Tanzania: Qualitative Study on Innovation in Manufacturing Small and Medium Sized Enterprises (SMEs)

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Qualitative Study on Innovation in Manufacturing Small and Medium-Sized enterprises (SMEs) in Tanzania

Exploration of Policy and Research Issues

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This report is written within the framework of the DFID-funded research project '*Enabling Innovation and Productivity Growth in Low Income Countries' (EIP-LIC)* implemented by Tilburg University in collaboration with Dutch, African and Asian academic partners. The content of the report is based on data collected during a working visit to Tanzania from 21 to 31 October 2015, which comprised 12 in-depth interviews with small and medium-sized enterprises (SMEs) in Dar es Salaam and around.

I would like to thank the enterprise owners and managers who gave up their time and were willing to talk and share their perceptions of daily realities, their stories and views with us. I thank my research partners of the University of Dar es Salaam, in particular the head of the Department of Economics, Dr. Jehovaness Aikaeli, and his colleagues Dr. Stephen Kirama and Mr. Salvatory Macha. A special thanks for Mr. Macha who organized most of the interviews in the challenging time of the elections in Tanzania. Also special thanks to Ms. Fadhila Kihwele and Ms. Winfrida Casmir who joined the interviewing, shared their valuable observations and thoughts and transcribed the recordings. I also thank Annelies van Uden, PhD candidate at Radboud University Nijmegen, for her active involvement in the interviewing and sharing her reflections and ideas.

Jaap Voeten (Tilburg University)

Contents

Introduction

The promotion of innovation in Low Income Countries (LICs) has recently appeared on the agenda of policy-makers and international development agencies. Many agree that innovation is crucial in these countries, because it is fundamental for growth in order to catch up with middle and high income economies (Chaminade et al., 2010). Current research, theory development and policy formulation to promote innovation, however, have mainly focused on innovation in the more advanced economies, whilst investigation of these issues in low income countries to date has been limited.

The 5-year research project *'Enabling Productivity and Innovation in Low Income Countries, (EIP-LIC)*' funded by the British Department for International Development (DFID) and commissioned to Tilburg University, aims to fill research gaps on innovation in LICs from an economic perspective. EIP-LIC aims to deliver robust high quality evidence from Africa and Asia on how to increase innovation and raise productivity in manufacturing SMEs, through a coordinated set of thematic and country case studies providing internationally comparable data. The countries of study include Kenya, Tanzania, South Africa, Ghana, Ethiopia, Uganda, Vietnam, Indonesia, India and Bangladesh.

EIP-LIC focuses on manufacturing Small and Medium-sized Enterprises (SMEs) in LICs. Promoting innovation in these enterprises has a particularly positive impact on development (Szirmai et al., 2011); SMEs are usually operating on the edge of the formal and informal sector and have low levels of productivity and competitiveness. Compared to the agriculture and services sectors, manufacturing in LICs is typically characterised by a limited share of the total GDP. Innovation within SMEs in manufacturing enables these enterprises to raise productivity and grow, resulting in a better-balanced economic structure while generating employment opportunities for poorer groups and contributing to poverty reduction. Moreover, promoting innovation in domestic manufacturing is a way towards import substitution and increases the competitive (export) position of firms on the world market.

One part of the project concerns a quantitative analysis of the internal and external factors of the innovation process within firms in all countries of study. Another part concerns a complementary qualitative exploration of the policy and research issues in each country. This involves the development of a series of case studies of manufacturing SMEs. The research output of qualitative reports, working papers and policy briefs are available at the EIP-LIC's website: http://www.tilburguniversity.edu/ dfid-innovation-and-growth/)

This report presents the findings of the qualitative exploration in Tanzania. It is targeted at the DFID project researchers as well as the broader academic community with similar research interests in providing ideas or supporting them to identify and/or validate research questions and hypotheses. The report may also serve as reference material for reflecting and interpreting the outcomes of quantitative research in this area. In addition, it may provide useful bottom-up insights to policy makers within governmental agencies, firms and NGOs on innovation involving the entrepreneurs' perspective. It is also targeted at SME owners and SME branch organisations, who will hopefully see their business and socio-economic and institutional context reality accurately reflected in the report.

The structure of the qualitative exploration reports is the same for all countries in EIP-LIC, enabling cross-country comparison of the research and policy issues. Thus chapter 1 is standard for every report, outlining the DFID project research challenges, approach and methodology. Chapter 2, by contrast, focuses on the country of study only and briefly summarises latest trends in the manufacturing sector from secondary sources. Chapter 3 constitutes the main part of the report and provides the original primary qualitative data (cases) and analysis with regard to innovation in manufacturing SMEs in Tanzania. Chapter 4 of the report concludes with analysis of the data and the identification of policy and research issues with special reference to the 'Innovation Systems' and 'Finance for Productivity Growth' research themes of the project.

1. DFID research project challenges

1.1 Approach: complementing quantitative with qualitative research

EIP-LIC aims to deliver robust high quality evidence from Africa and Asia on how to increase innovation in manufacturing SMEs so as to raise productivity, through a coordinated set of thematic and country case studies providing internationally comparable data. The project takes an econometric approach within two thematic areas: 'Innovation Systems' and 'Finance for Productivity Growth'. The research teams address internal capabilities and external institutional factors, institutions and policies that support or hinder the diffusion and adoption of innovation and finance raising productivity at SME firm level. Specifically, the project takes an 'economics' perspective on innovation, and involves econometric analysis of a set of variables concerning barriers at firm, regional and national levels and their causalities with the *innovative behaviour/capability of entrepreneurs* and subsequently innovation and productivity. This constitutes a reductionist and deductive approach in defining variables for analysis in which the impact of individual factors on innovation is assessed by applying quantitative econometric methods. The research methods include firm-level surveys in all countries of study (in cooperation with The World Bank), experiments and Randomised Control Trials (RCTs). The quantitative analysis will serve as a basis for identifying relationships between internal capabilities, external institutional factors and finance on the one hand and innovativeness and productivity growth on the other.

Applying quantitative methods in development research brings some limitations and challenges. In EIP-LIC too, conceptual issues emerged, in terms of the definition and measurement of innovation and productivity in LICs. These may seem straightforward variables at first glance, but their measurement can be more complicated in the LIC context. Innovation may be manifested differently, not via high profile technological and radical breakthroughs, usually measured by R&D expenditures or patents (OECD, 2005), but by more incremental adoption and adaptation or new combinations of existing technologies (Szirmai et al., 2011). These forms of innovation are equally important for raising productivity and competitiveness of SMEs in LICs.

Moreover, innovation research and theory development in recent decades has typically involved empirical material from advanced economies, such as the innovation systems literature of Lundvall (1992) and Freeman (1987), where innovation takes place within a relatively stable institutional and Science, Technology and Innovation (STI) policy context and is 'controlled' and supported by established innovation system actors and innovation policies. In LICs, however, the contemporary institutional realities and formal/informal dual economic contexts are different and may involve other less visible or less commonly known factors and policies around SMEs affecting their innovativeness and how innovation manifests itself.

Therefore, the theory and associated policies of how innovation evolves within an innovation system in the institutional contexts in LICs may be different, which is increasingly acknowledged in recent innovation systems literature (Lundvall, 2009; World Bank, 2010). For instance, entrepreneurs are innovating by Doing, Using and Interacting (DUI) in fast-changing contexts, enabled by informal institutions and informal (social) learning. Applying the research variables on innovation and productivity in LICs from existing literature and theory (deduction) based on advanced economies, therefore, might not take all relevant variables into account. A more precise identification of variables might be obtained by complementing the selection with a broader understanding of contemporary realities and context on the ground in LICs.

Another research challenge in EIP-LIC concerns the interpretation of the quantitative survey research outcomes of the project, involving cross sectional analyses amongst others, where attribution and explanatory issues among independent and dependent variables arise. Although control variables are typically verified, the correlations cannot be easily translated into causalities in complex and dynamic contexts. This is

particularly important for the interpretation of research outcomes at the policy level in the realities of the country concerned. A broader insight into how innovation processes and actor interaction mechanisms evolve might help to open the black box and analyse and interpret the quantitative outcomes.

In an effort to manage these challenges, EIP-LIC includes complementary qualitative research, involving an exploration and description of contemporary realities of innovation in manufacturing SMEs in the LICs. This aims at inductively identifying actual and relevant *research and policy issues* as input for the EIP-LIC research themes as well as for additional explanatory evidence supporting research output.

In operational terms, Tilburg University and partners conducted a series of case studies of manufacturing SMEs in each of the 10 target countries of study in the project. The holistic case study approach and method involves interviews capturing original insights, views and perceptions of SME owners and managers. Similar report format and comparable data will be used for all countries of study in EIP-LIC, enabling cross-country comparison to identify overall trends and patterns in innovation and productivity policy and research issues in manufacturing SMEs in LICs.

1.2 Case study methodology

The objective of the qualitative study of EIP-LIC is to identify relevant policy and research issues concerning innovation in manufacturing SMEs within contemporary realities in Tanzania. Applying a case study approach is particularly useful in this respect, since this method is an approach for inductively exploring and identifying concepts, noticeable similarities, trends and patterns of socio-economic phenomena (Yin, 2003).

The case study research involves a series of 12 interviews with managers and/or owners of manufacturing SMEs. This may seem a limited number to justify research validity. However, the approach usually involves in-depth rich and detailed descriptions and a multidimensional analysis of the complexities and linkages of a few cases to gain an understanding of the (socio-economic) mechanisms and processes of the case subject. In the case descriptions, innovation as an economic phenomenon is the case 'subject', whereas the unit of analysis is a manufacturing SME. The case description holistically explores the type and basic features of innovation within the SME, and reviews the impact on productivity and competitiveness over the past 2 to 5 years.

The data for the case descriptions are obtained via 'semi-structured' interviews with SME owners and managers. 'Structured' refers to the systematic review and discussion of innovation(s) in the firms, the *innovation process*, *internal capabilities*, and innovation system actors around the firm, including *formal institutions*, the *business system* and *informal institutions* (attached as annex 1). These actors and institutions encompass formal and informal, private, public, and quasi-public institutions or organisations around the SME. 'Semi' refers to the interviewing approach of encouraging owners or managers to tell their story, and express their concerns and perceptions freely, without being confined to the 'questionnaire framing'. Of particular interest is what innovation means in the manufacturing SMEs in their context, and the less known favourable and unfavourable institutional conditions and barriers enabling or preventing it.

All interviews are recorded and transcribed. The data generated are entered and stored using qualitative data analysis software. The writing of the case is a step-by-step process of unravelling, ordering and organising the transcriptions into compact SME case descriptions of 2/3 pages following a similar format. The series of case descriptions are compared and analysed for patterns, differences and similarities in internal capabilities and socio-economic and institutional contexts. The findings are summarised as policy and research issues that could serve as input for the quantitative research of the 'Innovation Systems' and the 'Finance for Productivity Growth' themes under EIP-LIC.

1.3 Selection of SMEs and fieldwork

The selection criteria for the cases included:

- The company is a formally registered SME. In the DFID project context, an SME is understood as a company with 10-100 employees, whereas turnover, assets and capital formation are not considered. Access to financial information of SMEs is very limited in LICs.
- The company is involved in manufacturing.
- The company is a 100% Tanzanian owned/indigenous company[1]. No foreign or joint ventures.
- The company introduced some form of innovation, preferably process or product, which resulted in increased productivity and competitiveness in terms of export promotion or import substitution. Other types of innovation may also be considered: management, business concept/practice, inputs, functional innovation.
- Value creation within the company, as a result of the innovation, is essential. This may concern a significant productivity increase by reduced costs (pushing the productivity frontier - saving on labour, capital, and input) or more sales and income due to the launch of premium products and competitiveness.
- Innovation process - idea, test, implementation and commercialisation - takes place in the firm and is initiated and owned by the entrepreneur. The SME owner appropriates the additional innovation value.

