



**Establishing Business Growth Opportunities by Analyzing the  
Linkage between Food Processing Entrepreneurs and Smallholder  
Farmers in order to Alleviate Poverty**

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## **Abstract**

The objective of this study was to evaluate the linkage mechanism between grass root rural agricultural (tomato) producers and urban food processors; to establish productivity indices for small-holder farmers and food processors; to assess the effectiveness of the marketing strategies and storage and preservation; and finally to analyze the impact of the linkages on poverty alleviation. The linkage among the tomato producers was established. It is in form of information flow and knowledge transfer, capital flow, frequency of contact and social relations. The linkage between producers and buyers also exist. It is in form of trade/product flow, capital flow, as well as flow of information and knowledge transfer. Finally, the linkage exists among processors also; this is in form of information flow and knowledge transfer and a bit in social relations. The linkage was observed to have a positive impact on poverty by using the possession index as a proxy. With trade and thus, revenues growing, considering tomato business contributing to a bigger portion of the family incomes, improvement in the possession index has been considered to “speak” for overall alleviation in poverty. Productivity indices (technical coefficients) for a certain level of investment have been established; they correspond to certain levels of input employment and output; they are for scaling to any level of preferred investment. This is possible because it has already been established that linkage exists, and that it will be sustained. Marketing for such a perishable product as tomato, still poses big problems. Buyers collect the goods right from the farm or from sale centers. Products that are not sold within a certain limited time are bound to rot. Assistance is required to install either cold rooms, or provide any means of transport that would safely take the product to the market. Sun drying was practiced in one of the areas, but failed to gain momentum due to the solar machine maintenance problems. Most of the marketing either for farm output (tomato) or for processed goods is done by word of mouth. However, both parties are not satisfied with their marketing abilities. On the other hand, processors need assistance for market outlets. These people produce products such as mango pickles, tomato sauce, tomato relish, etc. The products are in such good quality to an extent that they can even compete internationally. However, their target locations for sales were nearby markets. The existing linkage has been observed to be sustainable; skills are transferred on the basis of parties observing how people do it, and mainly to family and relatives based on personal, social values and honesty criteria; the groups involved are coping up with advancement in technology, and they will continue doing that since tomato business contributes to a bigger percentage of the people’s overall income, thus they will team up and expand if given relevant support.

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### **List of Abbreviations and Acronyms**

GOT	-	Government of Tanzania
PRGRP	-	National Strategy for Growth and Reduction of Poverty
SIDO	-	Small Business Development Organization
SMEs	-	Small and Medium Enterprises
NPES	-	National Poverty Eradication Strategy
NGOS	-	Non-Government Organizations
ADB	-	African Development Bank
WB	-	World Bank
GDP	-	Gross Domestic Product
SAP	-	Structural Adjustment Programme
ERP	-	Economic Recovery Programme
ESAP	-	Economic and Social Action Plan
WAPATA	-	(Swahili acronym for Agricultural Producers)

## **1. Introduction**

### **1.1 Background information**

Over the past twenty years, Tanzania has embarked on an ambitious and long process of economic, social, and political reforms to improve the business environment and to increase economic growth and hence reduce poverty. The country's Development Vision 2025 provides the guiding framework for achieving this end. The vision is for Tanzania to move from a less developed country (LDC) to a middle income country by 2025, with a high level of human development. Specific targets include: a high quality livelihood, which is characterized by sustainable and shared growth (equality), and freedom from abject poverty; good governance and the rule of law; and a strong and competitive economy capable of producing sustainable growth and shared benefits.

Despite adverse weather conditions and deteriorating terms of trade in the past five years, the economy of Tanzania has been growing at an annual average rate of more than 6% (GOT, 2006). Inflation was reduced to 4.6% by end of year 2005 (GOT, 2006); now it is up to 8%). The balance of payments position has also improved substantially with foreign exchange reserves rising and maintained at a sustainable level (GOT, 2006).

Notwithstanding all these achievements, Tanzania is still recorded as being amongst the poorest countries in the world. The challenge facing the government of Tanzania is to translate them into tangible human development. The depth and extent of poverty is still high with 50% of the population living below poverty line (GOT, 2006). The task of reducing poverty and improving the living standards of the Tanzanian population is huge. The rate of growth of national economy has not been high enough to generate the number of jobs required.

There are a number of initiatives by the government, NGOs, donor agencies to alleviate poverty in Tanzania. Poverty reduction has therefore been put high of the country's development agenda. The government, through its vision 2025, has set a target that by the year 2025 poverty must have been eradicated. To achieve this vision a number of strategic interventions have been put forward, these include the National poverty eradication Strategy (NPES), Poverty Reduction Strategy Paper (PRPR) and the newly enacted National Strategy for Growth and reduction of Poverty.



Despite the interventions, there has been a small decline in the proportion of the population below poverty lines (Household Budget Survey 1991/92 and 2000/01. The reduction of income poverty has been relatively higher in urban areas compared to rural areas (NSGRP, 2004).

Although our country among others is experiencing rural-urban migration in the wake of closing the poverty gap, poverty remains predominantly a rural phenomenon where 87% of poor population lives, dependent on peasantry farming and small scale agriculture. However, this does not mean the severity of poverty in urban areas should be ignored; see Table 1. It is shown in Table 1 that the proportion of the population below the basic needs poverty line declined slightly from 35.7% to 33.6% over the period 2000/01 to 2007, and the incidence of food poverty fell from 18.7% to 16.6%. However, the numbers are still very high. Poverty rates remain highest in rural areas: 37.6% of rural households live below the basic needs poverty line, compared with 24.1% in other urban areas and 16.4% in the capital city (Dar es Salaam).

**Table 1: Incidence of Poverty in Tanzania**

Poverty Line	Year	Dares Salaam (capital city)	Other Urban Areas	Rural Areas	Mainland Tanzania
Food	1991/92	13.6	15.0	23.1	21.6
	2000/01	7.5	13.2	20.4	18.7
	2007	7.4	12.9	18.4	16.6
Basic Needs	1991/92	28.1	28.7	40.8	38.6
	2000/01	17.6	25.8	38.7	35.7
	2007	16.4	24.1	37.6	33.6

Source: Household Budget Survey 2007 (NBS, 2009)

It has been argued that the increased urban poverty is closely linked to rural urban imbalances that result from a discrete consideration of rural development as completely distinct from urban development (Ocala, 2003). It is increasingly recognized that rural and urban development is interdependent (ADB, 2003, WB 2000). Urban and rural areas are distinctively different yet at the same time intricately linked. Rural-urban linkages include flows of agricultural and other commodities from rural based producers to urban markets, both for local consumers and entrepreneurs and for forwarding to regional, national and international markets; and, in the opposite direction, flows of manufactured and imported goods from urban centers to rural either commuting on a regular basis, for occasional visits to urban-based services and rural and urban

areas include information on market mechanism – from price fluctuations to consumer preferences – and information on employment opportunities for potential migrants. Financial flows include, primarily, remittances from migrants to relatives and communities in sending areas, and transfers such as pensions to migrants returning to their rural homes, and also investment and credit from urban – based institutions.

The interventions to the private sector development have made the sector to grow rapidly. Estimates of the numbers of micro (up to 5 employees) and small enterprises (6 to 50 employees) range widely, from 1 to 2,5 million country wide. The sector is significant in urban as well as rural areas, through most enterprises are located in towns and cities with an average of about 1.5 employees per enterprises. Estimations of the percentage of labour force engaged in micro and small enterprises in urban areas range from 38 to 56 percent, while in rural areas it is about 15 percent (GOT, 2005). There has been an increasing linkage between the small traders in the rural selling their produce to trades or manufactures in urban areas. Retails in rural areas buy their stock from urban areas.

Rural areas need to establish long-term, stable market links with nearby towns and cities to enable them to greet top prices for their produce. Lack of stable market links with nearby towns, rural areas are always forced to sell their products at poor prices at far markets. Implied from the foregoing discussions, the linkage between urban and rural areas means that changes in one will affect the other.

However despite the increase in number of enterprises and the rural-urban market linkages, most micro-enterprises are in the informal sector. i.e. they are neither registered nor licensed. Most have been set up for reasons of survival rather than with a longer – term plan for growth. It is widely felt that there are serious constraints that limit growth in numbers and in terms of the contribution to Gross Domestic Product (GDP) or economic development in general. While the majority of Tanzania’s formal economic activity takes place in major cities, 80% of the country’s poor live in rural areas and depend on subsistence agriculture, unable to participate in broader markets.

## **1.2 Statement of the Problem**

The International Development Agenda is increasingly recognizing the potency of rural urban linkage development approach for promotion of positive rural-urban development benefits generation of substantial employment and therefore contributing to poverty eradication (Okpala, 2003 and Adell, 1999). Indeed the importance of linkage/ and or networking activities to performance of businesses cannot be underestimated. This is possible through investing in these two respective sectors. Thus, an investor should be able to locate in town/cities if it is economical for them, but they are often deterred by absence of data on such opportunities. It should be recognized that agricultural investment in areas with highest economic return, eg high value for production of locations with good access to urban markets, is a rational choice as long as these returns are based on real prices. On the other hand, the activities of the urban markets should be in a position to sustainably support these agricultural activities. In short it is important that investment locates according to real signals of highest returns and this is good for growth. Population will thereby shift eventually from areas of low returns to areas of higher returns (Mutagwaba and Chiwawa, 2005). This is inevitable and is seen as a phase of development and poverty alleviation.

Rural-urban linkage analysis taking a long term perspective can be helpful in making investment decisions in areas / localities that feature such interdependence. It is against this background this study has been undertaken to explore the market linkages between farmers in the rural areas and micro and small enterprises (MSEs) in the urban areas so as to gain better understanding of the relationships, the variety and nature of these linkages and their role in poverty alleviation. In addition, it has established productivity/ efficiency of the existing food processing and farming equipment, assessed the effectiveness of the marketing strategies and storage and preservation structure and finally analyzed the impact of the linkages on poverty alleviation.

## **1.3 Significance of the study**

Firstly, the study is in line with the National Policy Objectives, fighting poverty through economic growth (GoT, 2006), specifically supporting small business and smallholder agricultural development. Secondly, it has formed the basis for the subsequent study which will establish the required relevant investments opportunities in the two sectors. Thirdly, the study

can be replicated to many parts since many African countries have similar features as the sectors being studied.

#### **1.4 Study Objective**

Overall objective of the study was to evaluate the entire linkage mechanism between grass root rural agricultural producers and urban food processors; and to establish productivity indices for small holder farmers and food processors. As a result, light on the extent of poverty has been shed. Specifically, it aimed at:

- Evaluating the nature, structure and extent of the linkage
- Establishing productivity/ efficiency of the existing food processing and farming equipment
- Assessing the effectiveness of the marketing strategies and storage and preservation structure and finally,
- Analyzing the impact of the linkages on poverty alleviation.

#### **1.5 Hypotheses**

1. There exists a linkage among producers; producers and processors; and among processors
2. The linkage among producers; producers and processors; and among processors has a positive implication on poverty alleviation
3. Marketing strategies, storage and preservation structures function adequately in tomato production and processing
4. Engaging in tomato production and processing is sustainable if it is based on skills acquisition (including observing how people do it) and transfer, inheritance, technological adoption, working environment and quest for expansion.

#### **1.6 Organization of the Study**

This study is organized in five main chapters. Chapter one presents the introduction, while chapter two presents the review of the literature relevant to this study. Chapter three presents the methodology. Presentation of the findings and discussion thereof is found in chapter four, while chapter five concludes the report.

## **2. Literature Review**

### **2.1 Extent of poverty in Tanzania**

The definition and measurement of poverty in Tanzania has evolved over time. The periodic changes in the definition stem from the variation both across time and space in the description of what constitutes socio-economic wellbeing. Earlier definitions focused on the cost of meeting basic needs necessary to maintain a minimum standard of living, emphasizing the cost of minimum nutritional requirement. This definition has been strengthened by including social-economic indicators of wellbeing such as high rates of morbidity and mortality, illiteracy, infant and maternal mortality rates, life expectancy, poor quality of housing, type of clothing, per capita income and expenditure, infrastructure (communication, transport and social services, etc.), Mutagwaba (1996).

Recently, the definition of poverty has been broadened by incorporating problems of self-esteem, vulnerability to internal and external risk, exclusion from developmental process and lack of social capital. Thus, the final definition captures both quantitative and qualitative aspects of poverty. It is on this basis that the poor, extent of their poverty, where they live and what they do for a living can be identified.

According to World Bank and UNDP reports (various issues), Tanzania is ranked among the poorest countries in the world, with per capita income of around \$358. The GDP growth rate is around 6%, with 50% living in abject poverty (living under \$1 a day). According to GOT (2005), life expectancy in Tanzania is 49 years compared to 76 in developed countries and 61 in other developing countries; under 5 mortality is 167 out of 1,000 live births compared to 9 in developed countries; infant mortality is 84 per 1,000 live births compared to 7 in developed countries; maternal mortality is 200 per 100,000 compared to 95 in developed countries; health facility person ratio is 1:7431; one hospital bed to 1,000 persons; one physician to 30,000 persons; 30% of the people live more than 5 km from the nearest health center; literacy rate is 73%; 11% of the families have water services at the door; 32% , 27% and the rest walk 15 minutes, 30 minutes and more than 30 minutes to the water source respectively. Other poverty indicators include high morbidity rate, high malnutrition, food insecurity, high rate of rural urban migration, high unemployment rate, poor housing, poor clothing, low incomes, high rate of littering, time mismanagement, big families, transport and transportation problems, plenty of

beggars, poor sources of energy and high degree of link between poverty and environmental degradation.

