/she wants to higher land for cultivation this pointed out asset-location specificity.

Another investment was that which was carried in Mamba that is the building of Mamba ginger processing plant. Specific transaction costs in the case of the Mamba processing factory was not estimated because the farmers had not started actual organic ginger selling. Note that the factory was built to accommodate both conventional and organic ginger processing. An extra transaction cost that would be associated with this investment if organic trade has to start arose because during processing of organic ginger, cleaning of the processing facilities has to be done to make sure that there will be no contamination and such a method has to be certified.

The costs of organic processing procedure plus the certification of the processing would compose the asset specificity costs that would be borne by one of the value chain actors. Otherwise farmers had to do processing of organic ginger themselves at home; according to TAZOP this would lead to higher transaction costs of verification and monitoring of the processing. Although in literature it is said that asset specificity is not a problem in food value chains, this study found the matters to be different by obtaining that in organic circumstances if you don't invest in things that will

specifically be used for organic purposes you might fail. Also in some other circumstances even if the invested materials may be used in the other chains they will need a higher investment to separate them from organic chain like the needs to clean the investment so that there will not be contaminations.

(b) Bounded rationality

Bounded rationality is considered in transaction costs as a separate determinant/ proxy of transaction cost. Bounded rationality refers to the inability of the actors to make informed decisions. Two important things should accompany the decision maker for his decision to be informed. The first is the decision maker should have enough knowledge and the second is the decision maker should have enough information.

It was found that out of 37 farmers interviewed in Mnazi 35 (94.6%) received training on organic agriculture ex-ante where as in Mamba out of 59 farmers interviewed 39 (66%) received training ex-ante. This is evident that farmers did not have organic knowledge enough to help them join the organic chain. Ex-ante information flow also was lacking. It can be noted that farmers had to travel the crops to Towns without having information on the market prior. According to TAZOP before they meet a farmer who was selling ginger they didn't know that ginger was cultivated in Tanga (Mnazi in Particular). When in the process of trade exchange there were still a need for educating; during trade a suppliers may wish to compare prices for the crops he/she is selling from price offers of different buyers, when he/she cannot it implies a bounded rationality.

It was found that the mean age of the respondents in Mnazi was 42 and few obtained a formal education up to standard seven, the majority of them did not earn formal education, experience would be important to counteract the effects of limited rationality influenced by this educational environment, therefore little education cause higher chances of bounded rationality.

Bounded rationality remained to a large extent a problem during the trade. Only 10 (27%) interviewed farmers out of 37 Famers in Mnazi and 40 (68%) out of 59 in Mamba had gained basic entrepreneurship knowledge on financial accounts and records keeping.

Even ex-post when trade has occurred farmers still relied on information systems that do not help them to reduce the searching costs for it. It was found that farmers were waiting for information from TAZOP in Mnazi on whether they would buy or not. At this point however it was expected that TAZOP would inform farmers early in April as it is stated in their agreement but until the end of May farmers were still waiting for TAZOP to inform them.

The cost that farmers have been incurred because of waiting for this information (ex-post) was a failure to make land preparations as new planting season starts in august September therefore harvesting early would assure enough time to do land preparations. Also other farmers have taken initiative to start looking for markets elsewhere, for example there was one farmer who sent his products to Tanga and he missed someone to buy them, as a result he went to TAZOP to seek for a place to keep his products to wait for the next day.

It was found that farmers delayed harvesting for sometimes when the price was low. It is rational to postpone selling to wait for the price to rise. It was found that no one had information on other markets and knowledge on when price would rise, this therefore farmers were limited in their rationality; as a result of lack of reliable buyers, price has dropped from 2500 Tsh of raw ginger in 2009 to 300-400 in May 2012. The lack of research on the increase of production once harvesting is delayed and the lack of information on when price peaks render rationality of postponing harvesting to be limited. In welfare economics they are irrational if they are making losses irrespective of whether they are maximising utility or not.

It was not possible to mark the difference in prices and the increased production as a result of postponing harvesting to wait for price rise. Total costs of this process remained unclear.

(c) Opportunism

Opportunism was explored to understand if there are attempt to breach agreements in anticipation to earn more by one of the transaction partner.

It was found that farmers were opportunistic in their attempt to sell to local buyers. Also it was found that TAZOP was opportunistic in putting efforts to buy more of other crops and lower concentration into organic ginger.

Also it was found that both farmers and trader (TAZOP) were involved in one way or another in breaching of agreements. Remember that TAZOP was breaching the contract on not saying when they would buy in April as stated it was their agreement. During the trade farmers sold portions (e.g. only 20 tons in 2009, where on average

one farmer produced 4 tons) of their produce to TAZOP and the remained to local buyers. Opportunism was derived from two fundamental reasons:

(i) The first was diversification. TAZOP has diversified into buying several spices that compromised their ability to buy ginger.

(ii) The second one was the increase in the number of local buyers. This booming number of local buyers increased price and therefore negatively motivated farmers to sell to TAZOP at the price they agreed.

Note that there were no specific times that transaction partners in organic sector would anticipate local buyers to buy; the local buyers come instantly as they find quick income generation opportunities. Note also that the conventional chain of ginger was highly not regulated by local authorities and required ginger of relatively lower quality to that of organic chain.

(d) Uncertainty

Uncertainty is the inability of decision makers to specify a complete decision tree as according to Williamson (1975) because of the complexity in the environment for which the decision makers (traders and farmers) are operating**.** Uncertainty was assessed to determine whether there were areas players felt uncertain about, ex-ante the transaction, during the transaction and ex-post. Uncertainty is a cost by itself and it tends to aggravate other transaction costs such as hold ups and increase the need for more investments there by creating vertical integration. Williamson (1979) argued

that it only aggravate transaction costs if there is opportunism and that players will tend to define their contract and align the relation to other players if the market is competitive and if asset specificity is low. It was found that farmers were uncertain in different areas; it is as shown in the table below. When there are activities needed for the particular transaction but are dependent on geographical environment, uncertainty about the environment tend to create a higher transaction cost.

Out of 37 interviewed organic ginger farmers from Mnazi 94.1% expressed their feeling of uncertainty on various aspects. It was also found that some farmers were uncertain on more than one issue. Environmental uncertainty was there and created a higher transaction costs because ginger was solar dried which depends on the weather. This has led to some farmers to express that you rather sell your products in raw form than depending on selling them in a dried form if all you have to do with the dried ginger is selling them in the organic market (Table 7).

Table 7: Areas farmers felt uncertain on the ginger value chain

Ex-ante	Percentage	During	Percentage	Ex-post	Percentage
Meeting the standards	63.6	Whether TAZOP would buy or not	40.5	Farmers are uncertain now on whether they will get capital to keep on farming	81.1
Whether market would be reliable in terms of volume demanded	71.9	Environmental uncertainty	10.8	Farmers are uncertain now on whether they will get a market for their produce if TAZOP did not buy	64.9
Whether market would be reliable in terms of price they offer.	59.5	Whether the farmers' produce would be bought in time	18.9	Farmers are uncertain now on whether they will get be informed early on the coming of buyers	40.5
Whether the labor market would be reliable	5.4	Whether they will secure market in terms of price for their produce	40.5	Farmers are uncertain now on whether they will get a satisfactory price once the buyers come	48.6
Whether I could get capital to start organic production	75.7	Whether there will be availability of market in case TAZOP fail	21.6		
Whether I could get the right information from fellow farmers	18.9				
Whether the application of organic techniques would lead us to produce as expected	27				

There were also other aspects that were a raising uncertainty with the government projects. TAZOP said that following experience in the spray of mosquito in the malaria control campaign in Zanzibar they were uncertain on whether the government would do the same in the whole country. To avert this therefore TAZOP decided to invest in construction of warehouse away from the farmers' houses. The investment vested is merely a transaction costs in organic ginger case.

(e) Frequency

Frequency is the number of times that transaction partners carry their transaction or meet for a purpose aiming at infecting the transaction. The study found that the time of actual exchange between TAZOP and an individual farmer was once per production season.

The number of times that TAZOP meet with the farmers for different purposes is 3 times per each production period, once to negotiate price, once to do an evaluation of organic members and once for inspection. The number of times that farmers harvest per the production period was once while very few farmers (7% for Mnazi and 15% for Mamba of the interviewed respondents) harvest more than once (2-3 times) per production season. This was because of selling into different markets.