These selection criteria are defined in such a way that the selected cases represent the EIP-LIC target group: manufacturing SMEs. Moreover, the criteria assure a certain homogeneity within the selected cases, which will enable comparison of cases while supporting a certain validity of the identified trends or patterns. At the same time, allowing some heterogeneity, by including deviant cases, provides more contrast, and thus enables the research team to better construct and highlight divisions in the innovation process, linkages, system or mechanisms.

An essential element of the selection is the notion that types of SME innovation in LICs are not confined to technological (radical) inventions resulting from particular R&D investments and efforts. Innovation in manufacturing SMEs in LICs more often encompasses incremental adoption and adaptation or new combinations of existing technologies, products, marketing, management or business practices. Moreover, innovation often does not concern one type only. More often, an initial innovation enables and/or triggers other types of innovation within a firm; a new technology allows the introduction of new products, for instance.

1.4 Fieldwork

The qualitative data collection through interviews in Tanzania took place in Dar es Salaam from 21 – 31 September 2015. It was a challenge to organise interviews with SMEs. There are no accessible central registration systems of SMEs. Moreover, most SMEs are somewhat reluctant to publicise themselves: they do not advertise via websites, for instance. Identifying exporting SMEs was particularly hard in Dar es Salaam and around. SMEs were identified by tapping into informal and personal networks, drawing information from the SME development projects from NGOs and donors. In total, 12 owners/managers were

[1] It is important to note that one interviewed company, the 90% foreign-owned cigarette production company, does not meet one selection criterion. It was decided to include this contrasting case because of the interesting features regarding the health policy of the Tanzanian government. Banning smoking as an example of 'good for society' policy yet provides additional challenges for the private sector. In qualitative research such deviant cases are accepted in its methodology and provide additional richness, in contrast with quantitative research where sample criteria should be observed strictly.

interviewed (see list attached as annex 2). No SME was earlier involved in the World Bank surveys or any other surveys. An average of 2-3 interviews per day were completed. The interviews typically took 1.5 hours.

The research team respected a set of ethical codes in conducting the fieldwork. This involved a transparent explanation of the project and the purpose of collecting the data. The research team provided assurance that the firms' data were kept confidential, with SMEs and interviewees anonymised in the descriptions. Before publication, a draft version of the report was first sent to the SME owner/manager to check whether there were any issues mentioned that he or she did not agree with, or felt uncomfortable with.

During the interviews, the SME owners and managers expressed interest in learning more about the project and about innovation in other SMEs. The team sent a copy of the final report to all interviewees, expressing their intention to maintain contact, and to 'give something back' in terms of participation in future policy debates, policy dissemination, contacts or networks. The final reports are to be accessible to the public and downloadable via the project website.

The original recording of the interviews and transcriptions are available for the project researchers - eventually open access - for further analysis and development of scientific papers and journal articles.

2. Introducing manufacturing SMEs in Tanzania

Tanzania is one of the world's poorest economies in terms of per capita income, which is around $3,000 per year[2]. It has a total population of 47 million (2012) with a life expectancy of 53 years. Since the mid-1990s, the country has achieved an average of 7% GDP growth per year. In 2009, because of the global financial crisis, GDP growth was close to 6%, and recovered to 7% in 2010.

Tanzania's positive economic growth and resilience to external shocks were overshadowed by the slow response of poverty to the growing economy. Until 2007, the poverty rate remained stagnant at around 34%. This apparent disconnect between growth and poverty reduction has raised concerns among policy makers and researchers, leading to a consensus that this mismatch needed to be addressed. The Gini coefficient, however, has declined modestly in Tanzania during the last decade, indicating greater income equality (World Bank, 2015).

Regarding innovation and competitiveness, Tanzania is ranked 120th in the global competitiveness index, which is above the sub-Saharan African average. However, it remains at the factor-driven stage of development of economies, at which countries compete primarily on the use of unskilled labour and natural resources and companies compete on the basis of price as they buy and sell basic products or commodities (Porter et al., 2002).

2.1 The manufacturing sector

The agricultural sector in Tanzania contributed 26.5% to GDP in 2014. The key agricultural products include coffee, sisal, tea, cotton, cashew nuts, tobacco, corn, wheat, cassava (manioc, tapioca), bananas, fruits and vegetables; cattle, sheep and goats. The economy depends heavily on agriculture, which provides 85% of exports and employs about 80% of the work force. The service sector, which has been growing rapidly in recent years, is the largest economic sector, contributing 47.3% of GDP in 2014. Tourism remains a potential growth sector in services and has contributed substantially in recent years. The agriculture and services sectors are expected to continue their dominance of the economy in the foreseeable future.

The manufacturing sector, dominated by the construction subsector, accounts for 25.6% of GDP. Key products include the processing of agricultural products (sugar, beer, cigarettes, sisal twine); mining (diamonds, gold and iron), salt, soda ash; cement, oil refining, shoes, apparel, wood products and fertiliser. Manufacturing production fell in 2008-09 during the global economic slowdown. However, the sector has since rebounded, despite severe and persistent power outages as well as rising fuel prices. Since 2000, the mining sub-sector has attracted the bulk of foreign direct investment (FDI), contributing to its growth.

Tanzania's manufacturing sector has evolved through various stages since independence in 1961, from nascent and undiversified to state-led import substitution industrialisation, and subsequently to de-industrialisation under structural adjustment programmes and policy reforms. The current development agenda, however, has reinstated manufacturing development as one of the policy priorities. The most dynamic subsectors in terms of output growth, export growth, production innovation and product diversity are food products, plastic and rubber; chemicals, basic metal work and non-metallic mineral products. The growth in manufacturing remains largely undiversified, and vulnerable to variations in agricultural production and commodity prices. Various technological, financial, policy and administrative constraints remain unresolved, limiting faster industrial growth and transformation (Wangwe et al., 2014).

[2] 2015 estimation in https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html

On average, almost 70% of material inputs for emerging manufacturing firms in Tanzania (and particularly intermediate goods) are imported. Analysing the elements contributing to the success of rising manufacturing firms, Wangwe et al. (2014) observe that the supportive institutional and legal frameworks put in place by the government to strengthen private sector investment have enabled investors to raise industrial performance. These positive views are not expressed in the qualitative interviews with SME owners; the manufacturing sector seems to be declining at present, as reflected in the next chapter.

2.2 Tanzanian SMEs

As in many other developing countries, Tanzania has recognised the importance of SMEs for economic development and poverty alleviation. The National Strategy for Growth and Reduction of Poverty (NSGRP) paper of 2008 reports that there are more than 1.7 million SMEs registered in Tanzania, employing more than 3 million people, which represents 20% of the country's work force.

Empirical studies[3] further find that the share of SMEs in GDP is significant, an average of 18%, but this contribution is growing only slowly. The prevalence of credit market failure is an important constraint on their growth. Since the closure rate of SMEs is higher than larger enterprises, financial service providers tend to consider SME financing risky.

The challenges that Tanzanian SMEs are facing are identified in many reports and analyses. Common factors hindering SME development can be classified into macro-economic and policy environment, physical and technological infrastructure, banking and finance structure, legal and regulatory framework, and market conditions (Ndesaulwa, 2016)[4]. Other elements include poor quality of products resulting from inferior technology, low capital and production skills; limited access to reliable information to enable selection of target markets, product development and technical skills; limited access to appropriate technology and financial resources to acquire appropriate technology to manage business potential; and limited access to business development services.

2.3 Policy environment

Tanzania's policy of 'Ujamaa na kujitegemea' (socialism and self-reliance) was introduced by the country's first president, Julius Nyerere, in 1967. Since the beginning of the social and economic reforms in the late 1980s, Tanzania has transformed itself from socialism and a self-reliance into a market economy, with economic liberalisation policies boosting economic integration into globalisation processes. This structural shift in the economy has exposed SMEs to national, regional and international competition from large enterprises, particularly multinationals.

Since then, the World Bank, the IMF, and bilateral donors have provided funds to rehabilitate Tanzania's aging economic infrastructure, including rail and port facilities, necessary for trade links with inland countries. Recent banking reforms have helped increase private sector growth and investment, and the government has increased spending on agriculture to 7% of its budget. Continued donor assistance and solid macroeconomic policies supported a positive growth rate, despite the world recession.

Tanzania adopted a development framework and long-term social and economic development goals based on the National Vision 2025. In the medium-term, a National Strategy for Growth and Reduction of Poverty (NSGRP) has been developed.

[3]https://www.ukessays.com/essays/economics/role-of-small-and-medium-enterprises-in-tanzania-economics-essay.php

[4] http://pubs.sciepub.com/jbms/4/1/1/#Cor

Specifically, in 1996, a 25-year Sustainable Industrial Development Policy for Tanzania (SIDP2020) began to be implemented, with the aim of enhancing sustainable development of the industrial sector. SIDP accords priority to employment creation, economic transformation, and equitable development and seeks to strike an appropriate balance between import substitution and export orientation. Under SIDP, the private sector is recognised as the main vehicle for making direct investments in the sector while the government is tasked with providing an enabling investment environment. Furthermore, under this arrangement, the government is responsible for making direct investments in industries deemed by the private sector to be unprofitable despite the fact that their activities may be of critical importance to overall development goals.

Nevertheless, there was criticism of the fact that these proposed policies may be beyond the government's capacity to implement (Wangwe and Van Arkadie, 2000). Indeed, there are numerous policy reports that contain long lists of proposed actions but fail to give clear priorities as to what could be achieved realistically under existing administrative and financial constraints. In addition, integration of all these policies in a common national framework has not been adequately ensured (Wangwe et al., 2014).

In an attempt to promote the SME sector, Tanzania adopted an SME Development Policy (SMEDP) in 2003 to stimulate development and growth of SME activities through improved infrastructure, enhanced service provision and creation of a conducive legal and institutional framework to achieve competitiveness. The government and supporting units believed the policy would provide sustainable employment. In 2013, several evaluation studies on SMEDP, by UNIDO amongst others, showed that the policy faced a number of drawbacks that held back its growth, including inadequate resource mobilisation and a weak implementation framework, relying on the parent ministry at all levels.

Although an innovation policy or strategy as such does not yet exist, innovation is recognised as a factor for development and is identified in overall economic development policies. It is not a widely used concept in policy documents, and existing policy frameworks show that innovation is first and foremost associated with science and technology policy. An early indication in the 2003 SME Development policy led by the Ministry of Industry and Trade (MIT) referred to innovation as 'the acquisition and adaptation of technologies as well as enhancing networking between R&D institutions and SMEs in a bid to upgrade technologies so as to raise the productivity and competitiveness of the sector.'

At the government level, the main ministry responsible for innovation policy is the Ministry of Communication, Science and Technology, although other technical ministries have a role:

- The Ministry of Industry, Trade and Marketing (links science, technology and innovation initiatives with industry by ensuring strong participation of local industries in generating new technologies as well as utilising locally developed technologies)
- Prime Minister's Office-Regional Administration and Local Government
- President's Office, Planning Commission (reviewing and assessing the impact of R&D Policy and National Science Policy)
- Ministry of Agriculture, Food Security and Cooperatives (supports innovation by supporting sustainable production and productivity development through encouraging, undertaking and coordinating research, development and training)
- Ministry of Education and Vocational Training (develops and implements education policies that ensure development of a productive quality human resource base through education and training)
- The National Commission for Science and Technology (COSTECH): the principal advisory organ to the government on all matters pertaining to scientific research, technological development and coordination of research activities in the country.