## **2.2 The private sector (SMEs) in Tanzania**

Tanzania pursued socialist policies between 1967 and mid-1980s. This had a negative bearing on the private sector. It is after introducing economic recovery programmes that the economy started to attract investments and promoting local entrepreneurship. The economy is now dominated by micro, small and medium enterprises. There are about 2.7 million enterprises, 98% of which are micro enterprises (employing less than 5 people). The economic recovery programmes pursued include the National Economic Survival Program (NESP), the Structural Adjustment Program (SAP), the Economic Recovery Program (ERP) and The Economic and Social Action Program (ESAP); these have brought changes in the business environment. The objectives of these Tanzanian reforms were, and still are, to liberalize the economy to allow private sector to play a central role in the running of the economy.

Some factors have been highlighted as limitations for small enterprises to grow in Tanzania. Some of them are lack of finance, lack of knowledge of management, lack of market information, access to business licenses, high taxes and legislation procedures. These areas demand business experience and time to deal with; Olomi, 2001 and Nchimbi 2002.

## **2.3 Technology and poverty in Tanzania**

Poverty in Tanzania, among other things, is caused by low levels of production technology. This applies to almost all sectors of the economy including agriculture and food processing, the sectors that account for most of the popular economy (self-employed and small family units both in urban and rural areas). Instead of being considered as a social problem, the popular economy can be, and initiatives are underway to transform it into a development alternative, with technological support (Likwelile, 2004). There are a number of initiatives by the government and NGO supported by donor agencies (bilateral and multilateral) to reduce poverty in Tanzania, by addressing the issue of technology. Technological improvement in support of poverty reduction has therefore been placed high on the economy's development agenda (op, cit).

At the farm level, applied technology can be cited to the type of hoes in use. Round eyed (R/E), forked and tangoed hoes differ in shape, depending on applicability to highland or lowlands and

type of crop for higher productivity. These have been in use time immemorial. However, policy wise, Tanzania emphasizes the shift from hand tools (hoes, machete, axes, etc) in farming to mechanization such as ox-ploughs and tractors. But to most of farming areas in the rural setting in Tanzania hand tools will continue to dominate for a long time to come. The ministry of agriculture estimates 85% of the country cultivated land to be under hand tools and smallholdings.

#### **2.4 Agricultural Policy**

The Agricultural and Livestock Policy of 1997 (GOT, 1997) recognizes the need to improve agricultural techniques and practices, to enhance the agricultural activities for higher productivity. Therefore, augmented technologies are key to agricultural development. As a policy, the government has established an effective information system on farm implements, machinery and equipment. The private sector is encouraged to establish and run tractor hire centers, and own and run training centers. In addition the government provides extension and regulatory services. Agricultural mechanization is to ensure that farmers at all levels of production are knowledgeable about, have access, can choose and appropriately utilize sources of farm power, implements and machinery for mechanization. Key to the policy is the section on agricultural information and marketing of inputs and output. This section improves data collection at all administrative levels. Such information is subsequently analyzed and disseminated.

The policy objectives include: To ensure food security to the nation and increased nutritional standards; to see to it that production growth rates of food crops and livestock grow at 4 – 5% per annum; to improve standard of living in rural areas through increased income from agriculture and livestock; to produce and supply raw materials to local industries; to increase foreign exchange earnings for the nation through exportation of crops; to develop and introduce new technologies so as to increase productivity of labor; to provide support services to the agricultural sector, which cannot efficiently be provided by the private sector; and to promote specifically access of women and youths to land, credit, education and information.

Based on the above, hereunder are related strategies and instruments:

- a) Establishing Agricultural research, extension and training

- b) Monitoring and evaluation of agricultural development and identification of new opportunities (products, technologies, markets and promotions)
- c) Collection and dissemination of market information in order to integrate domestic and foreign markets
- d) Facilitate production of good infrastructure especially transport and storage
- e) Control quality of products
- f) Control epidemic pests and diseases
- g) Provide adequate legal and regulatory framework
- h) Natural resource management
- i) Taxes and subsidies

### **2.5 Productivity**

The most common type of goal based measures of productivity are those used by engineers and production managers who seek to a refinement not present in many of the system-based measures. Norman and Bahiri (1972) state that productivity and efficiency are often regarded as synonymous. They consider that since only the part of labor and machines that are utilized add value to the manufacture of products, consequently the appropriate measure of efficiency is the extent to which value is added. Thus, productivity is a measure of economic efficiency which shows how effectively economic inputs are converted into output.

Advances in productivity, that is the ability to produce more with the same or less input, are a significant source of increased potential national income. Economies of developed countries have been able to produce more goods and services over time, not by requiring a proportional increase of labor time, but by making production more efficient. Productivity is measured by comparing the amount of goods and services produced with the inputs which were used in production. Productivity is the ratio of the output of goods and services to the input time devoted to the production of that output. Labour is the most commonly used productivity measure because it is an easily-identified input to virtually every production process. It is defined as output per unit of time of all persons (labor productivity).



## 2.6 Business Network / Linkage

There is no universally accepted definition of a network/linkage; it is a structure where a number of nodes are related to each other by specific threads (Hakansson and Ford, 2002). Both threads and nodes, are heavy in resources, knowledge, and understanding as a result of complex interactions, adaptations and investments within, and among firms over time. Networking is then a social construction which exists only so far as the individual understands and uses a network (Johannsson, 1995, Monsted, 1995; Chell and Baines, 1998; laceobucci, 1996; and Shuma and Twombly, 2001).

Business network can be classified into several types each containing certain categories according to and resulting from the point of view networks are researched and seen. Various types of networks arise when researchers study the nature of flows, network's strength, its spatial and distant coverage, and the type of relationship on which the network is based. A typology of networks for purely operational reasons may be as follows and according to:

- **Network nature** – (what flows through it?). This is actually a classification of the kind and nature of what flows through the network and the scope of maintaining or accessing a network. Some researches, have directed attention to information flow and knowledge transfer through networks and the operation of the network as a resource for the promotion of linkage (Murdoch, 2000). A very rough classification of what flows through the network may be products or service (trade). Capital (finance), information and knowledge (capacity building) and employment (Hagg and Johanson, 1983).
- **The length of the network** is another important aspect to consider when analyzing networks. This refers to contacts that are involved before the product is sold. Is it one, two, etc? is it loose, strong, etc (Marsden, etal, 1993).
- **Similarly, the type of contact**, analyses how relationships are maintained. Are the relationships formal (depending on prior contracts – not friends or family members)? This is the “organizational network perspective” this assumes the firm and its surroundings (political – legal, competitive, cultural and social forces etc) are part of the network. Self-interest is pursued through interacting. Another assumption is that networks are not homogeneous in nature (Hagg and Johanson, 1983). One source of

heterogeneity is the correspondence of various resources to different demands, while individuals needs can be met in a variety of different ways.

- **Social capital:** to build value adding relationships in network/linkage there is a need for trust, social capital, time and engagement, which will contribute to minimize the disadvantages. Aldrich & Zimmer (1986) states that networks have been very important for business success in providing a variety of resources, which business need to be competitive on the market. Terziovski (2003), O'Donnell et al (2001). Premaratne (2001) have as main implication of their researches that business managers are more likely to achieve success with networking practices than without it.

The most frequent object of studies within the network research is vertical networks (supplier seller – buyer), while horizontal networks have a limited number of published studies. The latter include that of Rutashobya and Jaensson (2004) on handicraft business and that of Schmitz (1999).

### **2.7 Marketing, storage and preservation**

The marketing of horticultural produce in Tanzania as in most developing countries is predominantly the concern of individual farmers and private agents or middle men who buy the crops from farmers, transport and sells them either directly to other agents (urban food processors) or a wholesaler. In some cases, sales are made directly to urban consumers. Important issue worth noting in marketing of tomato, post harvest life span accounting for high perishability, seasonality and bulkiness. These put the enterprise at a great risk. Tomato takes only seven days to rot after being harvested. Ideally, such risk would require marketing of tomato to be under special care and attention, thus demanding advanced technological advancement, (Mshote, 2006).

### **2.8 Sustainability**

Sustainability for the linkage between the grass root farmers and urban processors will be hinged on skills acquisition and transfer, technological adoption, working environment and quest for expansion.

Firstly, skills are acquired in various ways; they can be acquired through training, one can be fascinated by the activity, or could be inherited. In whatever form of acquisition one is inclined to stick to the activity provided the skills are likewise transferred to others to ensure sustainability. Transferees could be relatives, persons in the community, or to anyone based on certain attributes such as honesty and integrity. Also, as far as acquiring the skills is concerned, is one committed? Family/ traditional business at times show a high degree of commitment.

Secondly, an issue of adaptation and knowledge acquisition features in the issue of sustainability. Operators should be able to move with changes in technology, however small the change is, within a given environment and circumstances. This might involve moving from the use of hand hoes to ox of person driven ploughs.

Thirdly, expansion and growth show a trend of continued business. This results from what has been mentioned in the previous two paragraphs. In the process, one would seek for new and bigger land, bigger warehouse, modern tools, etc.

### **2.9 Epistemology of the study (Heuristic)**

The study is inclined towards the constructivist' school of thought; our experience will be the basis to construct the reality of the study (Patton, 2003). The theoretical perspective is the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic (Crotty 1998). The theories underpinning this research are theories of network.

The research used multiple lenses for the study. On these, Hoban (2002) states: using two different units of analysis for linkage is like looking through different lenses to examine the same event. Both cognitive and situated perspectives are socially constructed for analyzing linkage processes and both are useful for understanding particular influences but focus on different aspects. Taking a cognitive perspective is like using a close – up lense to observe the fine detail of an individual's behavior, but zooming in misses out on the surrounding context. Alternatively, taking a situated perspective is like using a wide – angle lens to examine behavior in abroad social context but misses out on individual details.

Theories that support working hard on one's own, association and networking were applied. Working hard on one's own is inadequate. The demand for the association and networking has now become more complex and their importance to value addition cannot be more than emphasized. In order to eradicate/ alleviate poverty people have to work through networks. People change status, new technologies are emerging and new opportunities created. All these require networking and re – networking.

### **3. Methodology**

#### **3.1 Description of the study area**

Earlier it was intended to undertake the study both in Morogoro and Arusha districts. However, a pilot survey revealed that there was no one to one correspondence between smallholder farmers in Arusha and tomato processors. Sales for tomato production are mostly directed to hotels (Arusha being a tourist city) and to abroad (Kenya). Thus, Morogoro remained the only candidate.

Morogoro region lies between latitude 5°58'' and 10°0'' south of the Equator and longitude 35°25'' and 38°30'' east of Greenwich. The neighboring regions for Morogoro are Tanga and Arusha to the North, Coast region to between the east, Dodoma and Iringa to the west part and Ruvuma to the south. Morogoro is the second largest in Tanzania with a total area of 73,030 square kilometers out of which 2240 square kilometers are water bodies. The region comprises of six districts namely, Kilombero, Kilosa, Ulanga, Morogoro rural, Mvomero and Morogoro urban.

According to the 2002 population and housing census, Morogoro region had a population of 1,753,632. Only two districts grow tomato at a large scale; these are Morogoro rural, with a population of 263,012 and Mvomero, having 259,347 inhabitants. Morogoro rural has 130 villages, while Mvomero has 100. A selection of which villages to consider for the study was purposive; this depended on the amount of the product and the ease of access. This was established in the course of the pilot survey. Mlali and Kipele divisions were selected in Mvomero district, while Mkambarani and Pangawe divisions were selected from Morogoro Rural district. A total of eight villages were selected. These are: Mlali, Fukwe, Fukwe Station, Pangawe, Kipele, Kizinga, Mikese and Mkambarani.

### **3.2 Why choose tomato?**

Tomato, being a high value horticultural product, is escalating in the world market, Kaul (1997). He explored the organization of production, marketing and processing on this product, and came up with the result that it generated higher income per unit area as compared to higher products like cereals. He further argued that, besides higher returns, it has potential for export and employment creation. The short term turnover is another advantage as it requires only 60-90 days to harvest compared to other crops. Tomatoes are fruits that are rich in lycopene, an antioxidant with immune stimulatory properties; it also contains vitamin A and moderate amounts of  $\alpha$  and  $\beta$ - Carotene. In addition, the consumption of tomato reduces the risk of infectious diseases such as prostate cancer among men, and contributes to the nation's development and prosperity since tomatoes provide a good source of income to small scale farmers (Donaldson, 2007). Above all, as far as the study is concerned, the tomato product is the main contributor to people's incomes in the area; thus the result of this study has an impact on the livelihood of the people in question.

### **3.3 Methodological Concept**

For this study a heuristic methodology was adopted. This is a derivative of phenomenology that brings to the fore the personal experiences and insights of the researcher. The question that this kind of study seeks to answer is "What are my experiences of the phenomenon and the essential experience of others. This methodology is based on two premises. Firstly, is that the researcher must have a personal experience with and intense interest in the phenomenon under study. Secondly, is that all others involved in the study must have the experience and interest in the phenomena. The researchers are concerned with meanings not measurements, with essence not appearance, with quality not quantity and with experience not behavior (Patton, 2003). Thus the research has emphasized relationships. These include activities of producers and producers; producers and processors; producers and processors and poverty; marketing strategies, storage and preservation structures; sustainability of the activities in relation to skills, technology and work environment.

### **3.4 Data Collection**

No single source of information is trusted to provide a comprehensive perspective in any study program Patton (2003) comments that using a combination of data source and methods of

collection operate as a validating aspect for cross checking the data. Thus the study used probabilistic methods to collect primary and secondary data based on interviews, observations and document analysis for increasing the validity since the strength of one approach compensates for the weakness of the other (Denxin and Lincoln, 1998). Data variables to be collected were on product flow (purchasing volume and purchasing frequency) information (contact and association), knowledge (extent and effect) social bond (temporary and permanent), adaptations investment and time.