The number of times that the crops were delivered to TAZOP by each individual farmer was once. That is a farmer who ought to process for selling to TAZOP, harvested and processed only once. The number of times that TAZOP receive the

crops per the whole production period range from 7 to 15 times. This was because farmers delivered the crops individually and in some other circumstances few farmers collect the crops together (three to five) farmers to deliver the crops together.

Also some farmers carried some other farmers' products to TAZOP where they shared the transport facility. The action that some farmers carried other farmers crops to TAZOP lowered the transaction costs associated with frequency of delivery. However since there were no clear monitoring systems, to ensure that there was no adulteration on the way by the farmer who delivered the crops, it gave a room for higher costs in case the farmer who delivered the crops was opportunistic.

The delivery system had effect on designation of payments. Because of the fact that farmers had to organize for individual delivery it made it difficult to make payments in lump sum through the farmers' cooperative which would reduce the costs of bank charges and travelling several times to get money to pay the farmer in the side of TAZOP and costs of making follow-ups by farmers who were not paid at the time of crops delivery.

Farmers and TAZOP met every season to do price negotiation. The study found it was because their contract did not state appropriately the price terms and therefore this tended to increase costs of travelling and negotiations, these ranged from time spent during negotiations to the direct costs of organising for that negotiation. It would be expected that a fixed price would encourage farmers to sell to TAZOP, but it was difficult to specify a fixed price due to high price fluctuations. However,

TAZOP and farmers negotiated just a general price at every season that would change with respect to the prevailed market price.

When delivering the products farmers reported that it cost them about one day plus other indirect costs such as meals and accommodations. These costs tended to be high because when estimated to compensate on that day, food costs, time costs, travel costs were summed to be 10 000 Tsh on the side of farmers. Since TAZOP agreed to buy few crops this costs becomes too high. For example a farmer who processed only 100 kg of ginger and receive 1000 Tsh per kg would have incurred delivery transaction costs that are 10% of the gains from the trade.

On the side of TAZOP also, transaction costs were high since travelling 200 km implied costs of fuel and personnel. Note that in the contract the price was not stated and therefore it was left to the prevailing market conditions to be used as a point for setting the new price every season especially when the farmers and TAZOP meet for price negotiation.

The frequency of delivery to TAZOP would have no much of transaction costs to the buyer if a single farmer was delivering the consignment that is enough to be shipped by TAZOP to Germany, and that if a time range would be agreed between cooperative and farmers to deliver the crops within that range of time, however the size of land owned and the size of land cultivated by the farmers hindered this prospect.

4.2.1 Sources of transaction costs

Apart from the discussions on which and how transaction costs were affecting organic ginger farmers there were other reasons that were causing generally the transaction costs proxies to be high. The following were observed to be sources of the transaction costs:

(a) The organization form of the cooperative

The way a certain cooperative is theoretically organised and the way it is practically functioning has a close link to transaction costs. A cooperative is an organisation of people with similar interest; it is a cooperation of individuals which is working to the advantage of the members by organising certain economic activities of the member society so that the costs that would be incurred individually are no longer felt or so that there are shared benefits that an individual cannot get out of the cooperation.

Economic activities in the society that can logically be organised by a cooperative such as processing, cooperative transportation are carried in a cooperative way in an economizing way. Activities like cooperative bargaining are less costing when they are done by a cooperative firm than individually because of the lower cost that the cooperative tend to attain from dissipating rents of the fixed costs, obtaining market information and other services. However it was found that farmers were marketing their crops individually after a cooperative price negotiation with TAZOP, and the remained activities such processing and delivery that could be done by cooperatives were performed individually.

Delivering individually implied that every individual farmer has to plan for ginger delivery alone. This indicates that he/she has to incur costs that are associated with the whole requirements for delivery. On the other side of traders more time, papers and ink were required than if the crops were delivered by the farmers' cooperative in bulk. Also meeting several times for monitoring and to negotiate for price was found to result to relatively higher costs for both parts as they have to both commit resources that they would otherwise not. Monitoring costs have been contributed by the organization form of the cooperative because of the fact that if crops would be delivered cooperatively farmers would feel more responsible to observe the codes of organic quality. There are many prepositions for the fact that farmers have not taken the advantages of having the cooperative to process and deliver the crops, thus reduce the unnecessary transaction costs discussed above. These are such as: Cooperative and the organic chain itself in Mamba and Mnazi are young in the manner that they have not existed for long time, thus it might hinder the extent for which farmers are experienced.

The level of education of the members of the cooperative also could be a reason for farmers to not use the advantages of being a member of the cooperative. In the previous discussion about bounded rationality it was shown that the thinking along an established way may satisfy the economic agent by attaining a certain threshold of satisfaction that economically might not be optimal economic utility. Education of being in cooperative would help members to acquire more advantages by assuming as many activities as that can rationally be taken in a cooperative way.

(b)The presence of a stronger conventional chain than the organic

The study also found that the presence of a stronger chain that is parallel to organic chain tends to create transaction costs for crop marketing especially when there are no differentiations to distinguish between the different chains of similar product. The study also found that under this circumstance all transaction cost proxy variables tend to be high. Asset specificity tends to be high, this is because different organic marketing process has to be certified against the conventional one to make sure that trade is carried.

There were two important chains in the study areas found to be operating parallel. One chain was involved in trading organic ginger and the other one conventional ginger. The governance structures that help transactions are quite very different: firstly the conventional chain has no quality specification, whereas there are several strict quality specifications for compliance into organic. The quality specifications cause competition between traders involved in the two chains to be stiff and discouraging in the side of organic; this make environment for running organic trade difficult. However the two chains influenced each other.

In the literature; the co-existence of similar structures in different value chains predicts convergence of the chains towards a more efficient trade (Da Silva and Saes, 2007). By this evidence if let to run at ease organic value chain would eventually die, which would be preceded by decline in price for conventional trade and at last eventually they would all (conventional and organic ginger trade) die. This is because farmers would be discouraged by price to farm ginger and concentrate on farming

other crops which pays more than ginger. For example Tomatoes would be cultivated instead of ginger; farmers reported that they may get up to 3 600 000 Tsh per acre per single harvest compared to 2 400 000 Tsh from ginger.

Under a situation of market where tomatoes would be delivered quickly, to the market to overcome the problem of perishability, it would be a better crop than ginger. However, asset specificity for tomatoes would be a constraint in case they needed to fully turn into farming tomatoes instead of ginger. Note also that tomatoes would be harvested from the third month while ginger is harvested in the sixth month. While farmers are shifting from cultivating ginger local traders would be discouraged to buy because of very little production and because they only come when harvesting commences while they have no story of what takes place in the other stages of farming. The more these two chains existed the same way as in the beginning therefore the more likely that the organic ginger chain would die and eventually cause the death of the conventional chain.

(c) Local Government programs

In spite of the benefits provided to the community by the government programs they may act in value chains as a barrier to trade. It was found that provision of subsidies to farmers was causing a direct and influential rise in the transaction costs. For example, the malaria control program. In this program the government sprays chemicals in homes to kill mosquitoes, because of the structure of the farming households where household houses are as both a business unit comprising storage of crops and a home. Uses of chemicals that will compromise organic standards are

discouraged. Therefore when the government programs are not well understood they may sink transaction partners to a higher cost later. This is the fact that TAZOP decided to invest in construction of warehouse in Mnazi about three kilometers from people settlement so that there are no risks of contamination with the mosquito spray when the government spray to control mosquitos.

4.2.2 Econometric predictions of the participation of farmers in export markets under transaction costs

4.2.2.1 Results of the logistic regression

Logistic regression was used in prediction of the participation of farmers into export organic market under transaction cost. The model fitness in logistic regression is determined by the probability of the model chi-square (16.86) which was found to be 0.005 significant at 1% level of significance. Therefore, the model of farmers' participation with repressors was better in predicting farmers' participation than the model with the constant only. The Cox and Snell R square which was found to be 51.12% indicate that 51.12 of the specified model coefficients explain the decision of the farmer to participate into selling organic products.

Model coefficient related to transaction costs were such that the levels of transaction cost proxies related to Assert specificity, opportunism and frequency were significant in influencing the choice of the farmer to sell into organic ginger markets. However bounded rationality and uncertainty were not significant.