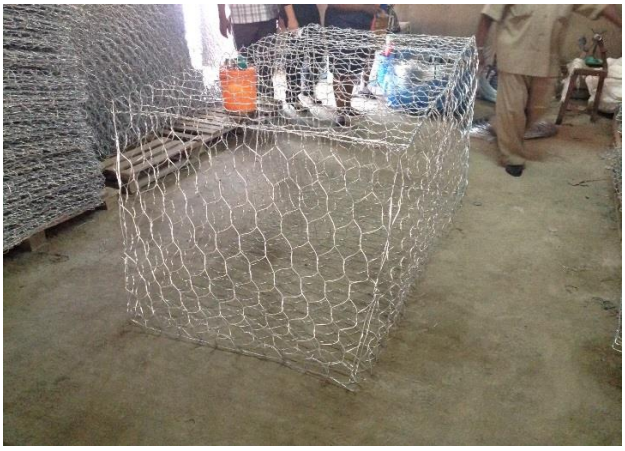
3. Empirical data: Cases of manufacturing SMEs

This chapter presents eight cases of SMEs whose owners were interviewed in Dar es Salaam in the period 21 – 31 September 2015. The selection of eight out of the twelve interviews conducted was carried out to provide homogeneity in terms of the target group as well as a broad overview of the issues from the various SME owners' perspectives. The write-up format is similar for each case: a description of the innovation, the internal capability and external environment (formal institutions, business systems and informal institutions). Notable issues outside this framework, which were stressed by the owner and/or manager of the SMEs, are also included.

3.1 Metal processing – metal wire cage weaving (13 employees)

The company produces metal wire cages used as frames to be filled with stones for infrastructure construction projects. The owner started the company in 1997 with the help of a family member who was already in the construction business. Through his relative's contacts, he secured his first order from a Czech company building roads and bridges in Tanzania. The firm initially imported cages from Italy, but this turned out to be complicated in terms of timely delivery.

The production process includes measuring and cutting the wires and subsequent weaving of the cages. The cages are typically two metres long, one metre high and one metre wide. Upon completion, the cages are folded for delivery. The company usually produces the standard size, but occasionally will also produce other sizes. They also have wire with plastic film to make the cages more durable, for infrastructure projects near the sea, for instance. The life span of the cages is about 40 – 50 years.



The owner has only produced for the Tanzanian market since the start of his business.

In recent years, there has been one large buyer, a wholesaler who supplies to local contractors. The wholesaler also provides the raw material: high quality metal wires from South Africa – "*we don't want the wire to rust so they should be zinc coated, which comes from South Africa*." The contract with the wholesaler is not exclusive.

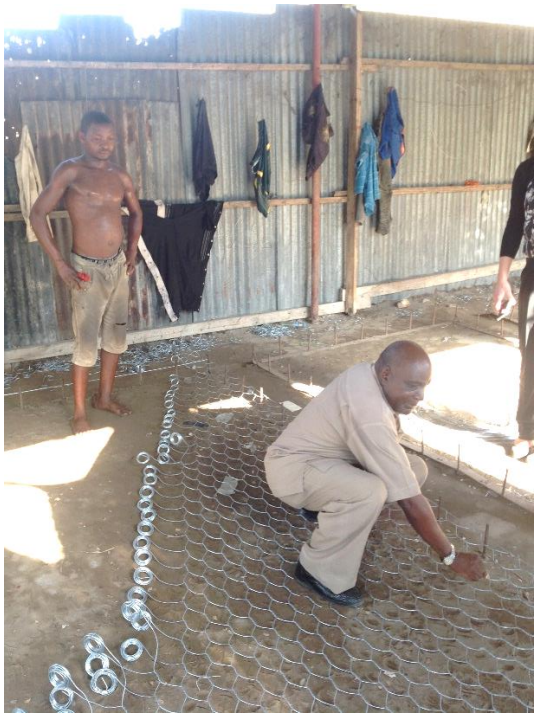
According to the owner, the business is doing fairly well – *"we started under hard conditions in 1997. Today the business is not so bad. I have a car, I have a good house and I can pay school fees for my grandchildren."* With a view to taking over the business in the future, the owner is training a colleague and his children. Learning the complicated work of measuring and calculating the weaving of the cages is essential.

Internal capabilities

In 1997, the owner started with 3 people. Nowadays the workforce is flexible and occasionally expands up to 50 workers, depending on contracts. For a large contract, the owner calls in local workers – *"they come and we agree on the work and the price. When they finish, I pay them and they go."* At present, 13 workers are in the workshop to complete a current order.

The owner undertakes the design and measurement calculations of the cages as well as the management of

the business. The workers in the workshop only do the weaving. The production is done at his premises – *"if there are no contracts, my place is empty."* The workers are from nearby – "*neighbours and others pass by and ask whether their children and grandchildren can come to work for me."* The owner sees that his company is also indirectly generating employment in the neighbourhood – *"there are food vendors, they put up their stations during lunch time. My workers buy their lunch from the food vendors."* The workers provide ideas and suggest improvements in production or in the workshop. The staff sometimes suggest measuring and cutting the length of the wires differently, so as to have less waste material.



The owner is quite satisfied with the location of his premises. He secured the site because it was available, having previously been open space. He does not have plans to move –*"I can afford to go far from here and have a good and big place but it will be out of Dar es Salaam."*

Innovation

The cages have been produced in the same way for years and have been used in the same way for building bridges and road contracting. The owner did develop a simple device from a bicycle wheel to facilitate the measurement of the wires – "*these changes I am making help to increase production efficiency. Faster production is particularly important when larger orders come."* The owner also improved the way the workshop is organised, to streamline the production process.

Looking ahead, the owner plans to purchase an electric weaving machine that exists in the market – *"these machines can do more twists, so the cages get stronger."*

The owner has calculated that the new machine, taking maintenance and electricity costs into account, will produce cheaper cages because labour productivity will increase threefold.

External business and institutional environment

The owner says that he was the first enterprise in the region to weave cages. However, several of his workers have started to do the same in other areas in Dar es Salaam. Three former workers, whom he trained, have established their own business, which brings competition. The owner is not unduly concerned and is confident he will stay ahead of this new competition. He believes that he has superior knowledge, skills and experience – "*they are making their own but still they can't compete. They also cannot beat my product because calculating the wires' length and measuring is quite complicated."* In fact, if he has a big order he calls in these former workers – *"so they are colleagues again and after the job is done, they are competitors*." It is a flexible workforce and a network of workers and producers. In fact, the owner is quite relaxed –*"they (the workers) are my children and they call me grandfather."* Some larger construction material companies in Tanzania started importing similar cages from China and South Africa, manufactured by machine. The owner is still confident – "*we are competing on price, because I am selling at half of their price. Local manual production is still much cheaper."*

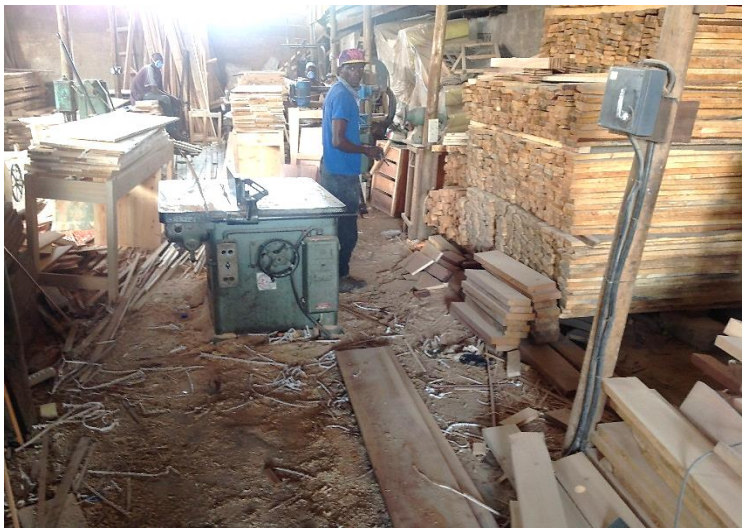
The owner did not benefit from business development or innovation policies or programmes from the government. He mentioned that he does everything on his own. The credit for the initial investment and working capital was from his own savings – "*it was all from my pocket."* At a later stage, an uncle supported the company with some working capital. He is now preparing to take out a bank loan for the electric weaving

machine – *"getting a loan from the bank is difficult because of the collateral issue."* He is trying to bring in his house as collateral, but the land is not yet an officially surveyed area. The owner owns the land *"locally"*, which means that there is no legal proof of ownership certificate to show to the bank – *"I cannot show that it is my property."* In fact, everything is ready for the upcoming survey by the municipality but the bureaucracy takes too long. He followed all the required procedures and "*every two months I go there. They tell me to come back tomorrow."* Now he is considering borrowing the money for the weaving machine from family members. In fact he is discussing the plan with a successful nephew – "*he came here on Saturday from Kigoma. We discussed this and he said okay to investing in it."*

The owner is well-known in different regions and with different construction companies. He sees more market opportunities – "*in August, there was a client who wanted 1000 pieces in a few days. This made me think more about the electric weaving machine."* The owner does not often say no to clients. He accepted the order and organised the workforce into three shifts, but he was frank about production time and delivery. He had a lot of people working for this large order and delivered on time.

3.2 Wood processing – furniture (12 employees)

The company produces furniture and is situated on a busy road on the south side of Dar es Salaam. It also sells different kinds of wood for construction projects. The company has an open workshop including a number of heavy sawing machines. The company also saws wood and parts for other furniture producers, as a paid service.



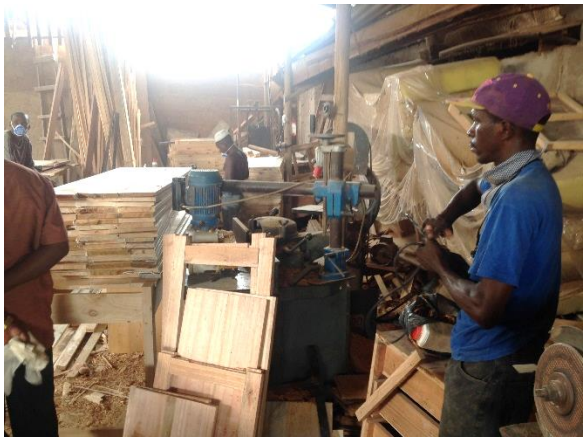
The owner started in 1995 as a trader, buying wood from villages in the country and selling to wholesalers in Dar es Salaam. However, organising and implementing the transportation became increasingly complicated over the years. Despite the fact that he always had the required paperwork, the police and government officers from the Ministry of Natural Resources made the transport difficult – "*they did not trust the documents, so there were extra costs to make sure the timber reached town."* In 2003, he decided to change his trading activity – "*because in everything I was doing I faced challenges. I asked myself, 'why don't I become a manufacturer of furniture myself*?'" Shortly thereafter, he started making furniture and immediately secured orders.

To buy his first sawing machine, the owner took out a loan from a private commercial bank, which was possible because he had an established and registered office of trading business, a plot of land and some furniture as collateral. Initially, the bank paperwork was too difficult to complete. The bank then simplified it because *"they lowered the amount of money I wanted."* Eventually he secured the loan with an interest rate of 23% for six months. The owner was very much aware that the loan was not very attractive – "*but it was a must to get money to start manufacturing."* He had confidence in the market for furniture.

Since 2003, despite ups and downs, the business has been growing steadily. With the profits and savings, the owner managed to buy six large and twelve small hand machines. He had confidence to invest in the machines because his network of clients had provided him with sufficient orders thus far. The production techniques improved and became more refined. The business practice also changed in the sense that previously the owner

just produced furniture without having orders. However, the hardwood became very expensive, so he switched to only producing after having received an order, which is much easier –*"if you produce without an order, you need a bigger place or a showroom where you can keep furniture well-arranged and clean."* He considers himself well-known in the area. He has a good reputation and people trust him.