The data collection mostly took place during three weeks in September and October 2007, and about two weeks in February, 2008. However, due to some incomplete case in some of the questionnaires, the researcher had to make follow up visits during subsequent months to the study area.

The entry point into the region was the Regional Commissioner's office for permits to conduct research in the region. Authorization went down all the way to the level of the village governments. Small Industries Development Organization (SIDO) and the University of Dar es Salaam small entrepreneur incubator project were other entry points for information on food processors. The rest of the data, were obtained through snowballing.

The exercise involved staying with the interviewee for a good length of time, eg four to five hours, and literally participating in his/her activity. The nature of the study was to capture the interviewee's experience; thus, there was need to stay with the interview for a good amount of time, tour other places together in order to capture all activities that surround the same. These involved social activities as well. Thus the interviewer would obtain full knowledge of what was experienced. This ended up with utmost two interviews per person per day. This applied to both grass root farmers and urban food processors. Both formal and informal discussion and conversation was done, in order to complete each part and question of the questionnaire.

### **3.5 Data Analysis**

Since this a constructivist study, the analysis was carried out mainly through descriptive statistics. The SPSS package was fully utilized for establishing frequencies. The relationships involved include activities of producers and producers; producers and processors; producers and

processors and poverty; marketing strategies, storage and preservation structures; sustainability of the activities in relation to skills, technology and work environment.

### **3.6 Limitation to the study**

Firstly, there was a certain level of fatigue due to extensive research activities going on in the same area. The area inhabits a national agricultural university, which is about 30 years old. Therefore, most of relevant research and studies conducted by the university targets the same farmers. Secondly the survey took place during harvesting season; while interviewees showed generally a high level of cooperation and generosity, a few problems were encountered. In some cases interviewees were not at the farm on full time basis. These problems however were addressed through repeated visits by researchers or selecting another interviewee. Thirdly opportunism was noticed from the farmers in anticipation of future benefits. The longer you stayed with an interviewee, the more you would feel and notice a more convincing tone. This might reflect exaggerated information. Fourthly, as it is always the case in peasantry economies, there is always difficulty in imputing to assign monetary values to non-market activities. Finally, in the course of the study one would notice that some people do not perceive themselves as being poor, although incomes poverty confirms it.

## **4. Results and Discussion**

### **4.1 Overview**

This chapter presents the results and discussion of the findings. The chapter is divided into eight sections. Section one presents the overview; section two discusses linkage/networking for both producers and processors, while section three presents implications of the linkage on poverty alleviation. Section four discusses productivity measures followed by section five on marketing. Section six discusses aspects of sustainability, while discussions on focus groups and hypotheses testing are presented in sections seven and eight respectively.

## 4.2 Linkage and Networking

### PRODUCERS

#### 4.2.1 Business Characteristics

##### Startup Idea

Several reasons were presented as to how ideas were conceived for one to start the business. Observing others succeed in the business (42.4%), as well as having been advised by friends and relatives (27.2 %) were the main reasons why people were prompted to engage into tomato growing business; see Table 2. Other reasons shown in the same table include being an alternative activity after the cotton market faced problems (11.2%), attracted by good prices from buyers, getting free tomato seeds from donors and having been trained by the Agricultural University (Sokoine) in the area.

##### Age of the Businesses and Ownership

As shown in Table 3, most of the farmers were found to be in the business for between 3 to five years (32.8 %). About six percent of the businesses were found to be less than a year old, while 16.8% were between one and two years old. This is normal for agricultural business growth. Fewer people were found to be in business after a period of more than five years. Again, this shows that many things may have happened, including obtaining alternative occupations, change in market forces and other factors some of which being contrary to those that prompted the one to get involved in the business. Most of the businesses are owned by individuals (76%) followed by family ownership (20.8%); see Table 4.

**Table 2: Startup Idea**

	Frequency	%
Observing others succeed in business	53	42.4
Advice from friends and relatives	34	27.2
Bad cotton market made tomato alternative business	14	11.2
Buyers coming to the village and offering good price	6	4.8
Alternative business	5	4
Donors provided inputs including seeds	5	4
As a result of training from Sokoine Agric University	4	3.2
Moved from growing for own consumption to business	4	3.2
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data



**Table 3: Age of the Farming Activity**

	Frequency	%
Below 1 Year	8	6.4
1 – 2 Years	21	16.8
3 – 5 Years	41	32.8
6 – 9 Years	25	20
≥ 10 Years	30	24
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 4: Farming Business Ownership**

	Frequency	%
Single	95	76
Family	26	20.8
Co-ownership	4	3.2
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Tomato Buyers**

Tables 5, 6, 7, 8, 9 and 10 indicate that tomato purchased from farmers (69.6%) is used for adding value (processed products). Again it can be seen that the business is growing because for the past two years, the number of buyers doubled (60%) and tripled (26.4%). However, 17% of the respondents showed that their buyers remained the same. Most of the buyers stay in town, one hour away (46.4%). Thus they have to drive a distance of 25 kilometers (45.6%) to reach the tomato farms. This was truly the average distance from the center of Morogoro town, and the time taken to drive on partial rough roads. Transportation is done by light trucks (86.4%); tomato buyers covering most of the cost (86.4%).

**Table 5: Use of the Sold Product**

	Frequency	%
Processed	87	69.6
Re-sold	13	10.4
Both of the above	25	20
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 6: Increase in the Number of Buyers in the Last Two Years**

	Frequency	%
Not changed	17	13.6
Doubled	75	60
Tripled	33	26.4
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 7: Vicinity of Buyers from the Farm**

	Frequency	Percent
45 Minutes	2	1.6
1 Hour	58	46.4
1 Hour and a half	34	27.2
2 Hours	24	19.2
More than 2 hours	7	5.6

Source: Field Data

**Table 8: Distance Buyers Come From**

	Frequency	%
2 Kilometers	1	0.8
20 Kilometers	22	17.6
25 Kilometers	57	45.6
30 Kilometers	34	27.2
>30 Kilometers	11	8.8
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 9: Mode of Transport**

	Frequency	%
Motor vehicles	108	86.4
Other (bicycle, etc)	17	13.6
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 10: Who Bears Transport Cost?**

	Frequency	%
Buyer	108	86.4
Seller (Farmer)	17	13.6
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

#### 4.2.2 Interaction with Fellow Producers (Farmers)

##### Nature of Interaction

In this study, linkage and network are used interchangeably. About 81% of the producers interact among themselves, showing a high level of **linkage**; see Tables 11 and 12; they have also indicated willingness and hope to interact in the future. The nature of the interaction include giving each other advice on several areas such as procurement of inputs, product development, market information, pesticides application, seed storage, crop rotation, price setting, irrigation methods and transportation. This is a form of **information flow and knowledge transfer in linkage/network analysis**. Thus, putting the areas of interaction in broad groupings we end up with product development (22.8%), inputs (29.6%) and markets (22.4%), as shown in Table 13. People consult each other mostly on a weekly basis (53.6%) as shown in Table 14, as compared to monthly (26.4%) and annually (20%). This is another characteristic in **linkage/network analysis – frequency of contact**. However, there is no accomplishment without facing problems; although about more than half of the respondents denied to face any problem, lack of trust and financial support were mentioned as main problems faced in sustaining the linkage. In addition, respondents showed commitment for future interaction.

**Table 11: Level of Interaction**

	Present		Future	
	Frequency	%	Frequency	%
Interaction exists	101	80.8	101	80.8
No interaction	24	19.2	24	19.2
<b>Total</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 12: Nature of Interaction**

	Prod Develpt		Inputs		Markets	
	Frequency	%	Frequency	%	Frequency	%
No interaction (24 respondents)						
There is interaction	36	28.8	37	29.6	28	22.4

Source: Field Data

**Table 13: Frequency of Interaction**

	Frequency	%
Weekly	67	53.6
Monthly	33	26.4
Annually	25	20
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Social Relations**

Existence of the **social relations** (62%) is another indication of the **linkage** among the producers; see Table 15. The relations are broadly grouped into community activities (40%), including building schools, clinics, etc; family activities (50%), these include weddings, funerals, etc; and other (10%), including religious and cultural activities, issues like bailing out each other during financial crises, etc.

**Table 14: Social relations with Fellow Producers**

	Frequency	%
Social relations exist	77	62
Social relations do not exist and missing data	48	38
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**4.2.3 Interaction between Producers and Buyers (Processors)****Nature of Interaction**

About fifty eight percent of the respondents admitted to interact with the buyers (Table 16). They also showed intent for future interaction. Advance payment/ credit sale are the first form of interaction (29.6%); this is part of the **product/trade flow form of linkage**. Secondly, producers obtain advice from buyers on good quality of the product required (28%); this constitutes **flow of**

**information and knowledge transfer form of linkage.** As was the case with the interaction among the producers, interaction (**contact**) between buyers and producers is more frequent on a weekly basis, because they have to keep in touch to avoid intrusion from other dealers.

**Table 15: Level of Interaction**

	Present		Future	
	Frequency	%	Frequency	%
Interaction exists	72	57.6	72	57.6
No interaction (and missing data)	53	42.4	53	42.4
<b>Total</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 16: Nature of Interaction between Producers and Buyers**

	Advance Payment		Advice	
	Frequency	%	Frequency	%
No interaction (including Missing data, 53 respondents)				
There is interaction	37	29.6	35	28

Source: Field Data

### **Social Relations**

Producers and buyers do not have a good extent of social relations. Seventy four percent of the respondents admitted not to have any social relations existing between them and buyers, as shown in Table 18. The reason is that these two groups, on average, stay not less than 25 kilometers apart, therefore, besides conducting business it is very difficult to have a good deal of interaction.

**Table 17: Social relations with Buyers**

	Frequency	%
Social relations exist (including missing data)	32	25.6
Social relations do not exist and missing data	93	74.4
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

## PROCESSORS

### 4.2.4 Business Characteristics

#### Startup Idea

Similar to the case of producers, several reasons were presented as to how one decided to enter into the tomato processing business. Learning from parents and other processors (16%), being advised by friends and relatives (17 %) and as a result of the training from SIDO (17%) were the main reasons why people were prompted to engage into tomato processing business; see Table 18.

**Table 18: Startup Idea**

	Frequency	%
Learning from parents and other processors	16	32
Advice from friends and relatives	17	34
As a result of training from SIDO	17	34
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

#### Age of the Business and Ownership

Most of the processors were found to be in the business for a period of between three to five years (62 %); see Table 19. About 10% of the businesses were found to be less than a year old, while 24% were between one and two years old. Fewer people were found to be in business after a period of more than five years (4%). This is normal for small businesses; unless concerted efforts are maintained, such as providing external support, the business death rate grows exponentially after a period of five years; Olomi (2001). In terms of ownership, individuals own 64% of the businesses. This is followed by family ownership (20%), as shown in Table 19.

**Table 19: Age of the Tomato Processing Business**

	Frequency	%
Below 1 Year	5	10
1 – 2 Years	12	24
3 – 5 Years	31	62
6 – 9 Years	1	2
≥ 10 Years	1	2
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 20: Farming Business Ownership**

	Frequency	%
Single	32	64
Family	10	20
Co-ownership	8	16
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

#### 4.2.5 Interaction with Fellow Processors

##### Nature of Interaction

All respondents admitted to interact among themselves; **this is perfect linkage**. They also indicated willingness to interact in the future. The nature of the interaction include areas such as lending inputs to each other (32%), pooled procurement of inputs especially packaging material (26%), product improvement (16%), sharing market information such as sourcing for good quality tomato (14%) and attending courses together (12%); see Table 21. Again this is **information flow and knowledge transfer in linkage/network analysis**. As was the case with producers, people consult each other mostly on a weekly basis. This frequency is normal for this type of business due to so many interlinked activities and exchange of ideas.

**Table 21: Nature of Interaction**

	Frequency	%
Pooled procurement of inputs	13	26
Attending courses together	6	12
Lending inputs to each other	16	32
Product improvement	8	16
Sharing market information	7	14
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

##### Social Relations

Existence of the social relations (52%) is another indication of the **linkage** among the processors; see Table 22. They interact in ceremonies, funerals, religious activities and community activities.

**Table 22: Social relations with Fellow Processors**

	Frequency	%
Social relations exist	26	52
Social relations do not exist and missing data	24	48
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

#### **4.2.6 Interaction between Processors and Producers**

##### **Nature of Interaction**

All aspects of interaction that were mentioned in Section 4.2.3 (the case of interaction between producer and buyer) apply here. Besides exchanging merchandise (**product/trade flow form of linkage**), they include advance payment from buyer to seller and credit purchase (**capital finance form of linkage**). Secondly, buyers advise producers concerning the required quality of the product; this constitutes **flow of information and knowledge transfer form**.

##### **Social Relations**

Social relations as already mentioned in Section 4.2.3 are impaired by geography. Mostly, processors live in town, a long way from the rural area; these limit any form of meaningful social interaction.

#### **4.3 Implications of Linkage on Poverty**

##### **4.3.1 Social Characteristics of the Respondents**

##### **Age of Respondents, Gender, Marital Status, Education and Family Size**

The age of both producers and processors ranged from 21 and below to over 65 years. The majority of the respondents (43% for producers and 64% for processors) were between the ages of 22 to 35 years. This is the active group of the labor force. The next age group (28% for producers and 24% for processors) is comprised of individuals between the ages of 36 to 45; see Table 23. The age of an individual is one of the factors that can generate information that will inform policies and strategies for adding value to the economic activity being undertaken (Alampay, 2006). Most of the participants in the business are men and married (70.4%/78.4% for farmers and 56/70% for processors); Tables 24 and 25. As discussed in chapter two, the indicators of poverty include low per capita income, low GDP growth, low life expectancy, high



under 5 mortality, high maternal mortality, high health facility person ratio, high illiteracy rate, poor water services, high morbidity rate, high malnutrition, food insecurity, high rate of rural urban migration, high unemployment rate, poor housing, poor clothing, low incomes, high rate of littering, time mismanagement, big families, transport and transportation problems, plenty of beggars, poor sources of energy and high degree of link between poverty and environmental degradation. In this study among other things, it has been observed that most of the business operators have very low education, i.e. primary school leavers (87.2% for producers and 64% for processors); Table 26. This is in addition to big family sizes; two to five children, being 58% of farmers' families and 72% for processors' families; Table 27. This shows that most of the families in the study area are poor.