In the model out of 10 independent variables used 6 were significant in influencing the decision of the farmer to sell ginger into organic market and hence influence participation into export organic markets. Likewise the independent variables of the distance to the markets and processing points were found to be significant.

Asset specificity variable were significant with the coefficient value at 5% (Table 8). This implied that the decision of the farmer to participate into export organic market was affected by the level of asset specificity. Since the coefficient was negative the relationship was that high levels of transaction costs related to asset specificity were reducing the possibility of the farmer to sell into export organic markets.

The study found also opportunism to be significant at 5% and negative (Table 8). The more farmers had options and independence to sell to whichever channel they like reduced the probability of selling to organic channel.

There was expectation that all the transaction cost proxies would have negative impact on participation the higher they would be, except frequency; which according to Williamson (1991) increase the possibility of participation by reducing transaction costs ex-post. This was not the case. Frequency had a negative relationship to participation with significant at 1% level of significance (Table 8). The reason can be that value chains or market channels that have few years of existence may have lived too short to realize the importance of having high frequencies of transaction.

The size of the land a farmer owned was significant at 1% in influencing the probability of the farmer to participate in export organic markets (Table 8).

The study found a negative relationship between the size of the land owned and probability to participate in selling organic. This was contrary to the initial expectation. The reasons could probably be that, those who own the land have far better options to utilize the land apart from cultivation of ginger therefore giving confidence that it is not a must to sell organic. Also, since there were alternative markets for selling ginger, monopolistic tendencies were reduced. According to Minten (1999); Kirsten and Vink (2005) alternative market channels increase efficiency of the market system by prevention of monopolistic tendencies. The little tendencies of organic channels to dominate the sector might have spurred the negative coefficient values of land ownership as the farmer have higher produce and hence finds it easier to sell to any market of her choice.

Proximity to organic ginger selling point had also negative relationship significant at 1% (p-value of 0.008). This implied that as farmers are located far from the markets they are discouraged to participate into selling organic ginger. This is probably because high proximities imply high transaction costs to bring the produce to the market place and therefore encourage the farmer to utilize other options. According to Kirsten (2005) short distances to markets reduce the magnitude of transaction costs. This therefore imply, less time, less fair, less transportation costs and fewer risks to be incurred in delivery of products.

Table 8: Results of the multinomial logistic regression for participation of farmers into export organic markets

Independent variables	Coef(β)	Stand error (se)	Sign.	Exp(B)
Constant	14.287	9.191	120	1603152.870
Sizelandown	-.577	0.526	0.003***	0.562
Landowner	-8.859	5.340	0.197	0.090
Trnsexist	-0.114	0.07	0.097*	0.997
Exttransa	-2.44	0.834	0.013**	11.931
Exttranu	-2.11	0.28	0.172	7.11
Exttranb	-0.78	0.03	1.072	1.22
Exttrano	-0.131	0.021	0.047**	0.891
Exttranf	-1.53	0.73	0.022**	4.517
Distancet	-.013	.897	0.008***	.987
Distancett	-.948	1.074	0.377	.388
Cox and Sneill $R^2 = 0.5112$				
P value = 0.005**.				
Chi-square = 16.86				

Note: the base outcome is selling via organic channel.

*** Means significant at 1% while ** and * means significant at 5% and 10%, respectively.

4.3 Contribution of Facilitating Institutions in Influencing the Lushoto and Same Organic Ginger Value Chain.

The study found different organisations which provided services in the ginger value chain. These organisations are categorized and described according to their functions. The description groups these facilitators as: research and government institutions, farmers associations and the NGOs, and certifiers. The study have identified the mode of the organic ginger value chain governance, different institutions including organisations and the rules that have to be adhered by the transaction partners. Also under the governance the study studied the determinants of power.

4.3.1 Institutions identified and their contribution in the ginger value chain

4.3.1.1 Research and government institutes

Research is a kind of facilitation in the value chain. It is required in almost every transaction node. The study found that, Local Government Authorities, Seliani Agriculture Research Institute (SARI), HortiTengeru, and Sokoine University of Agriculture were organizations that were found to assist in research and actually doing research in various respects. Selian and HortTengeru, were developing improved ginger cultivars, Sokoine University of Agriculture was doing research on Marketing specifically of spices and marketing, the Local Government Authorities were exploring possibilities of partnership for better market performance. Apart from facilitating research by providing permissions and advising farmers to provide land to carry experiments Local Government Authority (LGA) has also been working in the creation of suitable business environment such as maintaining peace and harmony through enforcing customary/ local laws especially those that are related to conservation of environment and use of the local natural resources.

4.3.1.2 Farmers associations

Associations in value chains are formed to make certain elements of transactions possible by rendering constraints inactive in certain situations. Farmers associations in the study area were of two types. First of all there were small formed farmers' groups in Mamba which were formed out of water scarcity forces. The second were two cooperatives one in Mamba and the other in Mnazi. Cooperatives found in Mamba and Mnazi, which particularly deals with organic farming were Mamba Ginger Growers Rural Cooperative Society LTD in Mamba Same district; and "Ushirika wa Kilimohai Tangawizi Nkhombo" for Nkhombo organic ginger cooperative in Mnazi in Lushoto District. Mamba Ginger Growers Rural Cooperative Society LTD had 158 numbers of farmers who were in conversion into certified organic ginger. It also had 22 small groups which are formed by 10-15 farmers.

4.3.1.3 Financial institution

Financial institution provides tailor-made financial support to traders and farmers. In the financial institutions found in the study area were banks, SACCOs, Private Agriculture Sector Support (PASS) and local money lenders. The study found that most of the banks lend money to exporters input suppliers and SACCOS. Private Agriculture Sector support (PASS), SACCOs and the local money lenders provided credit directly to farmers.

All people and organisations, especially the farmers obtain financial services in different places and proximities, Farmers relied on borrowing from SACCOs, Local money lenders and PASS. The study found that banks provided loans along the ginger value chain. These were National Microfinance Bank (NMB) and CRDB bank.

The Banks are situated far from the farmers' locations. The distance from Mnazi and Mamba to Same town where the banks would be found were about 75 km each. The distance from Tanga to the study were 200km and to Moshi were more than 250 km.

4.3.1.4 Non-governmental and faith based organizations

There are different support services that provided to actors along the chain by NGOs and some Religious affiliations. It was found that there are two NGOs prevalent in the study areas who were working in development of organic ginger. These were TOAM and FAIDA MaLi. Also it was found that there were two religions found and which residents inclined in them which were Islam and Christian Religions.

(i) **TOAM**

TOAM is an organic umbrella of all organic stakeholders. TOAM stands for Tanzania Organic Agriculture Movement. The main functions of TOAM here were to provide technical and institutional support to different other stakeholders such as the buyers, farmers and LGAs on the production and marketing of organic ginger. It is the effort of TOAM that saw the government putting more effort to organic industry. Some of the institutional and technical support that TOAM provided was to train the farmers and structuring of the famer-buyer contract.

(ii) **FAIDA MaLi**

This is an NGO who has been working in the value chain development mostly in Same. In the development of organic ginger value chain FAIDA MaLi was among the partners with TAZOP and TOAM. Although it does not deal solely with organic, it

has played significant role in creation of the value chain for ginger and the reduction of transaction cost mostly ex-ante.

(iii) **Religious institutions**

Christianity is dominant in Mamba where all interviewed respondents were Christians. The church has a system of giving information to their follower by direct and notice board announcements. Also the church is geared in providing education and maintaining peace and harmony in the society. The contributions of the church directly can be seen in reduction of information cost and creating environment in reduction of uncertainties and possibilities of opportunism where the followers likes to be more adhered to rule of laws. However it was a very important facilitator, by the fact that they insisted on making of terraces for environmental conservation.

Islam is dominant in Mnazi where out of 37 respondents interviewed 35 were Muslims. The functions of religion have a profound effect in the value chain. Therefore like Christianity Islam played a big role in the organic ginger chain through making information such as calls for meetings available. For example during the discussions with farmers they said because they are Muslims they cannot breech the agreements that they set prior to the undertaking of the chain.