The sawing machines enable the owner to produce pieces faster and of higher quality than local competitors. He bought the large machines second-hand from the UK. Before he did so, he visited several small companies in Dar es Salaam that use similar models. Then a contact in the UK helped him to find second-hand machines for sale and checked their condition and operational efficiency. The owner is very satisfied with these machines. The small hand machines were bought new from the local agent of a Japanese importer.



The company currently has 12 workers. The workers do not have fixed employment contracts. Instead, the owner recruits workers once he receives orders. He negotiates payment depending on the number of pieces to be produced and concludes a short-term contract. The 12 current workers work most of the time in the company. They know beforehand how much they will earn – *"they know once there is a large order, then they will earn a lot."* The owner does not train his workers. It is not difficult get good skilled workers and the required skills for furniture making are not very difficult to obtain.

Most of the workers can produce what the clients want. The owner mentions that there is no education or school to increase their knowledge and skills.

To design the furniture, the owner has a large collection of printed pictures of products (tables, chairs, cupboards, drawers etc.) – *"but that was before the coming of smartphones. Now, I have lots of pictures on my mobile phone."* When a new client comes to the workshop, the owner first listens to what design he or she wants. Sometimes the owner shows pictures to get ideas. Before making a more detailed design drawing of the furniture, the owner visits the customer's home and takes measurements. The owner drafts several drawings with the sizes. Then once the customer agrees, the owner discusses with the workers how to best produce it. They sit down and the workers also provide ideas.

External business environment

The clients of the company are mostly private households. Occasionally the owner receives orders from schools for classroom furniture from other areas in Dar es Salaam. There is some competition for these orders in the neighbourhood from other furniture producers. The owner's strategy is to prioritise client satisfaction – *"because if the client is satisfied then he will become my ambassador and bring other customers."* He is hardworking, even at night sometimes, to make sure that he delivers on time.

Lately, there is more competition from larger shops on the outskirts of Dar es Salaam that import furniture from China. In large showrooms, this imported furniture is on display – *"and because of the imported furniture it is more difficult to get orders from the government offices. Most government agencies prefer imported furniture."* The owner wonders why the government is buying imported instead of local products – *"people from the government usually say that they will buy furniture from Tanzania but I have never seen them actually buying local furniture.*" The owner considers that Chinese products are not very good and lack durability. He wonders why Tanzanian clients buy this lower quality Chinese furniture at a much higher price.

Regarding the business environment, the owner does not receive support from the government – "*most of the time when government officers come here, they are coming for their official issues. They want me to pay tax."* The owner finds the government more of a hindrance than a support. Many government officials visit: an official from the municipality regarding business registration, a representative from the Ministry of Natural Resources inspecting the wood – *"I never see them coming here to talk or ask how the business is going or what problems I am facing."*

He has some advice for the government. One important issue is that the government should establish a single set of consistent rules and regulations for business operation. Many government officials come to collect payment of different taxes – "*and it is changing all the time*." The same applies to the owner's experience of the Tanzanian Revenue Authority (TRA) – "*you might go there and pay tax but they will come here again for something else*." The owner would like to see a government consensus on regulations for starting and running a business.

The owner does not receive external advice or expertise. When he faces technical or design challenges, he solves the matter himself or calls friends for help. There are no contacts with formal institutions, vocational training or technology centres – "*one example yesterday, I had a piece of marble work to do for a kitchen cabinet. I asked a friend who specialises in this. I wanted to see how he does it, so I called him and asked him to do the work while I was watching."*

His friends or family do not support the business, which relies on the owner entirely. He hopes to modify his work in future, because it is his only employment. He manages to take care of his family – "*and that is very important for me."* He hopes to move to bigger manufacturing premises and also to purchase a showroom to display some of his furniture. He is currently saving but he does not know where he might buy, since he prefers premises close to the main road. It is very important for a workshop like his to be close to the main road, to make marketing easier – *"we keep the furniture outside so it is easier for people to see it."*

3.3 Agri processing – animal feed (20 employees)

This manufacturing company produces animal feeds for poultry, pigs, dairy cattle and horses. The two owners started their business 7 years ago as a small venture. Initially, they only traded agricultural raw materials as animal feed. They purchased maize and sunflower cake from farmers around Dar es Salaam. Shortly after starting their business, some customers asked for mixed animal feed. The owners quickly understood that grinding and mixing raw material meant a higher selling price – *"when you mix you can get more money."* They started to manufacture animal feed.

The owners first bought a locally produced grinding and mixing machine. They took out a small loan from an SME bank as investment money. The bank loan was difficult to secure – "*the main problem in getting loans is having collateral. How many people have collateral?"* They did have some collateral, but not enough for the amount they requested. The owners experienced an increasing demand for high quality mix feed – "*when we started to process the raw material, the customers kept on coming."* This made them confident about the market opportunities, which justified their investment in the machines.

The owners mix the feeds according to special formulas, mostly developed by themselves. Sometimes customers come with requests for certain types of feed and bring their formula and raw materials. The company has its own brand name, which is printed on the animal feed bags. The company currently has 5 fixed wage earners (workers) in the workshop and another 15 temporary workers, who in fact are quite regular. On average, 20 people work in the company.

The company's market is in Dar es Salaam and some coastal regions such as Morogoro, Tanga and Kirua. The company has a network of 40 local agents for the marketing and delivery of products. They sell the feed to individual clients, mostly livestock farmers. Most orders come in via these agents. The company has small delivery trucks. The company also sells occasionally to individual clients at their production site in Dar es

Salaam. The owners and a marketer also travel by motorcycle looking for new customers and contact potential customers by phone every day – "*we are trying to cover everywhere, but we are few in number."*

Before starting this company, one of the owners worked in the animal feed industry at an international level, exporting raw materials to Dubai. This knowledge and experience in identifying market opportunities and satisfying customer demands helps the firm today – "*we are sure about the demand in Tanzania and we know the market."* As a veterinary professional, he gained the knowledge and skills required for the animal feed formulas. Formulas are available in books and, with some assistance from an expert, he develops his own formulas to produce feeds with raw material available at the local market.

Only the owners know the details of the formula. The production workers have some familiarity with it, but do not know the compositions in detail. The owners are not really worried that their workers might take the formulas to other competing companies, because the formulas are only one factor in producing high quality feed. The quality of the available input material changes a lot – "*so one has to be creative and understand everything behind it."*

Innovation

The owners underline that quality is a key factor in their business. Animals need a balanced diet, which is critical to their growth. If the company does not carry out proper quality monitoring, then the feeds will be of lower quality – *"we are working in a competitive market, so if you produce low quality feeds then the customers will disappear immediately."* In order to stay in this market, it is all about quality, the owners say – "*people don't care about price, what they care about is quality."*

They have collected a large amount of information about formulas and nutrient contents in raw materials (protein, energy, fibre, vitamins and minerals). Moreover, having been in business for some time, they know what raw input materials are available at the local market, such as fish meal, sunflower, cotton cake, soya meal, corn and rice meal. If there is demand for a particular type of feed, they develop a formula and source the raw materials required.

For the nutrient testing of the input and final product, they bring a sample to a government laboratory in Dar es Salaam. For the owners, this quality monitoring is *"not for a government purpose, but for us."* Testing the raw input materials is essential because the nutrient levels found in local raw materials available in Dar es Salaam differ from universally recognised levels. The owners find it difficult to get good local input materials. Once they have the required input, they produce the feed and test the final product again. They change immediately if necessary, before customers complain. In this way, they maintain a good relationship with the customers.

They also test new feeds, in cooperation with the farmers. They provide the feed and observe closely how the animals respond. Sometimes growth is not as expected. In particular in poultry (broiler and eggs), they observe farms every day and assess the colour, quantity and size of the eggs – *"if anything happens, maybe the eggs are very small, we add some protein, if maybe the shells are very weak, we put some limestone and some bone meal."* They know that other competitors also visit the farms and do similar 'after sales' services.

One recent new development is adding enzymes to their feeds. The enzymes help chickens to digest faster and more efficiently. Apparently, raw materials like sunflower cake cannot be digested easily unless some enzymes are added. They are the first animal feed manufacturer in Tanzania now experimenting with this and "*it is safe; chickens can grow very fast using those enzymes."* The enzymes are sourced from the UK and India. An important advantage is that enzymes reduce feed costs for the farmer, because the conversion is efficient and reaches almost 90%, according to the owners – *"this is what we are trying to do, to be different from other manufacturers in Tanzania."*

Precisely how the owners manage, add the enzymes and develop their formulas is secret, "*because this*

information is power: if competitors know what you are doing, then they will copy and destroy you." The owners follow closely what more advanced countries like South Africa, India, Japan and the US do in the field of animal feed manufacturing. The owners are constantly looking for new areas for improvement, such as 'toxic binders', which can remove toxin in feeds.

External environment

There are more competing animal feed manufacturers today than there were 7 years ago. Most new companies, including some big manufacturers, started 4 years ago – "*that's why previously we were dominating the market."* The bigger companies do not provide very good quality, according to the owners – "*the bigger companies use poor input materials at a cheaper price."* Farmers are sometimes disappointed by the feeds of the bigger manufacturers because the quality fluctuates a lot – "*one day the clients come to our company and the next day they go to the bigger competitors. This is one of the challenges."* It is difficult to retain customers.

Another problem is that farmers sometimes use good feed, but their farming practices and management are poor – *"and they blame it on the feed."* In addition to good quality feed, management of livestock requires a good supply of water, a clean environment and no stress. Feeding procedures may also not be good – "*some farmers underfeed the chickens."* The owners of the company also provide advice in this field and conduct outreach activities. The company vet and the sales team travel around Dar es Salaam and the coastal region (Morogoro and Tanga) to see how farmers are doing. They suggest management and farming practices as a side service.

The owners find the institutional business environment "*very difficult"* in Tanzania. There are many taxes, such as fire taxes, corporate taxes, and payments to the Tanzania Foods and Drugs Authority (TFDA), Tanzanian Bureau of Standards (TBS), Ministry of Agriculture and veterinary officers – "*there are more than five people coming to collect different taxes. The problem is that everybody can come and ask for tax. And what are they doing in return for us?"* The profit of the company is relatively small compared to the required tax payments. The owners see that the Tanzanian government has a poor policy framework and the regulations are difficult to follow – *"in Tanzania, things are not organised, which makes doing business very complicated."* There is very little complete information available about taxes and the legal environment – "*we are constantly surprised by someone passing by. Things come randomly."*

Recently, the Tanzania Revenue Authority (TRA) required the company to use the Electronic Fiscal Device (EFD) alongside its financial reports. This machine is designed for use in business for efficient management of sales analysis and stock control which conform to the legal requirements. "*The TRA demands that we use the EFD machine and at the same time we have to provide financial reports. That is double work for us, serving no purpose."* The owners find the EFD quite limited and only useful for sales – "*it can't even show purchases, it can't show costs, but you are forced to use it, and if you don't use it, they fine you a penalty of five million on the spot."*

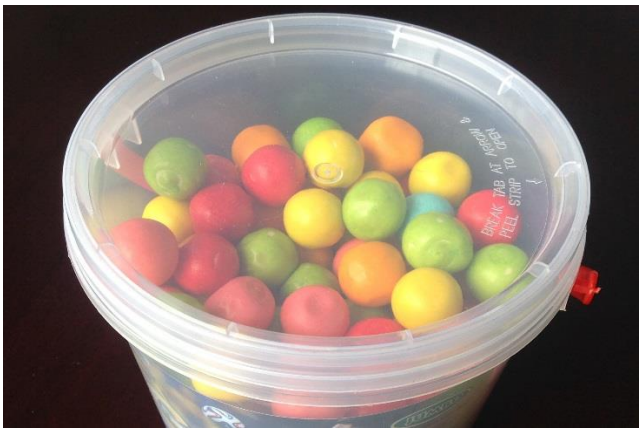
The company has contacts with a veterinary centre in Temeke, which is a research station of the Ministry of Agriculture – "*if you have a problem, they say they can help, even your tests and everything*." The owners think that these officers have mostly theoretical knowledge and lack practical experience.