**Table 23: Age of Respondents**

Age group	Producers		Processors	
	Frequency	Percent	Frequency	Percent
21 and Below	2	1.6	2	4
22 – 35	53	42.4	32	64
36 – 45	35	28	12	24
46 – 55	20	16	4	8
56 – 65	7	5.6	0	0
Over 65 and missing	8	5.3	0	0
<b>Total</b>	<b>125</b>	<b>100</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 24: Gender of the Respondent**

Gender	Producers		Processors	
	Frequency	Percent	Frequency	Percent
Male	88	70.4	28	56
Female	37	29.6	22	44

**Table 25: Marital Status**

Marital Status	Producers		Processors	
	Frequency	Percent	Frequency	Percent
Married	98	78.4	35	70
Single	11	8.8	12	24
Divorced	2	1.6	2	4
Widow	1	0.8	1	2
Cohabiting and missing	13	10.4	0	0
<b>Total</b>	<b>125</b>	<b>100</b>	<b>35</b>	<b>100</b>

Source: Field Data

**Table 26: Level of Education of the Respondent**

Education	Producers		Processors	
	Frequency	Percent	Frequency	Percent
O- Level	5	4	18	36
Primary	109	87.2	32	64
Other and missing	11	8.8	0	0
<b>Total</b>	<b>125</b>	<b>100</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 27: All Children under Respondents' Support**

Children	Producers		Processors	
	Frequency	Percent	Frequency	Percent
1	14	11.2	9	18
2	13	10.4	16	32
3	21	16.8	15	30
4	22	17.6	6	12
5	13	10.4	4	0
6	12	9.6	0	0
More than 6 and missing	30	24	0	0
<b>Total</b>	<b>125</b>	<b>100</b>	<b>50</b>	<b>100</b>

Source: Field Data

It has been confirmed that linkage exists among producers, producers and processors, and among processors. It is in the form of product flow, information and knowledge transfer, capital flow (credit/finance), through forms of contact and social relations, as discussed in sections 4.2.1 to 4.2.6. As already mentioned, poverty exists in the study area. It is also important to note that

most of the respondents' income is obtained from tomato production. Tables 28, 29 and 30 show the growth in output and revenue over time as well as the contribution of tomato revenues to the overall incomes of the tomato farmers. Table 28 shows that output has grown between the periods 2006 and 2007 as shown by a change in respondents from 51 to 68 from a 0 -100 bags production range. Likewise, for a 101 – 500 production range respondents increased from 26 in 2006 to 38 year 2007. It should be mentioned here that data on output and revenue was scanty due to lack of knowledge of record keeping on the part of farmers (producers). Similarly, as shown in Table 29, farmers moved from a low 0 -100,000 shillings revenue bracket to a higher bracket (Shillings 101,000 to Shillings 1,000,000) between 2006 and 2007. The latter grew from 65 to 84 farmers. The same trend is shown in the Shillings 1,001,000 to Shillings 2,000,000 revenue bracket; with a growth from 18 farmers to 22. It should be emphasized that revenue from tomato business contributes to more than half of the farmers' incomes in the study area, as revealed by 71.2% of the respondents; Table 30.

Similarly, Tables 31, 32 and 33 show the same things for processors. As shown in Table 31, output has grown since when the business was started. It has grown from the start, 2006 and 2007 by respondents reducing from 90% to 17% and finally to none respectively, moving from a range of 20 – 30 production capacity to 40 – 100 bottles/cans. Likewise, the range of 40 – 100 bottles/cans grew from 6% to 46% to 49% in the same period respectively.

Similarly, as shown in Table 32, considering the revenue ranges of Shillings 101,000 to 200,000 and Shillings 201,000 – 400,000 a growth of 16% and 10%, 34% and 16% and 66% and 20% was realized for the period since when the business started to 2006 and 2007 respectively. Again, as for the case of producers, tomato processing business contributes to more than half of the overall people's income, .... %; Table 33.

In order to assess how the linkage has contributed to poverty alleviation in the study area, the possession index was used as a **proxy**; Tables 34 to 39. It (possession index) is the indicator whose data was easily and readily available.

**Table 28: Output per Period**

	2006	2007
	Frequency	Frequency
0 - 100 Bags	51	68
101 – 500 Bags	26	38

Source: Field Data

**Table 29: Revenue per Period (TShs ‘000)**

	2006	2007
	Frequency	Frequency
0 - 100	18	4
101 – 1000	65	84
1001 – 2000	18	22

Source: Field Data

**Table 30: Contribution of Tomato Business to Respondents’ Total Income**

	Frequency	%
Greater than half	89	71.2
Less than half	36	28.8
Total	125	100

Source: Field Data

**Table 31: Output per Period**

	When started	2006	2007
	Frequency	Frequency	Frequency
20 – 39	45	17	0
40 – 100 Bottles/Cans	3	23	49
101–120 Bottles/Cans	2	10	1

Source: Field Data

**Table 32: Revenue per Period (in ‘000 Shillings)**

	When started	2006	2007
	Frequency	Frequency	Frequency
0 - 100	37	25	7
101 - 200	8	17	33
201 – 400	5	8	10

Source: Field Data

**Table 33: Contribution of Tomato Business to Respondents' Total Income**

	Frequency	%
Greater than half		
Less than half		
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

### **Possession Index for Farmers**

From Tables 34 to 39, it can be observed that people's standard of living changed as a result of the linkage. A discussion to this effect will be based on the state own dwelling, land ownership and material belonging, before and after the linkage.

In Table 34, results reveal that people's houses improved; ownership of houses with mud walls was reduced from 59.2% to 38%, while cement walls rose from 16% to 43%. Similarly, houses with reed walls dropped from 12.8% to 9%. As far as floors are concerned, soil floors were reduced from 73.6% to 48%, while cement took over from 12.8% to 39%. Similarly roofing changed from grass to iron sheets; the former being reduced from 65.6% to 28%, while the latter improving from 24.8% to 61%. At the same time, ownership of an average of between 1 to 3 acres of land, Table 35, increased from 27% to 48%. In terms of other selected property and material ownership, Table 36, two persons managed to build two new houses; carpentry equipment ownership rose from two to five persons; one person bought a water pump, another one a spray pump and an improvement of ownership of a generator from one to three persons.

Tables 37 to 39 present possession index data for tomato processors. In Table 37 it is shown that ownership of houses with mud walls was reduced from 54% to 8%, while cement walls rose from 32% to 90%. In case of floors, houses with soil floors were reduced from 72% to 40%, while cement took over from 24% to 52%. Similarly roofing changed; grass roof houses dropped from 48 to 4%, being replaced by iron sheet roofs that rose from 46 to 96%. Ownership of an average of between 1 to 3 acres of land, increased from 15 to 22%; Table 38. In terms of other selected property and material ownership, Table 39, ownership of bicycle increased from 12 to 22%, radio from 34 to 44%, TV sets from 20 to 82%, carpentry equipment from 4 to 10% and that for generators from 4 to 6%.

It has been observed that through product flow (trade), sales/purchase and hence revenues were rising. Also it has been established that tomato business contributes to a bigger portion of farmers' incomes. Likewise, improvement in livelihood has been established through the possession index. Therefore, based on these facts we conclude that there is overall improvement in all other areas of livelihood, and therefore, the presence of the linkage has brought a positive impact to poverty alleviation.

**Table 34: State of Respondents' (Farmer) House Before and After Linkage**

	Before		After	
	Frequency	Percent	Frequency	Percent
<b>Walls</b>				
Mud	74	59.2	47	38
Cement	20	16	54	43
Reeds	16	12.8	11	9
<b>Floor</b>				
Mud	92	73.6	60	48
Cement	16	12.8	48	39
<b>Roof</b>				
Iron sheets	31	24.8	76	61
Grass	82	65.6	36	28

Source: Field Data

**Table 35: Ownership of Land**

Acres	Before		After	
	Frequency	Percent	Frequency	Percent
¼ to 1	31	25	7	7
>1 to 3	33	27	61	48
>3 to 5	25	18	29	19
>5	5		5	

Source: Field Data

**Table 36: Ownership of Material and Appliance**

	Before	After
Appliance	Frequency	Frequency
Bicycle	26	
Radio	20	
TV	4	
Livestock	33	41
Sewing Machine	7	
Phone	7	
Furniture	11	
New house	0	2
Carpentry equipment	3	5
Water pump	0	1
Spray pump	0	1
Generator	1	3

Source: Field Data

**Table 37: State of Respondents' (Processor) House Before and After Linkage**

	Before		After	
	Frequency	Percent	Frequency	Percent
<b>Walls</b>				
Mud	27	54	4	8
Cement	16	32	45	90
<b>Floor</b>				
Mud	36	72	20	40
Cement	12	24	26	52
<b>Roof</b>				
Iron sheets	23	46	48	96
Grass	24	48	2	4

Source: Field Data

**Table 38: Ownership of Land**

Acres	Before		After	
	Frequency	Percent	Frequency	Percent
¼ to 1	11	22	5	10
>1 to 3	15	30	22	44
>3 to 5	3	6	1	2
>5	1	2	1	2

Source: Field Data

**Table 39: Ownership of Material and Appliance**

Appliance	Before		After	
	Frequency	Percent	Frequency	Percent
Bicycle	6	12	11	22
Radio	17	34	22	44
TV	10	20	41	82
Livestock	5	10	10	20
Sewing Machine	2	4	5	10
Phone	44	88	48	96
Furniture	41	82	50	100
Carpentry equipment	2	4	5	10
Water pump	0	0	1	2
Spray pump	0	0	1	2
Generator	2	4	3	6

Source: Field Data

#### 4.4 Productivity

##### 4.4.1 Farm Input Productivity

###### Employment

Farming business, in the study area, was observed to be labor intensive (83.2%); Table 40. Also presented in Table 41, is that most farmers work on their own farms, possibly with family members. Therefore, the issue of permanent employee basically means the owner of the business and his family; this is shown by Table 41, that 92% of the employees are on permanent basis. Also, note that employment levels when the business was started and the present is the same because as already mentioned above, permanent employees are the business owners, while casual employees are always on seasonal basis. The number for the latter remains the same except that they may work for long hours when business expands. However, data for casual employees is incomplete.

**Table 40: Production Intensity**

	Frequency	Percent
Labor Intensive	104	83.2
Capital Intensive	5	4
Both Labor and Capital	16	12.8
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data



**Table 41: Level of Labor Employment**

	When started				Now			
	Permanent		Casual		Permanent		Casual	
	Freq	Perc	Freq	Perc	Freq	Perc	Freq	Perc
1 – 5	115	92	46	36.8	115	92	46	36.8
6 –10			23	18.4			23	18.4
11 – 20			8	6.4			8	6.4
Greater than 21			7	5.6			7	5.6
Missing	10	8	41	32.8	10	8	41	32.8
<b>Total</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>

Source: Field Data

### **Output and Revenue**

Tables 28 and 29 have been reproduced below as Tables 42 and 43 respectively, for ease of demonstration. Table 42 shows that output has grown between the periods 2006 and 2007 as shown by a change in respondents from 51 to 68 from a 0 -100 bags production range. Likewise, for a 101 – 500 production range respondents increased from 26 in 2006 to 38 year 2007. It should be mentioned here that data on output and revenue was scanty due to lack of knowledge of record keeping on the part of farmers (producers). Similarly, as shown in Table 43, farmers moved from a low 0 -100,000 shillings revenue bracket to a higher bracket (Shillings 101,000 to Shillings 1,000,000) between 2006 and 2007. The latter grew from 65 to 84 farmers. The same trend is shown in the Shillings 1,001,000 to Shillings 2,000,000 revenue bracket; with a growth from 18 farmers to 22.

**Table 42: Output per Period (Years 2006 and 2007)**

	2006		2007	
	Frequency	%	Frequency	%
0 - 100 Bags	51	40.8	68	54.4
101 – 500 Bags	26	20.8	38	30.4
> 500 Bags and missing	48	38.4	19	15.2
<b>Total</b>	<b>125</b>	<b>100</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 43: Revenue per Period (TShs ‘000)**

	2006	2007
	Frequency	Frequency
0 - 100	18	4
101 – 1000	65	84
1001 – 2000	18	22

Source: Field Data

### **Use of Farm Inputs (Implements and Fertilizers) Over the Years**

Table 44 shows the use of hand hoes over the years. Due to the fact that farmers in the study area, lacked business management education, record keeping was a big handicap on their part. Thus, data obtained on input usage is fragmented. However, it is good enough to provide direction and implication for this study. Usage of fewer hand hoes was going down with time, as shown in Table 44. Likewise, usage of ploughs (ox or person driven) and tractors was picking up as time went by; see Tables 45 and 46.

Applying fertilizer has a high cost implication. Not many farmers in the study area were able to afford using fertilizer in their business. At the beginning many farmers were provided with 2kg bags of fertilizer; see Table 47. The same scale could not be sustained, however, the usage, although by a few people grew with time.