4.3.2 Organic ginger value chain governance

Organic ginger value chain for export market has four parts as in Fig. 5.This chain has a system of governance that is determined by the players in the organic chain and players in the conventional ginger chain. In the governance of the value chain the study aimed to show the dynamics of power and control among actors in this chain

and how particular transactions were organised. The value chain that is balanced in terms of power dynamics is more secure in terms of distribution of the trade benefits and influencing transaction costs along the chain.

The study observed that the organic ginger value chain was a limited relational transaction in which there were many suppliers but only one buyer who linked farmers to a single buyer in German (Tangtraum-tea). Commodities were highly specified and there were no differentiation. Little information was exchanged between farmers and also between farmers and TAZOP and this had helped reduce transaction costs of frequent communication, but tended to make costs of seeking for information to be high. However information exchanged between farmers were much higher than those exchanged between farmers and TAZOP. On the other hand, farmers were organised into a cooperative.

Overall arrangement of transactions were done by the cooperative where, TAZOP influenced the cooperative leaders to call a cooperative meeting where they negotiate price and agree on the quantities that TAZOP would buy on that respective season. They also agreed on when TAZOP would be ready to receive the crops, then farmers planned a schedule with their cooperative for harvesting and processing before at different times supply them individually to TAZOP.

Before going into various determinants of power and control, remember that the organic ginger chain is composed of many smallholder farmers who are organized into a cooperative. The farmers sell their crops to an exporter (TAZOP) individually

but some other arrangements such as when to harvest are done collectively in a cooperative. And that this exporter sells to a single importer in Germany (Tantrum-tea). The cooperative in this manner is not involved in all aspects of transaction of organic ginger.

Figure 7: Illustration of the export of organic ginger

The functions that the cooperative involved included hosting bargaining, and owning the ginger processing facilities that are given to farmers. The cooperative also organise the procedures in case the farmers wants to process. This was because there were few facilities and therefore to enable every farmer to process, a plan of who should be processing when had to be organised.

4.3.3 Distribution of power along the organic ginger value chain

Given the numerous farmers and the functioning of the cooperative, ability to determine quality, ability to measure quality, price determination, price negotiation, the securing of information and the number of options to choose, were observed to be drivers of power and control in the value chain. This was because under organic value chain standards have to be met at every level of the products value addition, and that every player stood in a different chance to dictate what exactly have to occur for a better performance of the chain.

Farmers determined the quality of what they produced. This was because the prime quality of ginger started at production level where inputs and holistic measures are observed. They could hardly measure the quality parameters; they also determine quantity produced but could hardly seek business information. The study also found that farmers had little options for selling off their organic ginger as they didn't own the organic certificate which instead was owned by TAZOP. As the result, individual farmers had little control over the chain and therefore it was expected transaction costs to be very high the more they deal within different levels of transactions individually instead of being in a groups/cooperative.

Likewise the transaction costs of shifting to another buyer at the farmers will or the switching costs were expected to be very high. The shifting would be accompanied by high level of uncertainties on whether they could meet standards; it would also require more investments in terms of infrastructures and certifications. This scenario compromise the organic ginger value chain when the buyer TAZOP is not buying and farmers remained with the options of selling only to TAZOP as organic or selling to conventional buyers.

Individual buyer (TAZOP) had almost similar levels of power to that of the cooperatives, but they had no ability to determine quality and quantity, they could just influence these parameters of power (Table 9). The determination of the quality of the produce was mostly done at production and processing stages; since substantial part of production and processing is done by farmers, what TAZOP could do was to make sure that they work closely with farmers so that that the quality and quantity

parameters are met either by trying to enforce laws or educating the farmers on the quality and quantity parameters.

The ability of TAZOP to measure quality was low especially when we consider the oil content and containment of impurities such as whether the farmer opportunistically applied fertilizers that are not needed in the organic ginger sector (Table 9). Also ability to measure moisture was low although there was a system of understanding that the ginger chips were dried to required moisture content level which was by bending the chips if it cracks easily it is well dried.

Table 9: Illustration of the determinants of power and control along the organic ginger Value Chain

ACTORS	Ability to determine quality	Ability to determine quantity	Ability to measure quality	Ability to negotiate price	Ability to seek information	Number of business options
Farmers	High	High	Low	Low	Low	Low
Cooperative	High	Low	High	High	High	Low
TAZOP	Low	High	High	High	High	High

It is therefore when we came to the question of power in the organic ginger chain we found that TAZOP may relatively be more powerful than farmers and their cooperative because they stand in a better chance to access and determine the selling options for organic ginger. However it was observed that matters are turned when we consider that farmers can sell their crops as conventional at a profit ratio that was higher than in organic chain. This therefore shows that the governance of the organic chain is determined by governance in the other chains and hence transaction costs also are influenced by the other chain.

The cooperative had a better ground to seek information, negotiate price, access wider markets the points which qualify a cooperative to have a wider market option in case they get another certified buyer.

4.3.4 Governance structures identified in organic ginger value chain

In the literature review it was explained how governance structures emerge as transaction partners find it difficult to continue transacting because of transaction costs. The governance structure explained were spot market transactions, contracts and vertical integration. In the case of this study only one form was found which was contract when we consider relationship between farmers and TAZOP but there were a little form of vertical integrations (downstream) on the side of farmers to invest in inputs production, particularly fertilizers. Also some farmers had invested in inputs supply as explained on the shops found to trade in inputs supply.

The study found three types of contracts when we consider who were contracted. There were contract between farmers and TAZOP; there were contract between TAZOP and Germany buyer (TAGTRAUM TEA Company). And lastly there were contract that bound farmers to their cooperative.

4.3.5 The influence of institutions on transaction costs

The institution's role on transaction costs are overwhelming and cannot be measured in its entirety. The institution is taken to mean the rules of the game (laws and regulations for running different activities in the value chain) and the structures or game players (different organizations) in that particular chain that are working to

effect the particular transactions. The discussion in here are also organised following the game players and the rules of the game.

(i) **Tanzania Organic Producers (TAZOP LTD)**

TAZOP was recognized as one among the initiators of ginger export from Tanzania. Ex-ante the trade TAZOP has helped in minimizing transaction costs in asset specificity by building a precautionary warehouse for farmers to dry and store their ginger. TAZOP observed that without a warehouse away from farmers' home organic trade would be difficult (note that farmers' homes save sometimes as a business unit where they store the crops in the houses). TAZOP also help reduce uncertainty by building trust to farmers. This was by signing a short term contract with them which they later changed it to be a long term contract. The reason given by TAZOP as to why they changed to long term was that they were required so by the certifier (IMO).

During the trade they found it important to employ field workers. These field workers were trained to help monitor qualities in the field. TAZOP have kept on providing training to the farmers whenever necessary. Also they have been providing for free storage area for members' crops at Tanga town even at the time they are not buying.

Training help to reduce transaction costs of bounded rationality as well as reducing the chances of the trader to be held up by production of ginger that do not meet organic standards or that would otherwise be rejected in the organic market.

(ii) **TOAM and FAIDA MaLi**

FAIDA MaLi started to work in these areas particularly in Mamba before intervention for strengthening organic trade (before 2007) by training farmers on terrace farming and water conservation and also strengthening and organizing farmers groups to make sure that they have functional capacity such as records keeping. When organic chain development started TOAM and FAIDA MaLi were involved with TOAM in conducting studies and training to farmers that helped change productivity from a range of 1-4 tons per acre to an average of 6 tons per acre (TOAM, 2009). TOAM was established in 2005. Soon after its establishment it saved as an umbrella for all organic stakeholders in Tanzania and stood as a centre for connection of all stakeholders in organic industry and abroad. TOAM saved a significant role in identification of demands for different organic products and hence influence supply. By so doing they reduced the transaction costs of: seeking for information, that is the costs of searching and verifying information; reduced uncertainty on the side of farmers on whether their crops would be bought or not. TOAM helped reduce information costs to traders of organic products where they receive calls from traders who want to know where they can get organic products.

Under a situation where transaction costs are barriers to trade, bridging information gap tend to create chances of reducing other transaction costs. For example after the information is created and establish, transaction partners may wish to redefine their relationship in a way that strengthen the trade ex-post. Also information helps transaction partners to make rational decisions. The more information becomes costly to obtain the more other governance structures such as contracts and hierarch are

difficult to be formed. It is observed in the literature that, if there are very high investment costs required, vertical integrations to share the costs or complex contracts may be specified and hence reduce shirking risks that would be felt under spot market transactions or simple contracts.