With regard to external relations, the company has a good relationship with a company in Pretoria (South Africa) via the International Grain Association (IGA). The chairman came one day to Dar es Salaam and helped the owners a lot – "*sometimes after making our feeds, we send a sample to them and they give us good feedback."* The South African manufacturer does this analysis for free. This arrangement is a support project by EICO in America, which supports small enterprises involved in animal feed production all over the world. The project supports the company because some tests cannot be done in Tanzania – "*if I want to test my product, I can test it in South Africa, but most of the time we test in Tanzania."*

The company is a member of the Tanzania Animal Feed Manufacturers Association (TAFMA), an independent association "*lobbying within the government for better conditions to produce animal feed."* One recent discussion is the new challenge of increasing imports of chicken meat and eggs from Kenya and Europe, which *"kills our animal raising market."* The cost of production of imported products is cheaper compared to Tanzanian producers. Many products are imported and sold at a lower price – *"consumers enjoy the lower price but the local manufacturers suffer."* The owners feel that the government needs to step in to help the poultry sector – "*there are so many things which we have to settle and solve with the government."* Their problem is that the demand for animal feed will drop if the farmers do not produce. The owners are aware that opening up the market promotes competitiveness, but they say that it is impossible and unfair for local producers to compete with these big international companies. With TAFMA, they are trying to protect the market. Recently, McDonald's has been trying to come in to Tanzania and sell fried imported chickens from Europe for a cheap price – "*so we have to join together and stop this, because we are poor, really, our country is very poor."*

3.4 Food processing – confectionery (70 employees)

The company manufactures bubble gum. The owner took over the business and brand name five years ago. At that time, the confectionery company belonged to larger manufacturing group owned by their business friends in Tanzania. The company was a small part of the group – "*to them, the company was not making good profit, that's why they decided to sale it off."* The owner considers himself an exception in the Pakistani community in Tanzania because "*most Pakistanis, Indians and locals have shops and trade; they import and they sell."* The owner was previously a trader in confectionery items, which he imported from various part of the world. His past trading experience provided him with the trust and conviction to take over the manufacturing company – "*we have reasonable experience in market. That convinced us to takeover this company."* Manufacturing confectionery and other stuff locally generates reasonable profit than import, because the import duties and freight charges are very high.



Because of his trading network, the owner experienced little difficulty in gaining market share when he started. He could sell the product at a lower price. Another main factor *"is our quality, which is better than the imported products."* Sometimes the owner collects samples from local market to compare their quality with their competitors. He concludes that his locally produced bubble gum is cheaper and better comparing to imported goods. The company uses raw materials of high quality and more gum in its products.

The raw materials such as the glucose and the gum are imported from different countries, mostly from India and Pakistan. Only the sugar comes from Tanzania.

The company has a board of directors: 8 technical engineers from Pakistan, a marketing team of 10 and around 70 production workers. The workers come from the surrounding areas and also more distant places such as Mbagala. There is one foreign chief technician, who knows all the technical details of the production process. The company has engineers mostly from Pakistan. *"because we face limited availability of skilled and qualified staff in Tanzania because of our product nature"* The university graduates or engineers do not have the knowledge and skills that match the requirements of the company's technology and machines – *"for them it is new thing so they obvious need some time to understand y."* The owner has a contact in Pakistan and India who recruited the Pakistani and Indian engineers. The expatriates (technicians) train Tanzanian

workers to operate the production machines – *"it takes time for them to learn but they are trying their best."*

Regarding sales and delivery of the products, the company has an office in the city center for their contacts and sales with customers. They arrange door-to-delivery from several depots in the country with their own trucks. The company occasionally sells to travelling buyers from Malawi, Congo, Zambia, Zimbabwe, but this is not a regular export business.

The bubble gum production machines were expensive investments for the company. The owner purchased the machines from Europe (Germany and Italy), as advised by Pakistani friends who live there. These friends visited machine producing factories and *"saw and checked the machines. That's how we decided."* The owner is not considering buying other machines in the near future – *"we think the Tanzanian market for bubble gum is very small, so our production capacity is more than enough."* Regarding the technology, there is little to be gained by new machines, as he already has more or less the state-of-the-art technology in his company.

The company produces according to its capacity and the owner sets his own production plan – "*when the production is ready, we receive orders and we deliver. So far we have been happy with the demand in the Tanzanian market."* The company has built a stock to assure delivery of two to three days. This stock avoids delivery problems. The owner sees that the business is doing well and considers the profit good.

Innovation

Since the owner took over the company, he has tried to introduce new products. Eventually these turned out to be small changes in the shapes, colors, taste and the packaging in their confectionery items – *"at the moment there is not much need or possibility to change the production*." The confectionery products and the production process basically remained the same. Regarding the packaging, the marketing department develops new designs and uses sporting events such as the world soccer championship or other popular themes to print on the packaging. An external contractor does the computer design for the packaging.

Recently, the owner decided to introduce candy (roll pops) as a new product, because he sees a market for it, which will enable the firm to grow. In the past, he imported roll pops from India and turkey, so he also knows the market for this product. The owner has already ordered a candy producing machine from India, which is currently being shipped to Tanzania. He is confident that the candy will sell through his existing marketing channels. For the time being, he is not planning to import or produce other products. The owner does not have enough space to enlarge his production for export. He has some space reserved for candy production in his existing company building.

Business environment

The owner finds the business environment in Tanzania adequate. He has no complaints. Contrary to other manufacturing companies in Tanzania, his business is doing quite well. He thinks that because there are only few bubble gum manufacturers in Tanzania and some imports from China and india, the market is stable. He is happy with his business partners, whom he finds reliable, and with his clients, who pay on time.

The company does not depend on external support, because the owners are against interest – The owner found some business partners who were willing to invest, which provided sufficient funds.

The owner finds the government regulations quite normal and stable. The company has registered its brand as a trade mark with the Tanzanian Food and Drug Authority (TFDA) and makes efforts to comply with hygiene standards – *"but the official supervision checks are not so strict."* The company does not receive technical advice from other organizations or technical institutions – *"we solve technical problems ourselves."* Regarding government programs, sometimes the Ministry of Finance sends invitations for seminars on innovation, marketing and other business topics. The owner or other staffs often attend – *"we listen and consider what the benefit is for us and we try to use or implement the ideas within our system."*

The electric power provided by the government remains an issue for the company. The price of electricity is very high, whereas its supply is not reliable. The company does not have a back-up generator. When there is a power cut, *"we have to wait for the electricity to come back. It can take 5 hours some days."* Other than that, the owner considers the government of little importance for the success of his business – "*we are a small company and never asked for any help.*"

The company is in an industrial area, which the owner considers a good location. The industrial area provides the company with electric power, the port is close and there is a constant supply of water. The industrial area is also strategically located with regard to the main roads and other infrastructure. The premises have several larger manufacturing plants. The company land is rented, for instance.

3.5 Polyester nylon – fishing net manufacturing (26 employees)

The company produces nylon fishing nets. The owners, a Tanzanian couple of Indian descent, took over the business 10 years ago. Before, the couple was running a supermarket in the city of Bukoba, bordering Lake Victoria, where they did some selling and buying of fishing nets. In 2006, they were ready to face new challenges and invested their capital in buying the net manufacturing company.

When they took over, the company employed around a hundred people. The nets were produced for the fishermen of Lake Victoria and the Indian Ocean, and were exported to neighbouring countries like Malawi, Rwanda, Congo, Zambia and Mozambique. Initially, the business was quite good. In 2010, however, the Tanzanian government introduced new regulations restricting net size for sea and lake fishing. This resulted in a dramatic drop of the export market – *"with the new regulations for catching fish, we could no longer produce the net size we were used to producing."* After the enforcement of the restrictions, the company had to lower its production and the workforce decreased from 100 to 26 – *"the company is more or less at a standstill."* Changing to producing another size was not an option because of high investment costs and an uncertain future.

The key reason for the government's change of policy was illegal and over-fishing in Lake Victoria and at sea – "*the fish stocks are really doing badly."* Personally, the owner believes that the government should educate fishermen, rather than enforcing restrictive policies – "*education should focus on understanding that it is better not to fish in breeding areas in order to keep the fish stock healthy."* Moreover, fishermen need the right equipment, tools and boats. According to the owner, the fishermen should introduce new fishing methods – "*there is a lot of new technology, which needs to come to Tanzania."*

At the moment, they are looking into possibilities and opportunities to bring new technology into the fisheries sector in Tanzania. One idea, stimulated by the recent visit of a boat expert to the company, is to introduce new types of boats, built from fibreglass with a lightweight on-board engine, which gives better fuel consumption. This boat, once in production, will be equipped with built-in lighting powered by the engine – *"fishermen will not need to use petroleum lamps if they are going sardine fishing."*

At the moment, they are exploring the boat construction and availability of materials – "*we have to be cost-efficient because we are competing with imported boats from China and India."* The owners are in the process of looking for good quality raw material for a reasonable price. The construction material is not available in Tanzania. The owners are also studying the technical specifications of building the boats to see where improvements can be made – "*we want to be one degree better."* The Chinese and Indian products are a lot cheaper and people actually prefer imported goods, because the cost of production in Tanzania is high.

The company originally rented their premises for production in Dar es Salaam. However, rents are high. To save on costs, the company moved out of the city. The couple now has their own site and is constructing a production hall. However, acquiring the necessary permits is a long process – *"so you have to wait and wait before things happen. The difficulty in running a business is that you cannot make projections and production*

plans in this environment."

At the same time, the owners identify a positive development: aquaculture and fish farming is a growth area in Tanzania. There are no restrictions on aquaculture – "*the pond owner can do what he or she wants. It does not affect the bigger fish stocks."* The company plans to supply nets to the aquaculture farms. Tanzanians are just beginning to tap into this, whereas Kenya has gone much further with aquaculture, according to the owners.

Internal capabilities

Managing their workforce is not easy. The socio-economic background of their workers is weak – "*our workers come from poor backgrounds, they have a lot of problems, so even getting 100% efficiency from them is very difficult, given their level of education and level of commitment."* The owners pay a worker twice the Tanzanian minimum wage. The actual cost of living in Tanzania, however, is still higher. The normal family size in Tanzania is six to eight children, plus additional family members – "*although people look after each other, they do not have the proper resources to do it.*" The owners see that Tanzanian families face a lot of daily problems – *"so what kind of level of commitment could you expect? I cannot be harsh on them as an employer."* The owners try to educate their workers. They tell them to restrict the size of their family because it brings frustrations and "*parents resort to drinking and drugs, it's an easy escape from their problems.*"

The owners give the workers incentives every month on production if they do not miss a day. They get incentives if they complete a daily agreed amount of work. The workers also get their costs for transport covered. In return, the owners say that the workers are very loyal – "*we are investing in our workers. Changing workers every day doesn't work."*

Business and institutional environment

The business environment is challenging in Tanzania. High production costs make it difficult to compete with countries like China and India – "*the only viable manufacturing in Tanzania concerns goods that are in short supply and imported goods that did not arrive in time."* The high cost of electricity is a key problem. The state of the electricity supply system is also poor. Many entrepreneurs end up running on generators, but fuel is very expensive – "*we are spending seventy percent more than if we were running on proper electricity."* The owners survive because they try to keep other costs as low as possible, but in the last couple of years, they have lost capital. Another big challenge is the cost of financing. Credit is very expensive "*considering all the other costs that you are paying, you will definitely default if you borrow, and if you do not borrow, you do not have enough capital to develop, so it's a catch 22 situation."*

The owners wish to make the government understand that the company can export nets of different sizes that will not affect Tanzanian fisheries. The couple tried to enter into a dialogue with the government about the net size issue, but without success. Within the government, there are people "*who are highly approachable and there are people who are not."* The owner feels that the government really needs to be available for the fisheries sector and its stakeholders in order to promote the development of the sector, otherwise it will not happen.