**Table 44: Number of Handhoes**

	Started	2005	2006	2007
	Freq	Freq	Freq	Freq
One Hoe	43	32	36	22
Two Hoes	23	28	29	27
Three Hoes	9	13	18	26
Four Hoes	2	6	11	16
> Four Hoes	0	7	10	15

Source: Field Data

**Table 45: Number of Ploughs (Ox or Person driven)**

	Started	2005	2006	2007
	Freq	Freq	Freq	Freq
One Plough	4	1	3	4
Two Ploughs		2	2	5

Source: Field Data

**Table 46: Number of Tractors**

	Started	2005	2006	2007
	Freq	Freq	Freq	Freq
One Tractor	1	4	5	6

Source: Field Data

**Table 47: Fertilizer Input Used**

		2005	2006	2007
		Frequency	Frequency	Frequency
	Started	2005	2006	2007
	Freq	Freq	Freq	Freq
½ Bag				2
1 Bag	3	11	15	18
2	100	1	3	5
3		1	1	2
> 4 Bags		4	16	

Source: Field Data

**Labor Employment Index**

The labor employment index could be obtained by calculating the weighted averages of employment for selected ranges 1 – 5 and 6 -10; Table 41. The midpoint for range 1 – 5 is 3, while that for range 6 – 10 is 8. Take a case of casual laborers with frequencies 46 and 23 respectively. Multiply 3 by 36.8% = 1.104; to this, add 8 multiplied by 18.4%, the result is 2.576. This will be a simple **employment (labor) index**. More advanced methods of calculating index numbers can be applied; however, this will suffice for this study. The same technique can be applied to calculate indices for other inputs (capital, fertilizer, etc).

### **Production/Output Index**

Take two production ranges, 0 - 100,000 and 101,000 – 500,000; Table 43. Consider year 2007; the output index is obtained by calculating the weighted averages of output as follows: The midpoint for range 0 – 100,000 is 50,000, while the midpoint for range 101– 500,000 is 250,000, with relative frequencies 68 and 38% respectively. Multiply 50,000 by 68% = 34,000; to this, add 250,000 multiplied by 38%, the result is 129,000. This will be a simple **production/output index**. Note that it can be presented in any form to reduce its size; however, it should be noted that its practical magnitude and significance is maintained.

### **Labour Productivity Index**

This is the ratio of the labor (employment) index to output index; thus in our case:

$$\frac{2.576}{129,000}$$

which equals to 0.0000199669. This is a **technical coefficient** for use in planning for any future business investment related to this study. Similar coefficients could be calculated for the rest of the inputs.

### **Production Support**

Some farmers were provided with support in form of credit for inputs (financial support), overall farming practice education and marketing. This support came from buyers, relatives, the village government, one commercial bank, a religious NGO called (World Vision); Sokoine University of Agriculture through its wing called WAPATA. Table 48 shows that thirty seven farmers obtained support from buyers, 8 from donors (banks, village government, NGO and Sokoine University); and finally 4 from relatives.

**Table 48: Production Support Provided**

	From Buyers	From Donors	From Relative
	Frequency	Frequency	Frequency
Support Provided	37	8	4

Source: Field Data

#### 4.4.2 Processor Input Productivity

##### Tomato Processing

Most of the tomato processing, as shown in Table 49 is labor intensive (72%); it is done manually by hand processing (squeezing). It has also been observed that 72% of the permanent employees fall in the range of 1 – 5 employees; Table 50. This is basically the owner of the business and possibly one or two member of his/her family. Data on casual laborers was not satisfactory.

**Table 49: Production Intensity**

	Frequency	Percent
Labour Intensive	36	72
Capital Intensive	14	28
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 50: Level of Labor Employment**

	Permanent		Casual	
	Frequency	Percent	Frequency	Percent
1 – 5	36	72	19	38
6 – 10	4	8	2	4
> 10 and missing	10	20	29	58
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>

Source: Field Data

##### Output and Revenue

Tables 31 and 32 have been reproduced below as Tables 51 and 52 respectively, for ease of demonstration. As shown in Table 51, output has grown since when the business was started. It has grown from the start, 2006 and 2007 by respondents reducing from 90% to 17% and finally to none respectively, moving from a range of 20 – 30 production capacity to 40 – 100 bottles/cans. Likewise, the range of 40 – 100 bottles/cans grew from 6% to 46% to 49% in the same period respectively.

Similarly, as shown in Table 52, considering the revenue ranges of Shillings 101,000 to 200,000 and Shillings 201,000 – 400,000 a growth of 16% and 10%, 34% and 16% and 66% and 20% was realized for the period since when the business started to 2006 and 2007 respectively.

**Table 51: Output per Period**

	When started		2006		2007	
	Frequency	%	Frequency	%	Frequency	%
20 – 39	45	90	17	34	0	
40 – 100 Bottles/Cans	3	6	23	46	49	
101–120 Bottles/Cans	2	4	10	20	1	
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>100</b>	

Source: Field Data

**Table 52: Revenue per Period (in ‘000 Shillings)**

	When started		2006		2007	
	Frequency	%	Frequency	%	Frequency	%
0 - 100	37	74	25	50	7	14
101 - 200	8	16	17	34	33	66
201 – 400	5	10	8	16	10	20
<b>Total</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>50</b>	<b>100</b>

Source: Field Data

### **Processing Methods Used**

At the beginning, most of the processing was done manually, hand squeezing (40 responded to this effect); six used one blender, while four used two blenders. However, the trend changed; at present, hand squeezing has dropped to thirteen respondents, while one and two blender usage picking up to 27 and 10 respectively.

**Table 53: Type of Tomato Processing**

	Started	Now
	Frequency	Frequency
Hand squeezing	40	13
One blender	6	27
Two blenders	4	10
<b>Total</b>	<b>50</b>	<b>40</b>

Source: Field Data

### **Labor Employment Index**

As has been done for the case of producers, a labor employment index is calculated as follows: Consider the weighted averages of employment for selected ranges 1 – 5 and 6 -10, in Table 50. The midpoint for range 1 – 5 is 3, while that for range 6 – 10 is 8. Take a case of casual laborers with frequencies 19 and 2 respectively. Multiply 3 by 38% = 1.14; to this, add 8 multiplied by 4%, the result is 1.14. This will be a simple employment (labor) index. Again, as already pointed out, more advanced methods of calculating index numbers can be applied. The same technique can be applied to calculate indices for other inputs.

### **Production/Output Index**

Consider two production ranges, 0 - 100,000 and 101,000 – 200,000, for year 2007; Table 51. The output index is obtained by calculating the weighted averages of output as follows: The midpoint for range 0 – 100,000 is 50,000, while the midpoint for range 101 – 200,000 is 150,000, with relative frequencies 14 and 66% respectively. Multiply 50,000 by 14% = 7,000; to this, add 150,000 multiplied by 66%, the result is 106,000. This will be a simple **production/output index**. Note that it can be presented in any form to reduce its size; however, it should be noted that its practical magnitude and significance is maintained.

### **Labour Productivity Index**

This is the ratio of the labor (employment) index to output index; thus in our case:

$$\frac{1.14}{106,000}$$

which equals to 0.000010755. This is a **technical coefficient** for use in planning for any future business investment related to this study. Similar coefficients could be calculated for the rest of the inputs.

### **Processing Support**

Many processors were provided with support in form of promotion policy, technical skills, credit and marketing support. This support came from the government, donor community and from friends and relatives. Table 54 shows the overall multi-categorical support from different sources. As usual, most of the promotion policy support, marketing and credit support came from the government. Donors also contributed somehow as far as credit is concerned.

**Table 54: Major Production Support Provided to All Processors from Different Sources (Cross Tabulation)**

	From Govt	From Donors	From Relative
	Frequency	Frequency	Frequency
Promotion Policy	33	1	
Technical Skills	5	7	
Credit	18	11	1
Marketing	39	1	1

Source: Field Data

#### 4.5 Marketing, Storage and Preservation

##### PRODUCERS

##### Marketing Strategies and Catchment Area

Marketing has been observed to be done mostly through word of mouth (81.6%) as shown in Table 55. For the time being it was the method that was found to be the most effective (68%); Table 56. However, respondents were not satisfied with their marketing abilities because they felt the price obtained was not right, thus they would require marketing assistance in terms of obtaining better markets, marketing education (to assist in advertising) and marketing facilities such as transportation and tomato storage and preservation machines; see Table 57. The latter would involve constructing cold rooms at sale centers.

**Table 55: How the product is marketed**

	Frequency	Percent
Word of Mouth	102	81.6
Media (Print and Electronic)	2	1.6
Never (and missing)	21	16.8
Total	125	100

Source: Field Data



**Table 56: Effectiveness of Marketing Strategies**

	Frequency	Percent
Word of Mouth	85	68
Media (Print and Electronic)	10	8
Never (and missing)	30	24
Total	125	100

Source: Field Data

**Table 57: Need of Marketing Support**

	Better Markets	Mkting Educatn	Mktng Facilts
	Frequency	Frequency	Frequency
Support Needed	67	26	8

Source: Field Data

### **Storage modes and preservation techniques**

Most of the respondents store their ripe tomato in cylos (at selling centers) where they meet with the buyers (74.4%); Table 58. Sun drying was practiced in one of the areas, but failed to gain momentum due to the solar machine maintenance problems. Respondents who do not store their products, not even temporarily, make direct sales from their farms.

**Table 58: How the Product is stored**

	Frequency	Percent
Sun-drying	2	1.6
In Cylos	93	74.4
Never and missing	30	24
Total	125	100

Source: Field Data

## **PROCESSORS**

### **Marketing Strategies and Catchment Area**

It has been observed that processors market their products, mainly through word of mouth (90%); Table 59. However, respondents require marketing support in terms of obtaining better price (28) and more market outlets (62%); Table 60. Assistance requirement for more market outlets is quite evident because these people produce products such as mango pickles, tomato sauce, tomato relish, etc. The products are in such good quality to an extent that they can even

compete internationally. However, when asked what their target locations for sales were, they mentioned to nearby markets and shops (82%), as well as nearby districts, Mororgoro town and Dar es Salaam city (18%); Table 61. This was becoming too myopic considering the quality of their products.

**Table 59: How the Product is marketed**

	Frequency	Percent
Word of Mouth	45	90
Media (Print and Electronic)	0	0m
Never and missing	5	10
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 60: Need of Marketing Support**

	Frequency	Percent
Better price	14	28
More market outlets	36	62
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

**Table 61: Target Locations for Sales**

	Frequency	Percent
Nearby markets and shops	41	82
Nearby districts, Mororgoro and Dar es Salaam	9	18
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

### **Storage Modes and Preservation Techniques**

As a result of the training respondents obtained from SIDO, they package processed products in bottles, after adding preservatives. This is evidenced by 86% response to this effect; Table 62. In addition, most of them complained to have been facing problems in acquiring packing bottles, labels and preservatives. At times, their main source SIDO does not provide them with enough of the material, thus, they are forced to obtain them Kenya.

**Table 62: How Product is stored**

	Frequency	Percent
In Packages after adding approved preservatives	43	86
On the shelf	7	14
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

## 4.6 Sustainability

### PRODUCERS

#### Business Skills Acquisition

Most of the tomato processors obtained the skills by observing (60%); Table 63. This is embedded with interest, which is an important attribute for sustainability. It matches with the business startup idea result (53%), as observed in Table 2. This was followed by learning/ inheriting from parents (27.2%) and finally by training (6.4%), which does not seem to count much to farmers.

**Table 63: Form of Acquiring the Skills**

	Frequency	Percent
From Parents	34	27.2
By Training	8	6.4
Observing others (Business interest)	75	60
Missing	8	6.4
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

#### Skills Transfer

Sustainability is also assessed by transferring skills; skills could be transferred to family members and relatives, neighbors, to group or community members. Findings of this study have revealed that most of the skills are transferred to family members and relatives (77%), as compared community members (23%). The transfer is mostly based on personal, social values and honesty criteria.

**Table 64: Transfer of Skills**

	To Family and Relatives		To Community	
	Frequency	%	Frequency	%
Willing (104)	80	57	24	30
Not willing (12)				
Missing (9)				
Total (125)				

Source: Field Data

### **Technological Progress**

Referring to Table 44, it is observed that usage of fewer hoes was being reduced; on the other hand, from Tables 45 and 46 it is shown that usage of ploughs and tractors was picking up. This is an indication in advancement in technology usage. From the Focus Group discussion, people showed willingness and eagerness for future usage of advanced technology.

### **Technical Support**

As already discussed, skills were acquired through observing what people were doing, training and hereditary from parents. In this section, similar emphasis on skills apply, however, it is more focused to becoming more technical, eg farm management, etc. Respondents indicated that, since this is a long term measure, such support should come from the government (67.5%); Table 65.

**Table 65: Type and Source of Technical Support Required**

	From Government		From Donors	
	Frequency	%	Frequency	%
Technical Skills (114)	77	67.5	37	32.5
Support not needed (11)				

Source: Field Data

### **Environment and Team Expansion**

A conducive operating environment include, support from all relevant authorities, including the government, donors and all sorts of relations. The main form of environmental of support sought echoed is promotion policy, again from the government (72.8%); Table 66. This will be the basis for growth, which is a trend of continued business. In the process, one would seek for new and bigger land, bigger warehouse, modern tools, etc and team up with others (91.2%); Table 68.

**Table 66: Type Environment Required**

	From Government	
	Frequency	%
Promotion Policy needed	91	72.8
Not needed	13	27.2
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

**Table 67: Scale for Business Expansion**

	Double		Triple	
	Frequency	%	Frequency	%
Intention to expand	72		43	
No expansion	53			
<b>Total</b>	<b>125</b>			

Source: Field Data

**Table 68: Working in Teams**

	Frequency	Percent
Willing to work in teams	114	91.2
Intends to remain alone	11	8.8
<b>Total</b>	<b>125</b>	<b>100</b>

Source: Field Data

## PROCESSORS

### Business Skills Acquisition

Most of the respondents (42%) obtained skills through observing what others were doing (Table 69; thus interest was developed through the process. This is an equally important attribute in sustainability. This was followed by training (38%) and finally hereditary from parents (20%).