The study found that there were several measures taken by TOAM such as assisting transaction partners to attend trade shows outside the country such as in Germany and inside such as Nanenane and sabasaba shows.

Training on making organic fertilizers assisted ginger farmer to obtain organic fertilizers that they were sure it meets the required standards as well as reducing the production costs. Also the study found that farmers were using fertilizers from low lands that tend to be more costly than making on their own. For example a bag of organic manure tended to cost 5000 to 10 000, instead of incurring these costs some other farmers used compost made from home garbage.

Direct investment; TOAM organized fundraising to build an organic ginger factory in Mamba. This was after the large investment costs required that no private actors would dare to invest. In the literature review we saw that when asset specificity is very high, it becomes uncertain for a private actor to invest into that particular chain.

(iii)**LGAs and Central government Influence**

The influence that any government organ can play in influencing participation in a value chain is large. The LGAs (Same and Lushoto) in association with the TOAM

and TAZOP conducted training and sensitization to buyers. Training reduces limited rationality while sensitization tends to make it easy for getting information.

Local government influence in this chain also has been in providing fertilizer subsidies. The influence of subsidies to smallholder farmers' participation in organic ginger trade is as follows:

Inorganic trade institutional arrangements does not allow the use of synthetic/inorganic fertilizers, by giving farmers inorganic fertilizer subsidies it increase the chances of opportunistic farmer (those who will mind to increase production while they know that inorganic fertilizers are prohibited in organic foods) to apply them. Therefore this has raised the transaction cost of frequent monitoring. TAZOP had to make frequent monitoring because they trusted that same other farmer would decide to use the subsidized fertilizers. The increase in frequency of monitoring increases the transaction costs on the side of TAZOP. A working Participative Guarantee System monitoring and the fact that TAZOP maintained two field extension facilitators to monitor organic farming in the field helped minimize the chances.

(iv)**Legal structures**

Legal structures that prevailed in the chain and the institutions for their observation helped the formation of the chain and permits for other structures such as the flow of information to smoothly persist. The laws and contracts existence influence trade at different stages such as follows:

In both the two study areas the study found existing customary laws such as those which limit any misuse of water, and the procedures to govern the ways in which trade has to be carried. In Mamba there were tight regulations protecting environment specifically water sources. If a farmer or any other person breaches the rules like theft of produces especially when the price is high was another institutional impediment, this is because there has not existed a way to understand or at least predict how many will every farmer harvest.

(v) **Contract**

Different contract formed an integral part in influencing participation. It was evident that farmers were initiated into the initial activities of organic ginger value chain development without fear. It was also worth enough for a start of organic ginger export.

A very crucial contract was that conducted between farmers and TAZOP through the farmers' cooperative. The contract also influenced participation by reduction of the risk of TAZOP being held up from farmers shirking after they have paid for the costs of certifying the farmers. This worked for a short time because after price shoot in the informal market from 70 Tsh to 2500 negotiation with farmers for them to accept 2700 the price proposed by TAZOP for a kilogram of dried ginger chips failed.

Since the contract did not have stringent specifications to safeguard parts against the other parts breach it has played a big role in favouring conventional chain in the expense of organic chain where farmers can freely sell the ginger there and traders can freely come and buy without any structural barrier to entry.

4.3.6 Institutional constraints in reducing transaction costs and influencing participation

The study observed different constraints that spurred market failures that later produced; difficulties in positively influencing reduction of transaction costs. These are as follows:

(i) **Access to capital**

The institutions founded to deliver financial services in the study area can be categorized into informal and formal financial institutions. In Mamba there were one SACCOS and that the cooperative was making arrangement to get loans from banks to buy ginger from the farmers. In Lushoto and Same District headquarters there were physically accessible banks. The study found that confidence and compliance to use formal financial institutions such as banks were found to be difficult for a smallholder farmer. On the contrary confidence and compliance to use informal ones was high but it was found that informal institution's services were very costly. There were structural impediments that limited farmers to use formal financial services. These are collaterals needed by banks and psychological impediments such as bad experience that borrowers have had with MFIs where lenders had lost their home utensils after they fail to pay the loan.

(ii) **Access to land and irrigation**

It was observed that all farmers have small plots which they farm their ginger. Renting land was found to be very costly and renting structure was vague. Rent payments were sometimes crops, others money and others pays their labour

depending on different circumstances. The study found that farmers pay for rent crops about half of the whole harvest. This therefore indicates that there is institutional failure to properly allocate for land access.

(iii) **Access to transportation**

In both the two study areas the means to transport the produces from the farm to the drying place in Mnazi or to the storage stores in Mamba is by carrying the crops on head. It cost an average of 200 Tsh to pay someone to transport 15 kilograms of ginger from the farm to the selling point in Mamba and from the farm to the cooperative processing center in Mnazi. The transport cost was about 5% of the price that the ginger was normally sold in organic ginger market. It was also found that because of high rough topography farmers must pay a higher price for labour, and be constrained in investment of assets that would have reduced the costs of transport.

It was found that there were no cooperative arrangements to transport the crops after processing points to the buyer's premises nor were there arrangement for the buyer to fetch the products from the farmers processing point. This made it difficult to share benefits of access to the transport for farmers. Also along the road there were found to be road blocks for inspection and taxation. Taxation was paid per 250 kilograms bag at 1000 Tsh also on the inspection apart from delays that farmers said they face they are asked to pay for bribe ranging from 2000 Tsh to 50 000 Tsh per truck. These costs are borne by farmers who are doing organic ginger and by middlemen buyers who transport crops from the study area.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In the mapping of the ginger value chain, assessment of transaction costs and assessment influence of instructions in value chain the following can be concluded based on the main study findings and observations from literature.

5.1.1 Organic ginger value chain in North Eastern Tanzania

Ginger value chain from Mamba and Mnazi wards pass through two different important value chains outlet. The literature and the study identified two main value chains for the same products which were conventional value chain and organic value chain. Both literature and study observations found no differentiations of the products moving along the two value chains. Farmers chose selling between the two irrespective of whether she/he was certified to sell into organic value chain.

The study also identified five transaction nodes in organic value chains with respect to different activities that bring about changes in transacting the products between the inputs suppliers and the buyer in German. In literature defend levels/transaction nodes are identifies and it is observed that it varies with respect to the kind of the product of which its value chain is being mapped.

Lastly, both literature and the study observed presence of different players and regulations along the value chain. The players are placed across and among various value chain nodes often terms levels in many literature. The study observed, apart

from transaction partners, the presence of organisations that operated in the development of the organic ginger value chain but principally they carried no title to whatever form of the product being marketed.

5.1.2 Transaction costs, in the export organic ginger value chain leading to the market failure.

The study in line with literature observed a negative relationship between participation of the farmers into export value chain and explanatory variables of asset specificity, opportunism. The observation of a negative relationship between frequencies of transaction and participation was significant and contrary to stipulation by (Williamson, 1991).

The study concludes also that cultivating small plots of land makes it impossible for an individual farmer to consume the transaction and hence export the organic ginger, therefore conforming to the literature that fewer production gives little options for a farmer to participate in markets. To consume a separate contract from that of the exporter, studies assert that larger amounts of land cultivated and large productions spur the probability and confidence of the farmer to navigate along different contracts. Partnerships established with neutral actors who did not take title of the commodities traded helped to reduce the transaction costs and hence cause the organic ginger trade to start and go on. Asset specificity in agriculture related investments was a problem particularly when considering organic investments as found in the study.

In literature, during carriage of transactions, transaction costs of asset specificity, bounded rationality, opportunism, uncertainty, and frequency of transaction influence the performance of the market and the local economy at large. All these five transaction cost proxies as stipulated in literature and this study, are influenced by the structure of the economic organisations operating in that value chain. For example the way the cooperative is organized, practically operate its functions hence the whole value chain governance.

5.1.3 Contribution of facilitating institutions in influencing the Lushoto and Same organic ginger value chain.

Transaction costs were constraining participation of farmers and that they have been the main reason for structuring the institutions in a way that minimized the transaction costs and improve participation. The influence of two main NGOs (TOAM and FAIDA MaLi) helped to form the value chain after creating enabling environment for trade to take place was substantial. Trust building is the central realm of establishment value chains, building of economic organisations and affecting various forms of governance in value chain.