The owner feels somewhat frustrated about the Ministry of Fisheries' failure to issue one clear set of standards and procedures. There are overlapping regulations within the different governmental agencies. The international regulations for marine waters allow all net sizes. The regulations for the Mtera Dam, rivers and great lakes prescribe three inches and above. For Lake Victoria, it is six inches and above – "*so taking a net size for marine fishing to Lake Victoria is illegal. If I take a Mtera Dam net to Lake Victoria, it is illegal, but in marine waters everything is okay."* Moreover, the enforcement of regulations is done for *"personal convenience sometimes."* Corruption is a real problem in Tanzania. With these practices, the government is making life more difficult but "*in the same government, you will find people who are extremely helpful."*

The owner feels that the net size restrictions are the result of the government's lack of technical insight in an effort to combat overfishing – "*it would be good if there were more technical experts to guide the Ministry of Fisheries."* The owner stresses the importance of cooperation among fishermen, as the main stakeholders, suppliers, buyers and the government. There are universities and technology development institutions supporting the government – *"but these institutions do not sit around the table with the stakeholders*."

Another problem is import of raw materials, in particular with regard to the import tariff codes. On the Tanzanian Revenue Authority's (TRA) website, the codes change all the time. Imported goods are very much delayed as a result of these changes, which can take months, "*and we have to pay storage of 40 USD a day for a 20ft container, how can you be cost efficient?"* This is one of many reasons why the company is losing money.

The government needs to create a stimulating environment for SMEs to thrive – *"I am a stakeholder and I don't receive the respect that I deserve as a stakeholder. Sometimes I am treated as a criminal, as if I am carrying out illegal activities with my business."* This is discouraging, when they see that foreigner investors are treated with much more respect.

The owner is a member of the Association of Fishermen. She goes to meetings and listens to the fishermen – "*once in a while we get together, we discuss points, we discuss our challenges, and we try and look for a way forward."* One of the problems often confirmed is that fishermen need modern fishing boats.

Women entrepreneurs face additional challenges in Tanzania because *"it's a man's world.*" She says that no one is going to respect women easily. A woman has to look out for herself and earn it – "*you have to make that space and you have to earn that respect*." The owner has found some like-minded people. Their networking is becoming stronger, but they each have to find their place in society by themselves.

As a result of the difficult business and institutional environment, she sees that the manufacturing sector is shrinking. A lot of friends or family members have closed down because it is easier to import – *"they are not accountable to anybody, they just trade, sell your goods, go home and sleep."*

Despite the challenges, she does not want to close her manufacturing business, because that would mean that she had failed. It is a personal struggle for her. She feels responsible for her employees, who will lose their jobs if she quits – *"it is their livelihood."* Her family has survived up to now – "*so I cannot see why we will not survive in the future. We have our challenges, but this is our nation, so let's face those challenges together."* According to the owner, the situation is different from Kenya. In Kenya there is a lot of tribalism. That makes life more difficult, especially for the Indian community – *"we don't have that here in Tanzania, we co-exist very well."* The Indian community is very much integrated into the social and economic life of Tanzania – "*we have our own communities but we don't necessarily stick to our communities exclusively."*

3.6 Agri processing – cigarette production (150 employees)

The company, located in Dar es Salaam, started in 1996 and produces cigarettes for the domestic and export market. The manufacturing process consists of preparing and processing the raw tobacco material, producing the cigarettes, filters, packaging and marketing. There are about fifty people working on the production site in Dar es Salaam, and additional workers in the distribution branches all over Tanzania. In total, the company employs a hundred and fifty workers. The business is ninety percent foreign-owned. The foreign owners are mostly from Mauritius. The owners of the company started "*from scratch"* in 1996. They first developed a local brand to be tested in the Tanzanian market. They explored the cigarette market step-by-step – "*our first sale was like one case of cigarettes."*

Today the cigarette market in Tanzania is segmented. Most of the cigarettes for sale are locally produced,

with only a minority imported. The top quality segment, such as the imported Marlboro, is sold at high-end tourist hotels and restaurants. The bulk of the market is the middle segment of locally produced cigarettes. The company, having a trade mark, produces three brands for the lower and middle segment. The company's strategy was to start at the lower end and then "*add brands for the medium segment, as you grow."* The idea is that business growth starts once the company has gained customers' trust in the product.

Apart from the quality of the cigarette, packaging and appearance are also important – "*if you put gold on the package, it is kind of a cigarette for the wealthy."* Most of the middle segment product packages are red. They also have green, which is menthol, whereas *"blue is the colour of the lower segment,"* which the company does not produce. In Tanzania, not many people smoke – *"I wouldn't say Tanzanians are good smokers."* According to the managing director, 99% of women don't smoke and the Maasai do not smoke – "*so most of the tobacco that we grow in this country is exported."* The managing director estimates that the company has about five percent market share in Tanzania at present.

The company also serves export markets in Somalia and Mozambique. In the past, the company also exported to the Congo. The managing director has little knowledge about the markets in these countries – "*there are Somalian guys, for instance, who come here by truck to buy and load cigarettes. We don't know how they get back into Somalia."* The company and the international buyers apparently have the paperwork and formalities completed for export. Although the paperwork may be in good order, "*you have to make sure that the truck of cigarettes crosses the border."*

The tobacco itself is the bulk of the cost of the cigarette – *"you cannot change that much."* Over the years, the company has gradually changed the blend of its cigarettes. Sometimes the company imports some additional tobacco for blends that require tobacco not available in Tanzania. The filling of the cigarette can be modified slightly, such as reducing the weight of tobacco – "*using less input can increase the profit margin a bit."* There are techniques to use more of the input material, such as the stem of the plant. The company can 'puff' the hard stem so that it becomes bigger and softer. The 'puffed' stem can be cut precisely with new technology so it can be used as tobacco. The company, however, cannot afford the machinery required to do this.

The company has simple machines to roll and produce the cigarettes – "*our machines are between the slowest and middle. Today you can have a machine that produces 9000 cigarettes per minute, but we are at 3000."* The investment required for new fast machines is too high, given the limited sales – *"it won't be money well spent."*

Business environment

The company is a medium-sized enterprise. The competitors in the Tanzanian cigarette industry are much bigger companies and are "*run by powerful people."* These companies have the latest machines, invest heavily in their business and *"they have a department of legal affairs with many people."* Although the competitors are bigger, the managing director does not see that their products are necessarily better. His company is still able to survive in the Tanzanian market, in his view, because of its low operating costs and low salaries, while still delivering good quality.

Cigarette marketing and advertisement has become complicated in Tanzania. In July 2014, the government imposed strict regulations on all cigarette and tobacco advertisements. Previously, it was legal to sponsor sports matches for example, to put up banners and posters and to distribute T-shirts. For a newly developed cigarette product, a company has to seek Ministry of Health permission to add the new product to their range – *"the laws are now very tight."* The managing director sees only one way to run a marketing campaign: convincing people that the product is both good quality and cheap – "*we compete on quality and price."* The company makes sure it has good quality tobacco, and the right blend, in line with the smoking preferences of local consumers – "*we know the kind of tobacco that they want."* To understand customer preferences, they get in touch with smokers by distributing samples in clubs and restaurants. They give away free packets

of cigarettes and ask for feedback.

Most of the input material is produced in Tanzania by large multinationals that grow and supply the tobacco worldwide. Internationally, there are only a few players and these large multinationals control the tobacco business – *"it's not the cigarette makers*." They finance the farmers, buy their tobacco, process it and "*sell the tobacco to us on their terms*." There is no attempt to change this arrangement from the Tanzanian government side "*because there is no reason to change this in terms of government revenues. The government budget basically runs on cigarettes and beer."* The growing multinationals that supply the tobacco have laboratories that do the analysis and provide the results to the company. This is important for assuring the quality of the cigarette, and quantifying the tar and nicotine content. The cigarette's characteristics are determined by these chemicals.

The managing director considers the institutional environment to be confusing for the cigarette industry. For instance, on the one hand, the Ministry of Health requires firms to put warnings on the packaging, while on the other, the Ministry of Agriculture has policies to increase the growing and production of tobacco in Tanzania. The government tax system is not consistent, with tax levels changing every month. The government increases taxes every year – "*if you ask them why, the government officials rudely say that cigarettes are a primitive kind of product. The tax department says that the product harms people's health, so they increase the taxes."* Similarly, regarding credit, most banks in Tanzania finance the tobacco business but "*they will tell you that the cigarette business is bad for society."*

The taxation regime is such that imported cigarettes are taxed very highly. Therefore it is not attractive to import cigarettes and sell them on the local market. However, there are many illegal cigarettes from China sold in Tanzania – "*I don't know how they are imported."* The price of these cigarettes is low but the taste is inferior to the locally produced cigarettes. Tanzanian companies suffer from these illegal practices. The bigger companies see copies of their brands on the market. The managing director mentions that there is a certain amount of trademark enforcement in Tanzania. The police will seize the cigarettes and destroy them – "*however, after some time, copied cigarettes will be back on the local market."* The managing director recognises that the cigarette business can be very profitable if taxes are avoided by illegally producing cigarettes – *"then you earn a lot of money."*

Consumers with health problems have not yet sued the cigarette industry in Tanzania, but the owner thinks this will happen very soon. People are becoming better informed, and "*we have a lot of youngsters graduating from the universities with law degrees."* It will be difficult to succeed, in the sense that the law requires firms to put a health warning on the cigarettes.

The owner is not very optimistic about the future of the company in Tanzania. There are new regulations coming to restrict and ban smoking. Regarding the overall situation of the manufacturing sector in Tanzania, the managing director says that *"we lost direction completely, because we are importing basically almost everything."* The country could grow and manufacture everything it needs, according to the managing director, but most manufactured goods are imported from China. There is a lot of raw material and a lot of unemployment as well, including university graduates – *"they are jobless because we killed this country - we used to have industries for everything here, now the industries have been sold and turned into warehouses*." All the buildings around the production site in Dar es Salaam used to be manufacturing premises, as it is an industrial area. Nowadays, most of the buildings are warehouses.

The owner feels that government policies are the main reason that the manufacturing sector is not thriving. The issue is that the easiest and fastest way for the government to earn revenue is to tax imported goods. For industry and manufacturing, the government has to wait for the tax income – "*so the government is only after quick money*." The government lacks motivation to invest in strengthening and developing the industry, when it can earn tax revenues from imports. Most of the old industries were previously owned by the government. These former state-owned industries were privatised, and their buildings became warehouses, as mentioned earlier. There is no policy or encouragement for a company to innovate. There have been no efforts made to

find ways to make production cheaper –"*so it only took time for the imported products to become cheaper and take over the market."*

The managing director considers Tanzania very rich in terms of natural resources and he sees no reason why Tanzanians should seek outside help – "*looking for help is an insult to this country, we have everything here, we have a very good land."* He sees that the government policies and practices result in untapped potential and a lot of wasted resources. In Tanzania, there are times of good rains and high food production, but *"the agricultural products rot in warehouses because the government does not want us to export the product."* This is a serious problem in Tanzania. The farmers work very hard and produce goods for which there is demand, but the government prevents them from marketing their products. The politicians in Tanzania are worried that more people will get rich in Tanzania – *"when you are rich, you can influence policy, so the politicians are afraid that people will get rich - they would rather have a rich foreigner than a rich national."*

3.7 Sea food processing – octopus processing (39 employees)

The company, located in the industrial area in Dar es Salaam, processes and exports frozen octopus. Fresh octopus is caught by fishermen at various Tanzanian coastal sites in Mtwara and Kilwa. The company purchases the octopus through several local agencies and stores it in its cooling facilities on the spot. The company has its own cooling ice plants. The octopus is then transported in company trucks to Dar es Salaam for further processing. This process includes cleaning the octopus, beating it into a flower shape and freezing – *"we export them in the frozen state."* There are 39 people working in the factory in Dar es Salaam. Dar es Salaam is a good geographical location for processing frozen octopus because the sea and good transport facilities are near.