**Table 69: Form of Acquiring the Skills**

	Frequency	Percent
From Parents	10	20
By Training	19	38
Observing others (Business interest)	21	42
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

### **Skills Transfer**

Sustainability is often assessed by transferring skills; skills could be transferred to family members, relatives, neighbors, group or community members. Findings have revealed that most of the skills are transferred to family members and relatives (75%); followed by community members (25%); Table 70. The transfer is mostly based on personal and social values and honesty criteria.

**Table 70: Transfer of Skills**

	To Family and relatives		To Community	
	Frequency	%	Frequency	%
Willing (44)	33	75	11	25
Not willing (6)				

Source: Field Data

### **Technological Progress**

The use of more and more better tools has been shown by the trend in Table 71. However, more advanced equipment would put the processors in better position.

**Table 71: Trend in the Use of Blenders**

	Past	Present	Future
	Frequency	Frequency	Frequency
One blender	6	27	35
Two blenders	4	10	15

Source: Field Data

### **Business Environment, Expansion and Teaming up**

Table 72 shows that 75.5% and 24.5% of the respondents are willing to double and triple their business respectively. In addition, 96% of the respondents are prepared to team up in their business; Table 73. These are good indicator for sustainability. However, a conducive environment is required.

**Table 72: Scale for Business Expansion**

	Double		Triple	
	Frequency	%	Frequency	%
Intention to expand (49)	37	75.5	12	24.5
No expansion 1				

Source: Field Data

**Table 73: Working in Teams**

	Frequency	Percent
Willing to work in teams	48	96.
Intends to remain alone	2	4
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Data

#### **4.7 Focus Group Discussion**

Focus group discussions were organized for two separate farmers (tomato producers) groups combining Fukwe and Kizinga villages in Mkambarani ward, as well as Mlali and Kipela villages in Mlali ward. Processors were organized in one group, combining SIDO trained processors and those under University of Dar es Salaam Business Incubation Project. Focal questions and the discussion hitherto is as follows:

#### **PRODUCERS**

##### **1. How did you come up with the idea of doing this business?**

Many admitted to have watched others do the business; the rest followed suit.

##### **2. Do you think the business you are doing is worthwhile?**

Many agreed that the business was worthwhile because it contributes to a bigger share of their overall income.

##### **3. How do you interact with fellow producers?**

Interaction was in forms of information sharing in input procurement, product development, market information, pesticide application, seed storage, crop rotation, price setting, irrigation methods and transportation.

##### **4. Has this interaction helped you? In what ways?**

Interaction, they admitted, helped them in terms improving their business activity

**5. How do you interact with the buyers/ processors?**

Obviously, the first interaction is trade; but also concerning advice on the quality of the product, and credit and/ or advance forms of payment

**6. How has this interaction helped you?**

Knowledge/ information helped them improve the quality of the product

**7. Do you face problems sustaining the interactions?**

At times processors take the product on credit and do not pay.

**8. Do you need assistance in your farming activity?**

The main problem was input acquisition; high price of fertilizer was prohibitive, cost of plough and tractors and bad weather. They however, showed willingness and eagerness for more usage of advanced technology, if provided with relevant support.

**9. Do you think you get the right price for your product?**

Because they are already in business linkage (contract) with the buyers, i.e the processors, farmers keep on negotiating for better prices.

**10. Do you think you will continue doing this business forever/ is it sustainable ?**

They claimed it is good business, however, with current trend in globalization they felt better farming practice including improved farming techniques would make the business more lucrative. Thus needed financial support for inputs and to be provide with farming skills.

**PROCESSORS**

**1. How did you come up with the idea of doing this business?**

Learning from their predecessors, especially parents, advice from friends and relatives and as a result of training from SIDO

**2. How do you interact with fellow processors?**

They lend inputs to each other, purchasing inputs in bulk at a low price, sharing information on product improvement and market access.

**3. Do you need assistance in processing tomato?**

Many respondents echoed that they need education in food processing and preserving and modern processing and preserving equipment.

**4. Do you have ready market for your product?**

Many of them responded that the market is there; many people ought to use their products, however, due to stiff competition with foreign products, quality assurance should be put upfront.



This includes packaging and preserving. Many of them complained that they face problems acquiring packing bottles, labels and preservatives. At times, their main source SIDO does not provide them with enough of the material, thus, they are forced to obtain them Kenya.

#### **5. Do you think you will continue doing this business forever?**

Since they have the skills, and since also the business contributes to a greater share of their incomes for livelihood, processor felt they intend to continue with the business. However, they felt support was important because competition from imported goods is affecting their market. Thus they needed support for modern and advanced processing equipment and better packaging material to stand the competition.

### **4.8 Discussion on Testing the Hypotheses**

**4.8.1** H0: There is no linkage among tomato producers, between producers and processors and among processors

H1: The linkage among tomato producers, between producers and processors and among processors does exist

Producers link among each other in various forms including exchanging information on several areas such as procurement of inputs, product development, market information, pesticides application, seed storage, crop rotation, price setting, irrigation methods and transportation; **this is information flow and knowledge transfer form of linkage**. They also have a **social form** of linkage based on social attributes such community activities, family activities, cultural activities, issues as bailing each out during crises and so on. This is done based on a certain frequency level of contacts (**another attribute of linkage**). Linkage also exists between farmers and processors; again **in form of information flow and knowledge transfer and capital flow**. The latter being buying/selling on credit or making advance payment. Finally, linkage exists among processors as well; this is **in form of information flow and knowledge transfer and a bit in social relations**. Processors lending inputs to each other, engage in pooled procurement of inputs especially packaging material, exchange ideas on product improvement, share market information such as sourcing for good quality tomato and attending courses together.

**RESULT: H0 has been rejected, thus a linkage among tomato producers, between producers and processors and among processors does exist.**

**4.8.2** H0: The linkage among tomato producers, between producers and processors and among processors has no positive implication on poverty alleviation

H1: The linkage among tomato producers, between producers and processors and among processors has a positive implication on poverty alleviation

As pointed out above, existence of linkage has been established. Through product flow (trade), sales/purchase and hence revenues were rising. Thus, using the possession index as a proxy, it has been established that people's livelihood has been improved. Since tomato growing contributes to a bigger portion of farmers' incomes, and an improvement in livelihood has been established through the possession index, this implies that there should be **overall** improvement in all other areas of livelihood, and therefore, the presence of the linkage has brought a positive impact to poverty alleviation.

**RESULT: H0 has been rejected, thus The linkage among tomato producers, between producers and processors and among processors has a positive implication on poverty alleviation**

**4.8.3** H0: Marketing strategies, storage and preservation structures do not function adequately in tomato production and processing

H1: Marketing strategies, storage and preservation structures function adequately in tomato production and processing

Most of the marketing either for farm output (tomato) or for processed goods is done by word of mouth. However, both parties are not satisfied with their marketing abilities. Farmers are already in contract with the processors, for a certain amount of output. Thus, they have to seek for markets for the surplus. Even though they are in contract with the processors, they are not satisfied with the price they are getting.

Tomato is highly perishable, not all volume of products is sold within a certain limited time; thus within sale centers, assistance is required to install either cold rooms, or provide any means of transport that would safely take the product to the market.

Processors need assistance for market outlets. These people produce products such as mango pickles, tomato sauce, tomato relish, etc. The products are in such good quality to an extent that they can even compete internationally. However, their target locations for sales were nearby markets and shops as well as nearby districts.

**RESULT: H0 has been WEAKLY REJECTED, Marketing strategies, storage and preservation structures do function BUT NOT adequately in tomato production and processing**

**4.8.4** H0: Engaging in tomato production and processing is not sustainable even when is based on skills acquisition (including observing how people do it) and transfer, inheritance, technological adoption, working environment and quest for expansion.

H1: Engaging in tomato production and processing sustainable if it is based on skills acquisition (including observing how people do it) and transfer, inheritance, technological adoption, working environment and quest for expansion.

Mostly, all skills for both parties were acquired by observing. These skills are then transferred to family members and relatives. The transfer is mostly based on personal, social values and honesty criteria. Adaptation and knowledge acquisition features equally highly in the issue of sustainability. It has been observed in the study that usage of fewer hoes was being reduced, replaced by ploughs and tractors. This is an indication in advancement in technology usage. From the Focus Group discussion, people showed willingness and eagerness for future usage of advanced technology. In addition, tomato business contributes to a bigger percentage of the people's overall income, thus assurance of expansion and teaming up was made if given an enabling environment.

**RESULT: H0 has been rejected, Engaging in tomato production and processing is sustainable if it is based on skills acquisition (including observing how people do it) and transfer, inheritance, technological adoption, working environment and quest for expansion.**

## **5. Conclusion and Recommendation**

### **5.1 Conclusion**

#### **5.1.1 Linkage**

The linkage among the tomato producers was established. It is in several forms. People exchange information on several areas such as procurement of inputs, product development, market information, pesticides application, seed storage, crop rotation, price setting, irrigation methods and transportation; this is information flow and knowledge transfer form of linkage. They also have a social form of linkage based on social attributes such community activities, family activities, cultural activities, issues as bailing each out during crises and so on. This is done based on a certain frequency level of contacts. Linkage also exists between farmers and processors; again in form of information flow and knowledge transfer and capital flow. The latter being buying/selling on credit or making advance payment. Finally, linkage exists among processors as well; this is in form of information flow and knowledge transfer and a bit in social relations. Processors lending inputs to each other, engage in pooled procurement of inputs especially packaging material, exchange ideas on product improvement, share market information such as sourcing for good quality tomato and attending courses together.

#### **5.1.2 Linkage and Poverty**

The indicators of poverty include low per capita income, low GDP growth, low life expectancy, high under 5 mortality, high maternal mortality, high health facility person ratio, high illiteracy rate, poor water services, high morbidity rate, high malnutrition, food insecurity, high rate of rural urban migration, high unemployment rate, poor housing, poor clothing, low incomes, high rate of littering, time mismanagement, big families, transport and transportation problems, plenty of beggars, poor sources of energy and high degree of link between poverty and environmental degradation. Thus, Tanzania ranks low to almost all the above in general, and the study area in particular. The results of the study among other things have revealed that that most of the business operators have very low education, i.e. primary school leavers, big family sizes. This proves the prevalence of poverty in the study area.

As pointed out above, existence of linkage has been established. Through product flow (trade), sales/purchase and hence revenues were rising. Thus, using the possession index as a proxy, it has been established that people's livelihood has been improved. Since tomato growing

contributes to a bigger portion of farmers' incomes, and an improvement in livelihood has been established through the possession index, this implies that there should be **overall** improvement in all other areas of livelihood, and therefore, the presence of the linkage has brought a positive impact to poverty alleviation.

### **5.1.3 Production and Productivity Indices**

Production scale of the farmers kept on picking up, but at a slow pace, due to the usage of traditional farm implements. Adapting modern production practices is expensive due to the cost involved. Likewise, processors experienced the same situation. They are moving from hand squeezing, to light machine (blender) processing. They would prefer more advanced processing machines; they went on to suggest that in the process, they can come up with a bigger scale (many firms forming a tomato processing industry in the area).

In order to carry out production activity, technical coefficients should be in place. These are obtained from existing models for the institution. The aim of this study, at subsequent phases will establish the opportunity for investing in this sector. The sector is an existing network (linkage) that can be exploited for expansion and thus become a business opportunity. Thus the input utilization as well as the output indices were calculated in order to come up with the overall productivity index. These were calculated for the level of the study data that were collected. They are technical coefficients that can be adjusted to any level, thus guiding the investors to any required investment scale.

### **5.1.4 Marketing, storage and preservation**

Tomato is a highly perishable product. Buyers collect the goods right from the farm or from sale centers. Products that are not sold within a certain limited time are bound to rot. Thus within sale centers, assistance is required to install either cold rooms, or provide any means of transport that would safely take the product to the market. Sun drying was practiced in one of the areas, but failed to gain momentum due to the solar machine maintenance problems.

Most of the marketing either for farm output (tomato) or for processed goods is done by word of mouth. However, both parties are not satisfied with their marketing abilities. Farmers are already in contract with the processors, for a certain amount of output. Thus, they have to seek for

markets for the surplus. Even though they are in contract with the processors, they are not satisfied with the price they are getting.

On the other hand, processors need assistance for market outlets. These people produce products such as mango pickles, tomato sauce, tomato relish, etc. The products are in such good quality to an extent that they can even compete internationally. However, their target locations for sales were nearby markets and shops as well as nearby districts.

### **5.1.5 Sustainability**

Both producers and processors mostly obtained the skills by observing. This is embedded with interest, which is an important attribute for sustainability. It matches with the reason for business startup idea. Training does not seem to feature much. However, it is an important aspect as far as sustainability is concerned.

Skills transfer also is an attribute to be looked at in sustainability assessment. Findings of this study have revealed that most of the skills are transferred to family members and relatives. The transfer is mostly based on personal, social values and honesty criteria.

Adaptation and knowledge acquisition features equally highly in the issue of sustainability. It has been observed in the study that usage of fewer hoes was being reduced, replaced by ploughs and tractors. This is an indication in advancement in technology usage. In addition, tomato business contributes to a bigger percentage of the people's overall income, thus, people showed willingness and eagerness for future usage of advanced technology, teaming up and expansion.