Therefore actions of organizations aiming at facilitating chain partnership, and redefinitions of the ways to carry the transactions after the trade or the relations after trade and after transaction; were important in shaping the ways by which the organic ginger chain was governed. This is because integrating farmers into the chain needed that they are built in terms of capacity by educating them and organizing them into groups, the task that was performed by TOAM and FAIDA MaLi as core facilitators.

However their influence were not enough to guarantee for sustainable export, as export declined to an extent that no organic ginger were exported in 2010 and 2012 from the two areas by the organization that was known to deal in organic ginger export. If there are no efforts that are done to change the way the chain is carried, the chain would eventually die. Death of organic chain would not mean movement/convergence of organic and conventional systems towards a more efficient system as theory/literature suggest but it was leading into farmers abandoning ginger farming so that they cultivate other crops, implying the death of the whole organic ginger system.

Institutions (specifically that contained formal organizations) had a positive influence in organic ginger trade. Also institutions directly or indirectly favoured conventional trade on the expense of organic trade for example the lack of clear rules that would govern how trade across and among different nodes of the value should have been carried.

5.2 Recommendations

Following the results and discussion above and the conclusion made thereafter it is worth to draw recommendations to help reduce the extent of the market failure by developing appropriate governance structure, designate the institution to suite the transaction partners and identify gaps for further research; below are important recommendations drawn.

5.2.1 Selling arrangements

It is recommended that in Mamba since the cooperative own the processing facilities, they have to enter into a long term contract with the buyers such as TAZOP and/or GFP to provide them with the ginger in processed form. The buyers are supposed to be there when the ginger is dried or else the cooperative should guarantee quality compliance with organic standards.

In Mnazi reorientation of the current selling model is important. The farmers have to keep on drying the ginger in a cooperative way and TAZOP should buy the ginger at their warehouse right after it is dried. Another option is of TAZOP to use the Mamba factory to do the drying and therefore buy raw ginger from the farmers. This second option requires that TAZOP make a thorough evaluation between letting the farmers to dry or drying it at the factory by understanding the procedures needed to dry the organic factory that dries also conventional ginger. The last option is the cooperative in Mnazi can be capacitated to dry the ginger then the cooperative send the crops to TAZOP then finally distribute the earnings to farmers. In this last option the cooperative may buy the ginger from the farmers and therefore stand as the mediator. Also in this last opinion instead of the organic certificate to be owned by TAZOP it should be owned by farmers' cooperative so that they can seek a number of buyers for their ginger which will guarantee more market sustainability to the farmers as they are assured of markets.

5.2.2 Building capacity to farmers and buyers

Since access to capital was found to impede participation TOAM should help bridge this gap. By bringing both the farmers and TAZOP to the possibility of accessing financial services could guarantee continuation of organic chain and hence the whole ginger trade. For the case of TAZOP since they expressed that they are sometimes late to be paid by their customers; they can borrow experience from the use of bill of lending. They can go to a bank and take loan while providing guarantee that they will use the money to buy ginger. TAZOP show his importer in Germany to the bank, and then the three may agree that the importer will deposit the money for the produce via the bank account known by the bank so that the bank can deduct the loan and let TAZOP with their profit.

In cases when TAZOP fail to buy the cooperatives may seek a way to export the ginger. But since it requires a lot of investments to be agreed in the organic market the best option is to use the available companies.

5.2.3 Reformation of legal and governance structures

Favourable legal structures would play a vital role to foster participation. It is important that each district authority establish bylaws for any business person to follow in case he or she wants to buy ginger from the two areas. The fact that there were no institutions/barriers to entry for someone to buy the ginger it poses a lot of uncertainties for an investor.

The contract between TAZOP and the farmers have to be rewritten and it is suggested that they have to include forecast of future misconducts. In this they should specify their legal obligations and consequences or a way of arbitration in case they fail to meet it. Rewriting should go in line with raising farmers' awareness on why they need legally binding contract.

TOAM and FAIDA MaLi should keep on supporting the chain. Although economic justifications are important in accepting a certain offer TOAM should negotiate with the LGAs and educate the farmers so that exporters are allowed to buy bellow prevailing prices in cases of large price fluctuations.

The declining marketing of organic ginger trade should be averted also by government intervention. Instead of giving farmers chemical fertilizers subsidies, it is recommended that the Government subsidize buyers (TAZOP) so that they will buy the produce from farmers.

5.2.4 Establishment of partnerships

(i) Social partnership

The buyer can engage into business with the farmers through a network of social relation. In this system the buyers can go to the local authority to advise them and formulate purchasing regulations that can be followed. In this rules it has to be stipulated that every buyer has to be registered through the district authority to be allowed to buy ginger from Mnazi and Mamba. Local buyers' participation can be limited, because of the fact that they have been buying ever-since and may not be

stopped without proper policies. A taxation policy is established where every buyer has to pay. In the policy amount of Tax has to differ between a registered and non-registered buyers. To make this possible several taxation gates are established to allow for checking.

(ii) Adopting Private Public Partnership (PPP)

Organic ginger buyers (TAZOP in particular) can allow portion of the company to be owned by the farmers. This will tend to create a sense of ownership from the farmers. The ownership can be guaranteed to individual farmers or to the farmers through their cooperatives. The government has to invest in improving productivity through Research and Development. NGOs (TOAM and FAIDA MaLi) and the farmers' organizations have to involve in building farmers capacity to produce and trade. TAZOP has to enter into contract with the farmers concerning purchase and selling of the produce. Because the level of trust to TAZOP is large, they have to lobe the local authorities to constrain local buyers who come haphazardly through appropriate policies.

(iii) Opting for Diversified farmers, diversified buyers diversified relationship option

In as far as farmers cultivate ginger intercropped with other crops such as cassava, maize, beans, pawpaw, and pineapples. TAZOP can enter into agreement to buy some of these crops so that farmers who are in the cooperatives are having increased advantages to deal with TAZOP.

In this form there are two options: the first is TAZOP may decide that they will find markets, buy the products and sell to the customers. The second option is TAZOP may find other exporters who are buying and exporting organic products from other areas such as fruits and vegetables. They may have to sign contract with them to come and buy to the farmers. These companies have the option to share infrastructures and they have to specify their relation.

The government and NGOs have to enter into productivity improvements of a range of the products. They have to agree to also provide supporting environment through enacting appropriate policies to aid this business.

5.2.5 Recommendations for further study

The study recommends a commission of studies on the following areas which this study were constrained by time and resources to cover.

i. The study did not cover a comparative analysis of the organic and conventional sector of ginger in Tanzania; another study may be commissioned on that.

ii. Also it was not clear how retaining the crops in the field by farmers increased their profits, a study can be stationed on that for the purpose of advising farmers why they should or should not harvest their produce in time.

iii. The study did not manage to quantify all transaction costs that are involved with exporting of organic ginger because of the complexity of specifying all aspects of the costs, for example the cost of a certain contract. A study may be commissioned and address this area.

iv. Lastly, as we stated earlier transaction costs exist everywhere and causes market failures, and that as studies of households, behaviour have extrapolated that market failure in different markets may influence a decision maker, this time household, to behave in a manner that may seem to be not rational. A study may be commissioned to learn on different forms of market failures in other markets such as labour and financial markets and their connection to different decisions that influence the extent of transaction cost proxies.

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APPENDICES

Appendix 1: Organic ginger farmers' questionnaire

Questionnaire number: ……..

A. CASE CHARACTERISTICS

1. Name of respondent (optional)…….
2. Age of respondent…….
3. Level of education ……
4. Size of land you own ……
5. Household size……..
6. How much did you investment for organic trade (money and size of land cultivated)?

	AMOUNT MONEY		SIZE CULTIVATED	
	Organic	Conventional	Organic	Conventional
EX-ANTE				
DURING				
EXPOST				

7. Please fill in the table below, indicating quantity of ginger and price you traded in different market conditions.

Kinds of market	Spot-market					Short term contract					Long term contract				
	2007	'08	'09	'10	'11	'07	'08	'09	'10	'11	'07	'08	'09	'10	'11
Organic															
Price															
Conventional															
Price															

8. What proportion of ginger you serve for home consumption?.....

9. Why do you sell in organic market?

……

……

Why do you sell in conventional market?