The company was established in the 1990s and is part of a larger enterprise group owned by a Tanzanian family of Indian descent. The Indian community in Tanzania works closely with each other and families help each other in the businesses and industries they are engaged in. The business development manager (with whom the interview was conducted) joined the company four years ago. The group is also engaged in agriculture and poultry activities based in Mwanza. The company's board is composed of family members, who decide on overall management and strategic issues, including innovation.

The turn-over of the company depends on the availability of octopus, which is seasonal. The high season is from August to February, while the low season is from March to June. The company only exports its product to Europe with customers "*who have been working with us for a long time."* There is actually little demand for frozen octopus in Tanzania – "*the local market is now growing, but it still small. Tanzanians prefer to buy at fresh fish markets for direct domestic consumption."*

Recently the company also started exporting frozen prawns. To do so, the company purchased several sea trawlers to catch the prawns, and employed some 20 people on the boats. The prawns are processed and frozen at sea and directly exported to Europe. The prawn fishing ran into complications since there was a moratorium on prawn fishing – *"we have just recently started working with the government to see how we can help each other."*

To be ahead of the competitors, the company is equipped with state-of-the-art machinery in its factory in Dar es Salaam. They apply advanced processing techniques and follow "*scientific-based*" processing techniques for storage, transport, processing and packaging. Moreover, modern hygiene practices are observed, such as having uniforms, gloves, masks and *"we frequently test the water, chemicals, and run a micro-biological test of our products."*

The management of the company is conscientious about sending the processed products to laboratories to check for parasites and bacterial contaminations. When the company ships the product, the quality manager himself come to supervise and do the paperwork for the shipment – "*traceability is important for exporting the product."* The paperwork helps to trace back, if there are any problems or complaints from the transport. The employees also give ideas for improvement – "*we do take opinions from them, and so they become part of our development."*

The company also 'adds' value by applying sustainable business practices, as part of its corporate social responsibility strategy. The outcome of this is a 'Natural Land' certificate, issued by the European certification board, which requires investment in sustainable business practices applied by fishermen. Having the certificate enables the company "*to have a premium on our product's price."* Consumers prefer the company's product because of this certificate. The certification board comes to visit the company, its suppliers, and inspect all the steps in the production processes. They also examine the areas where the company has invested money in sustainable business practices.

The company meets all EU quality and hygiene standards for export and processing – "*anything we export to the EU has to be done properly, and we have EU inspections for our factories every two years, so we adhere to what their quality requires."* The EU inspectors visit to assess the facilities but do not provide advice.

Innovation

The business development manager is trying to launch new products. Recently, he has been exploring the business potential of exporting live crabs, which seems to be profitable but brings a number of technological challenges. Other countries like Sri Lanka and Malaysia export live crabs to China and India – *"we believe we can do this as well and make a big profit."* The managers had been thinking about this idea for some years – "*and so we just want to implement it."* The crab export is still in the experimental phase. It is very difficult to get live crabs from fishermen.

The wild crabs are cleaned and checked for their health, but quite a number die during processing and transport. The company packs and exports the crabs by air to Singapore and China. Air transport also poses problems because *"the high mortality makes it a risky business."*

The company is also experimenting with crab farming. The company invested in an experimental farm in Kilwa. The young crabs are caught at sea and brought to the farm to grow – *"but still there are several technical and operational challenges. It is a learning process we have to do ourselves.*" The company hired a consultancy firm to provide advice on feeding, growth and mortality. The manager also gained knowledge from literature available on the Internet.

The managers are very much aware that they have to learn to farm crabs, but they do not know where to start. Their current knowledge was gained from research papers and websites, which were useful, but more important were visits to other countries to see others doing crab farming. The crab growing and export has

just started – *"our crabs are not rejected in the market but it has been of little benefit to us. Once these are profitable, the company will invest on a larger scale."*

Business environment

There are several strong competitors in Morocco, Mozambique and Vietnam, which makes it hard to compete on the export market – "*the price factor is very critical."* The economic context and location of the competitors makes a large difference in competitiveness. The manager mentions that Morocco has an advantage because Europe is much closer and so the transport is much cheaper. The company competes by taking advantage of the high season in Tanzania, which is different from the other exporting countries. The company has another competitive advantage, which is the previously mentioned Natural Land certification. It is the only company in Africa with this certification.

The manager describes the Tanzanian business environment as 'complicated'. Policy makers and government officials seem *"to have beautiful things on paper but implementation has been the problem.*" Politicians have been discussing very big ideas *"but it is only talking."* There are a lot of government taxes required for daily business operations. According to the owner, these are very high compared to Kenya – "*we have been discussing with the government the need to reduce the taxes. For instance, the opportunity to earn a living from fishing in Lake Victoria is shared by three countries, and all of them are exporting, but we pay more taxes for our export than Kenya and Uganda."*

With regard to health regulations in Tanzania, the company is supervised by the Ministry of Fisheries. Inspectors of the ministry come unannounced and check the production facilities, the administration and records. They also provide the company with information and guidance on how to improve the production process. The company does not receive technical advice from science and technology organisations in Tanzania, like university or research institutes. The Tanzania Fisheries Resource Institute (TAFIRI) contacts the company once in a while for research projects, but these are of little benefit to the company.

The manager feels that government policies are squeezing the manufacturing sector in Tanzania, which is getting smaller – *"only a few are left and this is because of the policies*." The result is that raw materials are exported while processed goods are imported. The manager refers to the cotton industry – *"all raw cotton is exported and Tanzania import clothes."* The manager is quite negative about the industrial sector – *"the sector is getting smaller while the politicians are talking about reviving the industries in their political campaigns. How can you revive the industries when you have killed them?"* The manufacturing industry needs new inventions and innovations to be cost effective – *"we need cheaper local costs of production, and energy is the most crucial factor."* According to the manager, Kenya has an advantage and could serve as an example. It has a very strong industrial base, and the workforce is quite committed to the industries. In Tanzania, productivity is lower than in Kenya.

3.8 Leather products – shoe making (10 employees)

This small company produces shoes and some other leather products. It is located in a special business area, which is an incubator programme of the Small Industries Development Organisation (SIDO) programme. The business and technology incubator programme is a service centre that supports entrepreneurs to develop their business in a viable way by providing them with work premises, technical advice and access to information. The company joined the SIDO programme in 2010.

The owner received training in shoe making in Mombasa (Kenya), where he went for a 3-month course. Back in Tanzania, he received additional intensive training from a Canadian leather expert. Then he started his own business – "*I decided to start this project together with my family and other friends who have helped me."* Since then, the company has produced school shoes, professional working shoes for industries, army boots and several types of sandals. The company employs 4 people and occasionally hires another 6 to handle

larger orders. The owner prefers large orders, such as a recent example of up to 3000 pairs for a school in Dodoma– "*it takes one and a half months to produce 3000 pairs."*

The owner decided to do leather and shoe making *"because it is a good product. We have a lot of leather material in our country."* According to the owner, Tanzania is the first country in East Africa and the third in Africa for leather production. Before starting his business in 2010, the owner was struck by the fact that so many shoes were imported from China, which motivated him to start this business "*because everybody should wear shoes from Tanzania."*

The owner aims at high quality and uses pure leather as the input product. The soles are bought from Kenya. The shoes are stitched and glued with a special machine, which assures the quality of the shoe – "*you can wear the shoes for three years without any problem."* The owner does not have a trademark. Sometimes competitors buy his shoes and try to reproduce them without success *"because they do not have the special machine."*

To start up his business, the owner needed considerable capital to invest in the machines. During his training, he learned which machines were best and affordable to buy. For the initial investment, he did not get credit from a bank – "*I found finance myself through relatives and friends."* The owner does not pay interest to his friends and family members who lent him the investment money. The owner mentions that the formal banking sector is very difficult in Tanzania because of the collateral requirements and the high interest rates of around 24% per year.

Moreover, the banks require that the interest be paid immediately, *"even before your business matures."* Nowadays, his main concern is getting working capital, to buy the input material for his production upfront. One way the owner deals with this is to ask for half of the contract volume from a large-order client in advance.

His strategy to survive and to stay in business remains the high quality of shoes – "*I am very happy to say I am doing well."* Quality is about the way the shoes are made, how materials are used, the way the sole is attached and how the machines are used. In fact, the owner sees that not many shoe manufacturers have the skills and machines to attach soles firmly, for instance – *"that's why our shoes are more durable. That's why I survive better than others."*

The customers acknowledge the good quality. The company gets orders via schools, shops and the army sector. The owner only starts production after having received an order. Sometimes he sells small quantities to shops. The director does the marketing himself. He does not have a website, but he does attend promotional events to gain new clients – *"we attend international trade fairs, where we display our shoes."* Another way of marketing is to visit large manufacturing companies directly. This also proved an effective way to secure orders. He prefers large orders from schools, the army or wholesalers.

The company is the only shoe making company in SIDO. The owner feels that the SIDO incubator programme provides little benefit in financial terms. The company has to pay rent at a normal rate. Being at SIDO does increase the credibility of the company to a great extent – *"if you tell customers that we are in SIDO, then they trust us because it is a government programme. People think that products of SIDO are of*

good quality." To join the programme and get a location at the SIDO premises, entrepreneurs have to apply and present their business idea. A key element in the owner's business plan was to produce leather without using chemicals, including chrome, following the suggestion of an Italian advisor. This idea helped him to convince the SIDO board. A company may stay at the SIDO premises for 3 years, a period which can be extended by further application. An important condition of such an extension is that the business is profitable – "*if SIDO finds out that your business is dying, then it is difficult to renew your contract."*

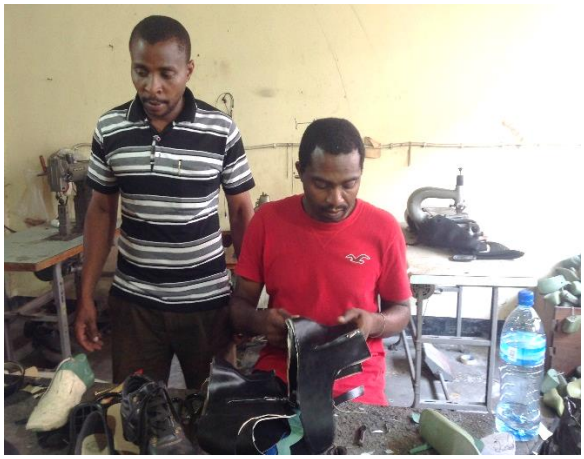
Innovation

There is little potential for innovation in shoe making other than the designs, according to the owner – *"the army boots are usually the same. Sometimes the army wants a different colour*." The owner uses existing designs for developing shoes, or copies ideas and patterns from others, like designs from imported shoes. The owner also draws the designs himself – "*I think those designs are better for my business because they are different from others."* The owner designs with the assistance of two of his staff members. There are also customers, from the army for instance, who come and specify a desired design – *"we sit down and make a few drawings of how we will do it."* Feedback is given on a couple of test pairs before the whole order is produced.