## **5.2 Recommendations**

1. Recommendation to include support in production both to farmers and processors; this could be in form of credit for input procurement, marketing support, especially storage facilities to farmers and efficient processing machines to processors. The latter went on to suggest that in the process, they can come up with a bigger scale (many firms forming a tomato processing industry in the area).
2. It seems from the study, that farming practice training does not count much to the farmer's advancement. We all know that training is the backbone for any occupation. It might be in this case that they are not provided with the right type of training! The same applied to tomato

processing. A conducive environmental support should be put in place in order to identify a proper type of training to both groups.

3. Both groups need business management training; bad record keeping on operations data including input, output and revenue data records, revealed this.

### **5.3 Further Studies**

It is recommended that the next phase of study should be to map out the investment scales based on the established productivity indices.

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**Appendices**

**Appendix 1: Questionnaire for Grass Root Agricultural Activities**

Name of Interviewee .....

Contact Address ..... Tel (if any).....

District .....

Date of interview .....

**General Questions**

1. Age group: **a.** below 21 **b.** 22-35 **c.** 36-45 **d.** 46-55 **e.** 56-65 **f.** over 65
2. Gender **a.** male **b.** female
3. Marital status **a.** married **b.** single **c.** divorced **d.** widowed **e.** cohabitating
4. Number of wives for a married male .....
5. Highest level of education **a.** university **b.** post secondary **c.** A’level secondary **d.** O’level secondary **e.** primary school **f.** other (specify) .....
6. Total number of children under your support ..... Your own .....
7. Do your children go to school? **a.** Yes **b.** No
8. If Yes , how many .....

**Possession Index**

		Before Linkage	Now
Type of house	Roof = grass		
	= iron sheets		
	Walls = mud		
	= cement		
	= reeds		
	Floor = cement		
	= soil		
	Other		
Ownership of Land	Acreage .....		
Ownership of appliances	Bicycle, car, sewing machine, radio, TV, etc ....(mention)		

**Linkage Questions**

1. Tell us how you came up with the idea to start producing tomato for sale
- .....
- .....

2. Age group of agricultural activity ..... **a.** below 1 yr **b.** 1-2 yrs **c.** 3-5 yrs **d.** 6-10 yrs **e.** over 10 yrs

3. Ownership of farming activity **a.** single owner **b.** family farm **c.** co-ownership

4. Where do you normally sell your product to, and what do the buyers do with it?

Buyer (name)	Usage

5. Has the number of buyers increased in the last 2 years? ...**a.** Yes ..... **b.** No If yes, by how many? .....

6. Kindly complete the following regarding your most important buyers of your product.

Buyer's name	Location	Time to reach buyer	Distance to buyer	Mode of transport	Bearer of transport cost

7. Has the mode of reaching your market changed over time?

.....  
 .....

***Interaction with other producers***

8. It is common to have producers interact with other producers. Do you interact with other producers? **a.** Yes **b.** No If Yes explain the nature of interaction(s) giving examples of the producers you interact with (advice, pooled procurement of inputs, ....)

.....  
 .....

9. Frequency of interaction with other producers (choose one answer)

	Daily	Weekly	Monthly	Annually	Over one year
Firm 1					
Firm 2					
Firm 3					

10. Have you (or do you have plans) interacted with other producers in the following areas (multiple answers possible)

I currently interact in		I might interact in	
Product development		Product development	
Promotion		Promotion	
Market information		Market information	
Transport		Transport	
Management advices		Management advices	

11. To what extent have linkage with fellow producers helped you?

.....  
 .....

12. Have you faced problems in your endeavour to build and sustain the linkage with other producers? **a.** Yes **b.** No If yes, what was the reason? (Choose a correct answer, multiple answers possible)

Lack of trust	Lack of financial support	Closure of the firm	Lack of moral support	Lack of information	Closure of the firm	Others (specify)

13. Do you have any social relations with your fellow producers? **a.** Yes **b.** No

Explain

.....  
 .....

***Interaction with buyers***

14. Besides buying and selling exercise, do you interact with buyers? **a.** Yes **b.** No If Yes explain the nature of interaction(s) giving examples (advice, lending/ selling on credit, advance payment, ....)

.....  
 .....

15. Frequency of interaction with other producers (choose one answer)

	Daily	Weekly	Monthly	Annually	Over one year
Firm 1					
Firm 2					
Firm 3					

16. Have you (or do you have plans) interacted with buyers in the following areas (multiple answers possible)

<b>I currently interact in</b>		<b>I might interact in</b>	
Product development		Product development	
Promotion		Promotion	
Market information		Market information	
Transport		Transport	
Management advices		Management advices	

17. To what extent have linkage with buyers helped you?

.....  
 .....

18. Have you faced problems in your endeavour to build and sustain the linkage with the buyers?

**a.** Yes **b.** No If yes, what was the reason? (Choose a correct answer, multiple answers possible)

Lack of trust	Lack of financial support	Abandoning of agricultural activity	Lack of moral support	Lack of information	Others (specify)

13. Do you have any social relations with the buyers? **a.** Yes **b.** No

Explain

.....  
 .....

***Productivity***

- How do you produce your product (tomato)? **a.** Labour intensive ..... **b.** Capital intensive
- Kindly complete the following regarding the number of employees in your business:

Number of employees			
Current		When started	
Permanent (tick)	Casual (number)	Permanent (tick)	Casual (number)
1 –5		1 -5	
6 – 10		6 – 10	
11 – 20		11 – 20	
21 – 49		21 – 49	

3. Production record: Complete the following table

	Now (2007)	2006	2005	When started
Quantity Produced				
Revenue earned				
Form of payment: cash/credit				

4. Type and number of Input usage: Complete the following table

	Now (2007)	2006	2005	When started
Hand hoes				
Ox or person driven hoes				
Tractors				
Fertilizer				

5. Do you have any support in the production process? **a.** Yes .....**b.** No. If Yes

Type of support	From whom?

### **Marketing**

- How do you market your products? **a.** word of mouth **b.** news papers **c.** never
- Do you need any assistance in marketing your product? **a.** Yes **b.** No. If yes, what type of assistance?.....  
.....  
.....
- How many locations/areas do you target your sales to? .....
- If you market your product, how effective is each marketing strategy? **a.** word of mouth more effective **b.** newspapers more effective

### **Storage and Preservation**

- How do you store your product **a.** sun drying **b.** cyclos **b.** never

2. Do you need any assistance in storing/preserving your product? **a.** Yes **b.** No. If yes, what type of assistance?.....  
.....  
.....
3. As farmer, do you harvest ripe or unripe tomato fruits? **a.** ripe **b.** unripe
4. Do you wait for buyers to come to you or you take your product to the market? **a.** buyers come to me **b.** I take the product to the market **c.** sales are done in trading centers
5. If you do it in trading centres, who owns the centres? **a.** community **b.** government **c.** cooperative unions

***Sustainability***

**ACQUISITION OF GENERIC AND TRANSFER SKILLS**

1. How did you acquire the skills? **a.** Parents .....**b.** Training ..... **c.** Observing .....
2. Are you transferring the skills to others? **a.** Yes **b.** No
3. If Yes, by completing the following table, emphasising the personal and social values criteria and to whom?

	Family	Relatives	Group	Neighbor	Community
Honesty					
Integrity					
Communication					

**MOVING WITH TECHNOLOGICAL CHANGES (DEMANDING IMPROVED SKILLS – ADOPTION OF HIGH TECHNOLOGY)**

1. What type of technology did you use in the past, what are you using now, what do you expect to use in the future?

	Past	Now	Future
Hand hoes			
Ox or person driven hoes			
Tractors			
Fertilizer			

## WORKING ENVIRONMENT

1. Complete the following table by showing the type of support:

	Government	Donor Community	Fiends/Relatives
Promotion policy			
Technical Skills			
Credit for farming			
Credit for fertilizer			
Marketing support and infrastructure			

## KNOWLEDGE OF USING TOOLS IN ORDER TO PERFORM TASKS EFFICIENTLY

1. How did/do you acquire the skills? **a.** Formal Training **b.** Through working with groups **c.** Hereditary from parents

## COMMITMENT IN THE BUSINESS

1. Where your parents engaged in the same activities? **a.** Yes **b.** No
2. Where you involved in this business before (commercially) as opposed to peasantry? **a.** Yes **b.** No
3. Do you have any other business for your livelihood, besides tomato growing? **a.** Yes **b.** No
4. If Yes, what are the other businesses, and their contribution to your total income

	%
Tomato growing	
.....	
.....	

## OPPORTUNITY FOR EXPANSION

1. Do you intend to expand your business? **a.** Yes **b.** No
2. If Yes, to what scale as compared to the present **a.** Double **b.** Triple
3. To what scale (acreage for farmers; warehouse, workstations, for processors?)
4. Do you intend to team up with others as partners?

### *Focus Group Discussion Questions*

1. How did you come up with the idea of doing this business?
2. Do you think the business you are doing is worthwhile?



3. How do you interact with fellow producers?
4. Has this interaction helped you? In what ways?
5. How do you interact with the buyers/ processors?
6. How has this interaction helped you?
7. Do you face problems sustaining the interactions?
8. Do you need assistance in your farming activity?
9. Do you think you get the right price for your product?
10. Do you think you will continue doing this business forever?

**Appendix 2: Questionnaire for Business Enterprises in Urban Areas**

Name of Interviewee .....

Business Name .....

Contact Address ..... Tel .....

District .....

Date of interview .....

**General Questions**

1. Age group: **a.** below 21 **b.** 22-35 **c.** 36-45 **d.** 46-55 **e.** 56-65 **f.** over 65
2. Gender **a.** male **b.** female
3. Marital status **a.** married **b.** single **c.** divorced **d.** widowed **e.** cohabitating
4. Number of wives for a married male .....
5. Highest level of education **a.** university **b.** post secondary **c.** A'level secondary **d.** O'level secondary **e.** primary school **f.** other (specify) .....
6. Total number of children under your support ..... Your own .....
7. Do your children go to school? **a.** Yes **b.** No
8. If Yes , how many .....

**Possession Index**

		Before Linkage	Now
Type of house	Roof = grass		
	= iron sheets		
	Walls = mud		
	= cement		
	= reeds		
	Floor = cement		
	= soil		
	Other		
Ownership of Land	Acrage .....		
Ownership of appliances	Bicycle, car, sewing machine, radio, TV, etc ....(mention)		

**Network Questions**

1. Tell us how you came up with the idea to start processing this product (tomato)

2. Age group of business ..... **a.** below 1 yr **b.** 1-2 yrs **c.** 3-5 yrs **d.** 6-10 yrs  
**e.** over 10 yrs
3. Ownership of business **a.** family business **b.** single owner **c.** co-ownership
4. Where do you normally buy your tomato from?

<b>Seller (name)</b>

5. Has the number of sellers increased in the last 2 years? ...**a.** Yes ..... **b.** No If yes, by how many? .....
6. Kindly complete the following regarding your most important sellers of the tomato.

<b>Seller's name</b>	<b>Location</b>	<b>Time to reach seller</b>	<b>Distance to seller</b>	<b>Mode of transport</b>	<b>Bearer of transport cost</b>

7. Has the mode of reaching your seller changed over time?

.....  
 .....

***Interaction with sellers***

8. Besides buying and selling exercise, do you interact with sellers? **a.** Yes **b.** No If Yes explain the nature of interaction(s) giving examples (advice, lending/ buying on credit, advance payment, ....)

.....  
 .....

9. Frequency of interaction with the sellers (choose one answer)

	<b>Daily</b>	<b>Weekly</b>	<b>Monthly</b>	<b>Annually</b>	<b>Over one year</b>
<b>Seller 1</b>					
<b>Seller 2</b>					
<b>Seller 3</b>					

10. Have you (or do you have plans) interacted with sellers in the following areas (multiple answers possible)

I currently interact in		I might interact in	
Promotion		Promotion	
Market information		Market information	
Transport		Transport	

11. To what extent have linkage with sellers helped you?

.....  
 .....

12. Have you faced problems in your endeavour to build and sustain the linkage with the sellers?

**a. Yes b. No** If yes, what was the reason? (Choose a correct answer, multiple answers possible)

Lack of trust	Lack of financial support	Abandoning of agricultural activity	Lack of moral support	Lack of information	Others (specify)

13. Do you have any social relations with the sellers? **a. Yes b. No**

Explain

.....  
 .....

***Interaction with other producers (processors)***

8. It is common to have producers interact with other producers. Do you interact with other producers? **a. Yes b. No** If Yes explain the nature of interaction(s) giving examples of the producers you interact with (advice, pooled procurement of inputs, ....)

.....  
 .....

9. Frequency of interaction with other producers (choose one answer)

	Daily	Weekly	Monthly	Annually	Over one year
Firm 1					
Firm 2					
Firm 3					

10. Have you (or do you have plans) interacted with other producers in the following areas (multiple answers possible)

<b>I currently interact in</b>		<b>I might interact in</b>	
Product development		Product development	
Promotion		Promotion	
Market information		Market information	
Transport		Transport	
Management advices		Management advices	

11. To what extent have linkage with fellow producers helped you?

.....  
 .....

12. Have you faced problems in your endeavour to build and sustain the linkage with other producers? **a.** Yes **b.** No If yes, what was the reason? (Choose a correct answer, multiple answers possible)

Lack of trust	Lack of financial support	Closure of the firm	Lack of moral support	Lack of information	Closure of the firm	Others (specify)

13. Do you have any social relations with your fellow producers? **a.** Yes **b.** No

Explain

.....  
 .....