……

……

TRANSACTION COSTS EX-ANTE:

1. Bounded rationality

1. When did you have knowledge about organic farming?.....
2. What kind of knowledge did you have about organic farming?

Did you ever have any training about organic farming? 1. Yes 2. No

If your answer to question two is Yes answer question 4 and 5. If no go to question 6

3. How many times you were trained on organic farming?

……..

4. Please fill the training information in the table below.

Knowledge trained on	When last trained	Costs (time used or money)

2. Asset specificity

5. What investments did you do to start organic farming?
   a. Agronomic knowledge.....
   b. Special varieties of plants.....
   c. Market facilities.....
   d. Equipments specific to organic…….
   e. Any other investment

6. Did you need to support the payment/ investments of drying and processing to be part of the organic ginger sale through the cooperative? 1. Yes 2. No.
If your answer to question 7 is Yes answer question 8 and 9. If no go to question 10

7. How much (time or money) did you pay? ……..

8. How the payments to support the processing were designed?

a. Pay before joining
b. Pay during selling
c. Pay by devoting time to do some activities

9. Did you keep livestock for organic manure? 1. Yes 2. No.
If your answer in 10 is yes please answer question 11-13 on: How much is:-

10. Paying a laborer to take care of the livestock…….

11. Buying animal feeds……

12. Treating the animals…….

3. Uncertainty

13. What areas did you feel uncertain about before entering the organic ginger trade? (tick appropriate)

a. Whether I could meet the standards?
b. Whether market would be reliable in terms of volume demanded?
c. Whether market would be reliable in terms of price they offer?
d. Whether the labour market would be reliable?
e. Whether I could get capital?
f. Whether I could pay costs of capital like interests?
g. Whether I could get right information from fellow players?

Others

h. ……..
i. …….....
j. …….....

14. What (did you do) or do you think was done to minimize or get away these uncertainties?

a. ……

b. ……...……
…

c. ……...……
…

Opportunity costs for organic ginger production? (Answer if the farmer was uncertain of marketing of organic ginger)

15. Apart from ginger; are there other crops would grow in the same land? 1. Yes 2. No

If your answer to question 13 is Yes answer question 14 to 18. If no go to question 19

16. How much would you earn if planted the other crop?.....

17. Why did you decide that you grow ginger instead of the other crop(s)?.....

18. Is there opportunity for you to work in another place instead of cultivating ginger?

19. What is the amount you would earn in total? ……

20. Please indicate how frequent (per the production season), the following management and tending practices has to be performed compared to the convectional and doing the other crop?

Activity	Organic	Conventional	Other crops
Planning			
Weeding			
Spraying/ pests control			
Fertilizers application			
Harvesting			

1. Opportunism

21. Has there been breach of agreements/normal running rules before starting to trade organic with:

	Who (tick below)	Frequency of happening	Kind of breach
1.	Inputs suppliers		
2.	Fellow farmers		
3.	Buyers		

If you indicated breach in question 19 answer question 20. If you didn't go to question 21

22. What do you think caused the breach?

a. The kinds of contract?

b. A more lucrative market?

c. Other factors……

23. I trust the reasons that buyers give when they fail to buy ginger.

a. I strongly agree

b. I agree

c. Neither agree nor disagree

d. I disagree

e. I strongly disagree

24. I trust the reasons that TAZOP give when they fail to buy ginger

a. I strongly agree

b. I agree

c. Neither agree nor disagree

d. I disagree

e. I strongly disagree

25. I always shared the market information with fellow farmers before entering organic trade

a. I strongly agree

b. I agree

c. Neither agree nor disagree

d. I disagree

e. I strongly disagree

B. TRANSACTION COSTS DURING THE TRADE (2008-2010) (applicable to Mnazi)

1. Opportunism

1. Where did you sell organic ginger you harvest in 2008-2010?

a. ……

b. ……

c. ……

d. Answer question 2 if you sell to TAZOP and other buyers and question 3 to 4 if only TAZOP

2. Why didn't you sell the whole amount to TAZOP?

a. ……

b. ……

c. ……

3. What amount in kg did you sell to TAZOP

……...

4. How much did you sell to TAZOP

……

5. What amount in kg did you sell to the other buyer..……...

6. How much did you sell to the other buyer?

……..…….

7. What were the consequences of not delivering the whole amount to TAZOP?

……

8. What is the provision of contract concerning this breach?

……

……

1. Hold-up from underperformance

9. Please indicate in the table below costs you have incurred (e.g. phone calling) due to failure of players to provide services as agreed.

S/N	Kind of failure	Whose failure	How long did it take	Costs of underperformance
1	Late payments			
2	Fake/poor inputs			
3	Poor farming/weeding			

10. What are the provisions of the contracts concerning this breach?

……
……

2. Bounded rationality

11. Did you need information or knowledge to facilitate your ginger selling when trade started? 1. Yes 2. No

If your answer to question 13 is Yes answer question 12 to 18. If no go to question 19

12. What was the information you need?

……
……

13. What was the level of you knowledge on that information?

i. High
ii. Medium
iii. Low
iv. Very low
v. No information

14. Are there any knowledge acquired at that time? 1. Yes 2. No

If your answer to question 14 is Yes answer question 15 to 16. If no go to question 17

15. What was the knowledge acquired?

……

……

Who provided the knowledge?

……

……

16. Which organic standards do you have to observe in organic farming?

……

……

17. The table below represents searching for information for cultivation of ginger.

In the kind of cost indicate if it is time, value loss or others

Kind of information		**Kind of cost**	**Actual price**	**Indicative/ordinal price/frequency**
1	Seed sorting			
2	Market selection organic or non organic			
3	Security			
4	Search for credit			
5	Identification of a reliable buyer			

3. Asset specificity

18. What investments (assets) you made once the trade was established?

S/N	Kind of asset	How much it cost	Who funded the investment
1			
2			
3			
4			

4. Uncertainty

19. What things you were still uncertain about when you started selling ginger (for example whether production would be continuous)?

a. ……

b. ……

20. How did you ensured security of harvests (especially when you employ another people) to take care of:

c. Harvesting……

d. Processing……

e. Transportation (When you send the produces) ……

21. Do you trust the reasons given for the, difference in weight of the consignment, between the ones you weighed in loading and those given by TAZOP as a feedback? 1. Yes 2. No

22. What efforts were taken to make sure that you keep on selling organic ginger to TAZOP?

By the farmer

a. ……

b. ……

c. ……

By TAZOP

d. ……

e. ……

f. ……

23. What are the indications/or attributes of quality of ginger you trade (i.e. things that it should or should not contain)?

a. ……
b. ……
c. ……

24. What may affect these quality attributes (please indicate the level of risk of quality loss as the result of these effects as 1 very high to 5 very low)

a. Fungus
b. Climate
c. Temperature
d. Others
e. ……
f. ……
g. ……

5. Frequency

25. How many kilograms of ginger did you sell at the first time to TAZOP? ……

26. How long did it take to receive the payments? 1. Yes 2. No

27. Were the payments received at once or in installments? 1. Yes 2. No

28. Is there any payments in kind (like inputs, credits etc) 1. Yes 2. No

29. Are there any advance payments if you receive in installments? 1. Yes 2. No

30. Did you incur any other cost related to payments? 1. Yes 2. No

If your answer in 30 is Yes please mention and give frequency of happening. Mention them.

a. ……
b. ……
c. ……

C. EX-POST THE TRANSACTION

1. Uncertainty

31. What are the things you are still uncertain about; now when the trade is formed?

a. ……
b. ……
c. ……

32. What are the costs that you incur during processing?

a. Increased post harvest losses

b. Increased fungal losses, or any other please specify

c. ……

d. ……

33. What can go wrong after during products delivered?

a. Reduction in weight

b. Theft

c. Time to finish the processing

d. Others related to quality attributes

e. ……

f. …….

34. Does it affect the contract? 1. Yes 2. No

35. What is needed to minimize the risks of its occurrence?

a. ……

b. ……

2. Frequency of transaction

36. What is the **frequency** of trading now (2011/2012) with:-

Exporters……local traders……

37. How frequently will you buy inputs (capital is part of this) from suppliers……

38. Any form of agreement with the supplier

……..

39. Please specify the kind of cost you incur in different activities. In the kinds of cost column you indicate whether it is time, value loss or any other

Kind of information		**Kind of cost**	**Actual price**
1	Seed sorting		
2	Market selection between organic and non-organic		
3	Security		
4	Search for credit		
5	Identification of a reliable buyer		

40. How many kilograms have you planned to sell to TAZOP?.....

41. How many instalments will the payments be received? ……...

42. Any advance payments……

43. Any other form of payments like payments in kind……

44. How often have you been in contact with:

b. Extension officers……. b. TAZOP…….. …c. Other buyers……..

3. Asset specificity

45. What assets/investments are still required to facilitate activities in ginger value chain?

a. ……
b. ……
c. ……

46. Who do you think you have to work with in making this possible.

a. ……
b. ……
c. ……

1. Bounded rationality

47. How do you get market information now?

a. ……
b. ……
c. ……

48. What are the costs you incur in search for the information?

a. ……
……
b. ……

49. What knowledge you fill you still need to facilitate ginger trade?

a. ……
b. ……..
c. ……..

50. Are there assistances you still get from the buyers (TAZOP)? 1. Yes 2. No

If the answer to question 50 is yes answer question 51

51. What are these assistances you get from TAZOP?

a. ……

b. ……

c. ……

2. Opportunism

52. Do you think farmers will go on sell to TAZOP? 1. Yes 2. No

53. Why will they not sell to TAZOP?

……

……

54. Why will farmers sell to TAZOP?

……

……

……

55. Is there a need to constrain farmers to only sell to TAZOP? 1. Yes 2. No

56. Why

a. ……..

b. ……..

c. ……..

57. What do you think is the appropriate ways to make organic ginger selling possible?

a. ……..

b. ……..

c. ……..

2. CONTRACTS

1. Please fill the table below. Kinds of **contract** may be formal or informal. Type of the **actor** may be Co-op, Input supplier, buyer, consultant, labourer or any other. Item contracted may be production, processing or marketing

Actor's name	**Type of actor**	**Item contracted**	**Kind of contract**	**Length of contract**	**Arbitrator**	**Frequency negotiated**

2. What changes are you suggesting in the contract between you and TAZOP?

a. ……..

b. ……..

c. ……..

3. OPPORTUNITIES FOR JOINING ORGANIC PRODUCTION

1. What are the opportunities for joining organic farming?

a. ……..

b. ……..

4. CONSTRAINTS FOR JOINING ORGANIC PRODUCTION

1. Distance from the farm to the crops selling point in kilometers …….
2. Distance from the farm to the processing unit…….
3. Condition of the road.
   a. Very good
   b. Good
   c. Bad
   d. Very bad
4. What do you think are other constraints for joining organic production
   a. ……..
   b. ……..

THANK YOU VERY MUCH FOR YOUR COOPERATION

Appendix 2: Questionnaire for assessing the roles of institutions in influencing the transaction costs

Questionnaire number……

A: Questions to Civil society (NGOs like TOAM, FAIDA MaLiand Charitable organizations)

1. What were the challenges observed by your organization in organic ginger trading?

   Ex-ante (Before the organic ginger trade was established and before carriage of specific transactions)

a. ……
b. ……
c. ……

During (Once organic VC established and during carriage of transactions)

a. ……
b. ……
c. ……

Ex-post (now when the trade is established and when transactions are finished)

a. ……
b. ……
c. ……

1. What did you do to lower or take away the challenges and hence minimize transaction costs in organic ginger value chain?

	Activity	How long did it take	Money invested
Ex-ante			
1			
2			
3			
4			
5			
During			
1			
2			
3			
4			
5			
Ex-post			
1			
2			
3			
4			
8			

2. What resources are still required to facilitate/support the activities in organic ginger?
    a. ……
    b. ……
    c. ……
3. What are your future plans in supporting the following nodes of organic ginger VC?
    a. Production node
        i. ……
        ii. ……
        iii. ……
    b. Farmers' collection centres and/or processing nodes?
        i. ……
        ii. ……
    c. Buyers nodes (exporters node)
        i. ……
        ii. ……

a. What are the constraints in achieving the plans (hence continuous organic ginger export by supporting the nodes)?
   a. ……
   b. ……

4. How frequently do you make contacts with
   a. Producers/farmers……
   b. Local traders and assemblers…..……..
   c. Exporters……

5. What do think farmers have to do to keep on selling organic?

……

……

THANK YOU FOR YOUR COOPERATION

Appendix 3: Questionnaire for assessing the roles of institutions in influencing the transaction costs

Questionnaire number……

B. Questionnaire to industry and business institutions (TAZOP, Financial organizations and the cooperatives)

2. What are the challenges/ problems you observed in organic ginger trade?

Ex-ante (Before the organic ginger trade was established and before carriage of specific transactions)

a. ……
b. ……
c. ……

During (Once organic VC established and during carriage of transactions)

d. ……
e. ……
f. ……

Ex-post (now when the trade is established and when transactions are finished)

a. ……
b. ……
c. ……

3. How often do farmers bring the produces per a single production season (TAZOP only)? ……
4. How much have you invested in organic ginger business?……

5. Do you have contracts with
    a. Farmers
    b. Farmers associations
    c. Middlemen traders

6. How long have you contracted them? …….
    a. Why?

.....

How often do you renew the contract?.....

7. Why do you maintain a formal contract?

……

……

8. Do the farmers' cooperatives have shares with your company (TAZOP only)?
9. What are the challenges/constraints still in the business? (in each of the following nodes of the value chain)
    a. Production node

    ……

    ……

    b. Farmers' collection centres and processing nodes?

    ……

    ……

    c. Buyers nodes (exporters node)

    ……

    ……
10. What are your suggestions on these constraints?
11. What services can the following business groups acquire from your institution?
    a. Farmers
    b. Farmers groups (cooperatives and the small farmers groups)
    c. Crops processors
    d. Traders/crops buyers/exporters
    e. Traders in the crops collection centres?
12. What are the different provisions for giving loans to the farmers (Financial institutions only)?
13. Has there been a delay of farmers to deliver products in time to you (TAZOP only)? Yes/no
    a. If the answer is yes what were the measures taken?

14. Did farmers deliver the agreed amount of harvests to you? Yes/no
    a. If no, what are the provisions of the contract and/your constitution about this?
15. Do you always pay the farmers at the time of delivery? Yes/no
    a. If the answer is no, for how long are the payments delayed?
    b. What are the provisions of the contracts about payments?
16. What opportunities are there for your institution to deal in the organic ginger business?

Please answer if the following statements are true or not.

1. I know with certainty the requirements for organic export business……
2. Farmers have enough knowledge on what is required about organic business……...

THANK YOU FOR YOUR COOPERATION

Appendix 4: Questionnaire for assessing the roles of institutions in influencing the transaction costs

Questionnaire number……

C. Questions to local government (village and district governments)

1. What were the different roles and investments made by local government in organic ginger value chain in support of different nodes?
    a. Production node
    b. Farmers' collection centres and processing nodes?
    c. exporters node
    d. Buyers/importers nodes
2. Which specific activities were carried by Local government authority?

	Activity	**How long did it take**	**Amount invested**
Ex-ante			
1			
2			
3			
During			
1			
2			
3			
Ex-post			
1			
2			
3			

1. What are the registered companies that buy ginger in your area?
    a. …….
    b. …….
2. What are the procedures that they have to follow to get permission for buying ginger?
    a. …….
    b. …….

3. How frequently do you contact different actors in the organic ginger value chain?
    a. …….
    b. …….
    c. …….
4. What are the constraints in supporting these different actors of the value chain?
    a. …….
    b. …….
    c. …….

THANK YOU FOR YOUR COOPERATION

Appendix 5: Questionnaire for assessing the roles of institutions in influencing the transaction costs

Questionnaire number……

D. Questions to law and legal systems

1. Have you ever been involved in a ginger case? 1. Yes 2. No
2. What are different customary laws that are provided for maintenance of peace and order in organic farming?
    a. …….
    b. …….
    c. …….
3. How do you help solve disputes, specifically pertained, in organic ginger?
4. What are the constraints faced in these tasks
5. Which other institutions you cooperate with in averting these challenges?
    i) ……
    ii) ……
    iii) ……
6. What are the constraints in achieving your goal of continuous organic ginger export?
    a. ……
    b. ……
    c. ……

THANK YOU FOR YOUR COOPERATION