***Productivity***

1. How do you process the tomato? **a.** Labour intensive ..... **b.** Capital intensive

2. Kindly complete the following regarding the number of employees in your business:

Number of employees			
Current		When started	
Permanent (tick)	Casual (number)	Permanent (tick)	Casual (number)
1 – 5		1 – 5	
6 – 10		6 – 10	
11 – 20		11 – 20	
21 – 49		21 – 49	

3. Production record: Complete the following table

	Now (2007)	2006	2005	When started
Quantity Produced				
Revenue earned				
Form of payment: cash/credit				

4. Type and number of Input usage: Complete the following table

	Now (2007)	2006	2005	When started
Hand squeezing				
Kinds Processing machine				

5. Do you have any support in the production process? **a.** Yes ..... **b.** No. If Yes

Type of support	From whom?

**Marketing**

5. How do you market your products? **a.** word of mouth **b.** news papers **c.** never
6. Do you need any assistance in marketing your product? **a.** Yes **b.** No. If yes, what type of assistance?.....  
.....
7. How many locations/areas do you target your sales to? .....
8. If you market your product, how effective is each marketing strategy? **a.** word of mouth more effective **b.** newspapers more effective

**Storage and Preservation**

6. How do you store your product **a.** sun drying **b.** cyclos **b.** never

7. Do you need any assistance in storing/preserving your product? **a.** Yes **b.** No. If yes, what type of assistance?.....  
 .....  
 .....
8. As farmer, do you harvest ripe or unripe tomato fruits? **a.** ripe **b.** unripe
9. Do you wait for buyers to come to you or you take your product to the market? **a.** buyers come to me **b.** I take the product to the market **c.** sales are done in trading centers
10. If you do it in trading centres, who owns the centres? **a.** community **b.** government **c.** cooperative unions

***Sustainability***

**ACQUISITION OF GENERIC AND TRANSFER SKILLS**

4. How did you acquire the skills? **a.** Parents .....**b.** Training ..... **c.** Observing .....
5. Are you transferring the skills to others? **a.** Yes **b.** No
6. If Yes, by completing the following table, emphasising the personal and social values criteria and to whom?

	Family	Relatives	Group	Neighbour	Community
Honesty					
Integrity					
Communication					

**MOVING WITH TECHNOLOGICAL CHANGES (DEMANDING IMPROVED SKILLS – ADOPTION OF HIGH TECHNOLOGY)**

2. What type of technology did you use in the past, what are you using now, what do you expect to use in the future?

	Past	Now	Future
Hand hoes			
Ox or person driven hoes			
Tractors			
Fertilizer			

## WORKING ENVIRONMENT

2. Complete the following table by showing the type of support:

	Government	Donor Community	Fiends/Relatives
Promotion policy			
Technical Skills			
Credit for farming			
Credit for fertilizer			
Marketing support and infrastructure			

## KNOWLEDGE OF USING TOOLS IN ORDER TO PERFORM TASKS EFFICIENTLY

2. How did/do you acquire the skills? **a.** Formal Training **b.** Through working with groups **c.** Hereditary from parents

## COMMITMENT IN THE BUSINESS

5. Where your parents engaged in the same activities? **a.** Yes **b.** No
6. Where you involved in this business before (commercially) as opposed to peasantry? **a.** Yes **b.** No
7. Do you have any other business for your livelihood, besides tomato growing? **a.** Yes **b.** No
8. If Yes, what are the other businesses, and their contribution to your total income

	%
Tomato growing	
.....	
.....	

## OPPORTUNITY FOR EXPANSION

5. Do you intend to expand your business? **a.** Yes **b.** No
6. If Yes, to what scale as compared to the present **a.** Double **b.** Triple
7. To what scale (acreage for farmers; warehouse, workstations, for processors?)
8. Do you intend to team up with others as partners?

### *Focus Group Discussion Questions*

1. How did you come up with the idea of doing this business?
2. Do you think the business you are doing is worthwhile?



3. How do you interact with fellow processors?
4. Has this interaction helped you? In what ways?
5. How do you interact with the sellers?
6. How has this interaction helped you?
7. Do you face problems sustaining the interactions?
8. Do you need assistance in processing tomato?
9. Do you have ready market for your product?
10. Do you think you will continue doing this business forever?

### **Appendix 3: List of Processors**

#### *WITH SIDO BASE*

1. Salma saidi 0755 091767
2. Jumanne Selemani
3. Godesta Elias 0757 402337
4. Tulinge Shempemba 0754 026597
5. Zephania Peter
6. Zahara Shabani
7. Rehema Chinengo 0786 936366
8. Zainab Jeremy
9. Studi Paul
10. Samson Peter
11. Charity Mwerangi
12. Englebert Samson
13. Mariam Paul
14. Florence Kaminyonge 0757 685533
15. Swaib Jeremy
16. Valentina Rwehumbiza 0784 711818
17. Florence Jacob
18. Elizabeth Minja
19. Twalib Musa
20. Kukwa Joel
21. Musa Juma
22. Isabela Lukensa 0754 751216
23. Kalembo Fili
24. Susan Muluu
25. Chrizantus Mizambwa 0756 485525
26. Gisela Andrew

#### **WITH UNIVERSITY OF DAR ES SALAAM INCUBATION PROJECT**

27. Morogoro Fruit Processing Tibikunda 0784 580194
28. Haloma Daudi

29. Luremo Enterprises 0786 018202
30. Zephania Tuliko
31. Mashijo Enterprises 0732 141637
32. Raha Leo Women Group 0754 556407
33. Hamza Kitega
34. Faruk Kebra
35. Macky Foods 0754 518161
36. Kumtam ABCD, Solar Dried Foods 0784 492769
37. Rahaleo Ushungu
38. Fausta Jerome
39. Vilike Food Production 0782 240632
40. Markus Festus
41. Karanja Sifa
42. Mofe Morogoro Food Enterprise 0755 851681
43. Papelo Sasu
44. Matatu Women Group 0756 936773
45. Mwanaisha Salome
46. Kapeo Musa
47. Salum Hamis
48. mariam Zalendo
49. Crispin Yongele
50. Zabib Hamza

**Appendix 4: List of Grass Root Farmers (Tomato Producers)**

	NAME	PHONE NUMBER
1	JUMA .M. NONDO	0717 296960
	SALUM .S. KINGALU	0752 511354
3	HALIFA SAID	0755 494741
4	HEMERITA MANGUNGULI	
5	SAID JUMA	0787 674771
6	GEOFREY PASCAL	
7	HASSAN MAPOLA	
8	SIFA KIBNANA	0786 736936
9	HASSAN RASHID	0755 215326
10	SHABAN KIZUNDU	0782 039191
11	RASHID KIMBEO	0784 622661
12	SAIDY ABDU	
13	HADIJA FABITI	
14	GEORGE .H. GIBSON	
15	MAGNALENA KONGOLO	
16	FELISTA PAULO SELERI	0787 742619
17	ZAITUN SUNYA	
18	MBARAKA IDDI KOMORA	0786 050652
19	SALUM IDDI	0786 314768
20	MUHARI MANGALA	
21	RAMADHANI KIBEGULA	
22	ZUHURA KOBERU	0786 574397
23	MWAJUMA SHABANI	
24	GODFREY JONAS	
25	JUMA MFAUME	
26	ASHIRA	0753 440146
27	ALBAKARI MHANDO	
28	CHARLES JOSEPH	

29	JOHN .L. KAYEMBELE	0756 705053
30	AWADHI .M. KITAMBI	
31	KASEKULA ISMAIL	0713 758546
32	RASHID ABDALA	0714 065096
33	EMMANUEL .G. KULINPWA	
34	KOBELO KALUNGU	
35	MASHAKA .A. TULA	
36	WALII MADEGESHI	0753 440146
37	RASHID .J. A. KOMOLA	
38	SIABA MOHAMEDI	0754 566804
39	MAHUNDUMIA MALETA	0786 378692
40	SALUM BAKARI MTWALE	
41	AUGUSTINE CORIAN	
42	YAHAYA GHANA	
43	MPENDU IDDI	
44	B. SALMA SISILA	
45	SADICK MAHAMBA	0756 592512
46	SAIDI MCHAGA	0787 752169
47	HASSAN CHELEBI	0784 442867
48	NURU IDDI	
49	SALMA MWANDIKE	
50	SELEMAN DIKULA	0787 462873
51	RAMADHANI DOLA	
52	FATUMA ALI MSHEHE	
53	YALLO JABIRI	0786 798609
54	SELEMANI SAIDY	
55	MWELEZA MARUMA	0752 114120
56	FRANK MTAWALA	
57	RASHID HAMID	
58	SHABAAN BENNY	

59	JUMANNE DILUNGA	
60	DEOGRATHIAS ISSA	
61	ATHUMAN KAYANGE	
62	REHEMA HUSSEIN	0786 596102
63	VERONICA MABULA	
64	DOTO PASTORY	
65	KUMBUSHO IDDI	0756 365548
66	ALLY SAID NTIMI	
67	SHABANI IDDI	
68	IDRISA HUSSEIN	
69	ELICIA JULIUS	
70	SHABANI MASENGA	
71	HAWA DOWEZI	
72	JAMALI MOHAMEDI	
73	ALLY SELEMANI	0754 867942
74	ASHURA MBUYU	
75	ANTHONY .W. MALYA	
76	SALUM MRISHO	0784 830713
77	HUSSEIN HASSAN	
78	ERASTO DIBEGA	
79	ABDALLAH JUMA	
80	ASHA SALEHE	
81	HAPPINESS GEORGE	
82	KHALID J. MABUGA	
83	JUMBE RAMADHAN	
84	RASULI RASHIDI	
85	MUSSA J.	
86	YASSIN GOIMO	0786 223221
87	IBRAHIM MASIBU	0754 560149
88	KASSIM MLOLWA	

89	MUSA KINGARU	0717 520075
90	HAMISI JUMA	
91	ALLY SHABAN	0784 329616
92	RAMADHANI RASHIDI	0787 624361
93	JUMA OMARY	0756 216485
94	PATRICK SEPH	
95	RAJABU UBOMBA	
96	MASHAKA RAMADHANI JOBWE	0787 048626
97	KONDO MBWANA ABDALA	
98	HALAFAN M. MABINGA	0784 628127
99	RAMADHAN M. MWASA	
100	IDDI M. K. BANZE	0784 961798
101	SADIC DIBEGA	
102	SALUM RASHIDI KIPONZA	0786 050915
103	HAMISI AMBONGILE KAYALA	0786 641999
104	YAHAYA SHABANI	
105	RASHID ALLY	
106	MAKULU J.	0787 841480
107	ONESMO PATRICK	
108	ABUBAKARI ZUBERI	
109	VAILET MAGAYI	
110	HADIJA OMARY	
111	BARAKA ZUBERI	
112	OMARY RAMADHANI	
113	ALLY MAGELE	
114	MTATI KAPINGA	
115	DORIS KASAMBALA	
116	FURAHISHA MADAGI	0763 734603
117	MWAJUMA	0785 993237
118	ERICK VEDASTO	

119	SUDI ABDALAH SALUM	0763 461417
120	MUSTAFA OMARY	0763 734637
121	HASSAN ABDALA	0752 585536
122	AYUBU ISSA	0753 777535
123	LUCY BANDA	0787 124634
124	RASHIDI A. MADOWEKA	0787623048/ 0754623048
125	ZABRON M. SHARUA	0786 005166



## **Appendix 5: Implementation Plan**

### **INITIAL**

1 May to 20 May 2007 – Pilot Arusha	Milestone 1
10 June to 15 July 2007 – Fieldwork	Milestone 2
20 July 2007 – Data inputting	Milestone 3
30 November – Final Report	Milestone3

### **REVISED**

17 August to 22 August 2007 – Pilot in Arusha	Milestone 1
4 September to 7 September - Pilot in Morogoro	Milestone 2
14 September to 15 September – Research Assistants Training in Dar-es-Salaam	
16 September to 5 October 2007 – Field work I	Milestone 3
21 January to 31 January 2008 – Field work II	Milestone 4
1 February 2008 onwards – Data inputting and Analysis	Milestone 5
15 March 2008 onwards – Final Report	Milestone 6

### **REASONS FOR DEVIATION**

1. Delay in ending the semester due to an earlier closure crisis of the university
2. Delay in disbursement of funds
3. During the time of undertaking the study, almost all major food processors were not available in Morogoro; they had gone for upcountry tour and for a national SME shows
4. I underestimated the study; very many aspects have been addressed in a single research

### **REASONS FOR NOT INCLUDING ARUSHA**

There was no one-to-one correspondence between tomato growers and processors. Growers in Arusha relate straight with middlemen for sales to hotels both in Arusha and abroad (Kenya)

## **Appendix 6: Contacts**

### **1. Morogoro Rural District**

**Mkambarani Division Councilor : Mr Daniel Mshahara Shawa 0754807966**

Mkambarani Ward Secretary

Pangawe Village Secretary: Mr Rubegeta 0754 210008

Kizinga Village Secretary : Mr Kova 0787 814283

Mikese (Fukwe village) Village Secretary : Mr Kilion 0787 638504

Mikese Station Village Chairman : Mrisho 0786 122970

### **2. Mvomelo District**

**Mlali Division Councilor : Mr Seif M. Kumbi 0755 979218**

**Mlali Ward Secretary : Mr Buhatwa Matage 0786 865683**

**Mlali Village : Mr Saidi Mdume 0754 559290**

**Kipela Village : Ramadhani Magulo 0754 566636**

**Mwanza Village**

**Mongwe Village : Zakaria Alfred 0754 312981**

**Peko Mwesiga**

**Omboza Village**

### **3. Morogoro Municipality**

1. Mr Ezekiel and Ms Salama : 0713 496031 (University Of Dar-es-Salaam Incubation Project for Food Processing Entrepreneurs)
2. Ms T Mwaipopo (Small Industries Regional Manager) : 0784 240464

### **4. Morogoro B1 Hotel 0784 930153**