Regarding technological innovations, the owner plans to manufacture the soles himself, which he currently imports from Kenya. This will require him to import a special machine, which costs about 400,000 USD. There is an Indian sales representative in Tanzania, who is helping the owner to sort out the technical issues and providing advice on securing finance. However, the financial constraint remains challenging. To date, the owner has not been able to find the financial resources to buy it. He is also trying to see political leaders within the government, especially given the imminent general elections, to help him eventually get access to finance.

He hopes to purchase the machine soon because he is very confident about the market. He expects to earn sufficient profit to cover that investment. Once a machine is available to produce the sole in Tanzania, *"you have a large market. Many people from Tanzania and out of Tanzania."* He has already calculated the potential of extending production for schools on a large scale, around 100,000 pairs per year, and further calculated that he would hire 300 workers. He has ideas and dreams of developing his small business into a larger industry – *"My plan is to become the first firm producing soles in this country. The sole I have in mind is a light sole for ladies' shoes; you will never buy Chinese shoes again."* The owner is also aware of the risk this plan entails.

Internal capability



The owner encourages his employees to work well. He provides them with a 'good' salary – "*sometimes I help them too and pay half of their house rent on top of their salary.*" The staff are motivated and provide ideas for the shoes too, such as shoes in the market they see. They take pictures and *"tell me to take it because it is a good design."*

There are many customers and there is a market for the products. However, the main problem for developing the business is working capital for production. If production levels are low, the revenue will be used to cover daily operating costs, not for investment.

Business and institutional environment

The business environment in Tanzania is very difficult, especially for manufacturing – *"if you are not careful, you will fail*." There are quite a number of shoe producers in Dar es Salaam. There are also many imported shoes from China on the market. The owner knows that some friends who were in business stopped shoe making because of a lack of capital and the weak reputation of local manufacturing – "*if you tell somebody this is a Tanzanian product, he will ask you so many questions."* The first impression of the Tanzanian consumers is that Tanzanian products are not good; imported goods from India and China are considered to be better. Even government officials, according to the owner, think that it is not a good time for Tanzanians to go into industrial activities.

The owner is not aware of the innovation policy of the government – *"nobody comes to us to tell us about policies or programmes to help small industries."* The government is at a distance, and its formal processes take a long time. He was at the Ministry of Industry to register his company when it was first established. He had to wait for long time and then discuss again at length with government officials to get it registered. Officials sometimes come to the company and inquire about the industry – *"they ask questions about how the government can help. After they complete their interview, you never see them again."*

The owner sees the critical importance of developing the manufacturing sector in Tanzania. He has some reservations about how Tanzanian politics deals with it –*"in Tanzania, we are rich in terms of raw materials. The problem is the manufacturing to transform raw materials into processed products."* In his view, the political leadership is not well organised and is not solving problems in the best way. The managing director hopes that if the leadership changes, those things will change as well – *"the corruption should change and the tax burden is huge."*

The owner is not a member of a business association. He does not expect that such an association could help him in solving technical or business issues. For technical advice, once in a while he sees a friend who stayed in Italy for a long time and has expertise in shoe making – *"he tells me to do this and not that."*

4. Analysis and conclusions

This qualitative study aims to support the quantitative research element of EIP-LIC, or other similar research projects, by helping researchers to validate, compare and complement existing theory in literature and research design and hypothesis development with contemporary realities on the ground in Tanzania, as perceived by manufacturing SME owners and managers. Earlier qualitative studies in the framework of EIP-LIC have been carried out in Kenya and Ghana, applying the same approach and formats. This growing collection of insights describes how innovation processes and mechanisms are manifested within manufacturing SMEs in the various countries, and reviews the internal capabilities and external environment, including formal institutions, the business system and the informal institutional context. The research framework is reflected in the list of semi-structured interviews (see Annex 1). In addition, the owners and managers shared their stories outside this framework and advanced issues that may be relevant and interesting for current scientific work. Eventually comparable qualitative reports of all 10 African and Asian countries of study will be available for researchers and a wider audience.

It is important to note for the analysis and conclusions in this report that the validity of qualitative research should not be considered in terms of sample size and representativeness of the cases for the total manufacturing SME sector in Tanzania. Qualitative research in general does not claim to collect and analyse data from a representative sample. Instead, on a case-by-case basis, qualitative analysis provides exploratory (deductive) insights into issues, processes and systems in a bottom-up way that helps to suggest theoretical concepts for the local context. It may suggest original or overlooked and policy-relevant factors (variables) and conditions to follow up in the quantitative analysis. Against this background, the selection of cases involved 'information-oriented' sampling aiming at developing a diverse yet comparable dataset with regard to subsector, enterprise size and innovative activities.

In the paragraphs below, several key trends and notable patterns across the Tanzanian SME cases are analysed. It is important to note that this provides a first analysis of the qualitative empirical material within the DFID project context, which is to be followed up in more depth with a view to developing academic papers. The chapter concludes with initial policy ideas and implications and several observations with regard to the set of forward research questions considerations within or beyond EIP-LIC.

4.1 Trends and patterns in the cases

General observations

A first overall observation from the preparation and implementation of the fieldwork was the difficulty in identifying formally registered SMEs (10 - 100 employees) in the manufacturing sector in Dar es Salaam. An additional challenge was that the interviewing took place during the general elections of 2015. On 25 October 2015, Tanzanian registered voters elected the president, members of Parliament, and local government councillors. SME owners and managers were reluctant to receive the research team at their premises. During the days before and after the elections, some of them closed the business for a few days because of fear of riots as a result of tensions between the political parties.

The identification of smaller informal enterprises was much less of a challenge. The research team came across many micro and household businesses with fewer than 10 employees. Some of the owners had plans to expand and grow, but the difficult realities in Tanzania prevented them from doing so. Tanzania's private sector consists of many informal microenterprises, operating alongside large firms. The phenomenon of the relative absence of SMEs in the economic structure refers to the 'missing middle' issue noted in the literature. This phrase has been used relatively loosely in economic development discussions, meaning a lack of SMEs

particularly in the developing world[5]. This picture was confirmed during the fieldwork in Tanzania and underlines the importance of the EIP-LIC project in terms of promoting manufacturing SMEs in LICs to balance the economic structure of a given country.

Innovation definition

Several interviewed owners and managers in the case descriptions in chapter 3, in different ways, introduced new products, processes and technology in order to improve and expand their business operations. Some would qualify as innovation, while others would not. In advanced economies, innovation is typically measured by R&D expenditures and number of patents (OECD, 2005). From this technology perspective, the Tanzanian cases would not qualify as innovation. Such an assessment would in any case have been impossible because the owners do not systematically record R&D expenditures and have not registered patents.

Taking a broader and economic perspective on innovation, viewing it in terms of incremental adoption and adaptation or of new combinations of existing technologies creating value (Szirmai et al., 2011), it is evident that the new elements introduced in the interviewed companies resulted in improved and expanded business operations. As described in emerging innovation theories on LICs, much innovation depends *on an aggregation of small insights and advances through 'learning by doing' rather than on major technological inventions* (Carayannis et al., 2003).

Despite increasing interest in the literature, the exact definition of innovation in LICs remains a problem in theory (Çapoğlu, 2009) and for its application by the researchers in EIP-LIC. The broadest possible definition of innovation, from an economic perspective, referred to in the qualitative research section, is everything new that the company does to raise productivity and/or to stay ahead of its competitors. For the analysis of the cases in this report, box 1 proposes several definition elements to assess innovation in an LIC context.

Box 1: Innovation newness, process and value creation

A cross analysis of definitions in innovation theory from recent decades (Voeten et al., 2011) shows that innovation is repeatedly typified by three key elements: newness, process and value creation.

Addressing the first element, Kotabe and Swan (1995) argue that innovation can be investigated in terms of both **newness** to the company and newness to the market or world.

Regarding the second element, the innovation **process,** all owners and managers themselves initiated, managed and owned the innovation process within the unit of analysis, their company. They developed the idea, sometimes inspired by others, started to run small experiments and trials and eventually implemented the new product or production technique on a commercial scale. As is often the case in incremental innovation in developing countries, this was not a planned and formalised process involving a pre-defined innovation strategy and an R&D department.

The third element, **value creation** of innovation, is evidenced either through lower input costs or higher sales revenues (Porter, 1985). Higher profit through new premium products of better quality, or appealing to a certain fashion, increases competitiveness.

Regarding the further dimensions of innovation, Kaplinsky and Morris (2001) identify five types of innovation: (i) process innovation, aiming at improving the efficiency of transforming inputs into outputs; (ii) product innovation, leading to better quality, lower price and/or more differentiated products; (iii) business practice innovation, implying new ways to organise the business and attract new clients; (iv) functional innovations, assuming responsibility for new activities in the value chain, such as design,

[5] http://www.africa.com/blog/investing_in_africa_defining_themissing_middle_/

marketing and logistics; and (v) inter-chain innovations, moving to new and profitable chains. These types of innovation are taken into account in the analysis.

In many innovation definition and measurement documents, such as the OECD Oslo Manual (OECD, 2005), an explicit distinction between product, process and other types of innovation is made. However, distinguishing the types of innovation in the cases from Tanzania, Kenya and Ghana was not such a clear and simple process. It is more common to see an integrated combination of several types of innovation, where one type of innovation triggers or enables another, such as the introduction of a new process (technology) that results in the launch of new products. The Tanzanian cases show a combination of new technology, new processes, new products and new clients within the companies.

Analysing the newness, process and value creation aspects helps to assess whether the Tanzanian cases qualify for innovation or not, as follows:

1. The owner of the metal wire cage weaving company did introduce some small changes in the workshop organisation and developed a simple tool for measuring. Whether this substantially added value and increased productivity is not evident. The owner was able to compete because of the lower costs of his products, mostly through the low wages of his employees, rather than because of technological or other innovations. The owner's plan to purchase a machine for producing metal cages would have been a more convincing example of process innovation, but had not yet materialised.

2. The furniture company changed from trading wood into manufacturing some years ago, which would qualify as functional innovation. This change enabled the entrepreneur to survive and grow in the market. At the same time, he was forced to do so because of the difficulty of trading and transporting regulations. The company's technology is standard technology available in the market. Within his context, he survived, but there was no innovation that significantly increased his competitiveness or raised productivity.

3. The fishnet producer did face an institutional constraining context. The company had to lay off workers. In order to survive, the company developed an innovation idea (fishing boats). However, the idea was not yet tested or implemented.

4. The animal feed producers developed their company from initially selling raw materials only, then upgraded to mixed feed production with high quality compositions. Some technological innovations were introduced, such as adding enzymes. Such products are not new to the world, but were new to the firm. This enabled the company to expand their market. The company gained a competitive position and the new products generated value in terms of turnover and profits. The owners are constantly looking for new and innovative ways to produce the feed. This could qualify as an example of incremental innovation.

5. The cigarette company is producing for the local market. The institutional context is restrictive and anti-smoking campaigns make the business operation very difficult. In order to survive and increase profit margins, the company introduced small technological improvements to make more efficient use of raw materials. This did not significantly increase productivity or competitiveness, but instead was focused more on the direct survival of the firm.

6. The fish processing company introduced frozen prawns some years ago, and invested in new equipment (trawlers). This is a successful product innovation which is new to the firm, not new to the market. The new idea, exporting live crabs, is still at the experimental stage. This not yet an innovation because it is

not yet implemented and contributing to the competitiveness of the company. This could qualify as an example of product innovation.

7. The confectionery company changed from trading in gum into manufacturing bubble gum, which can be considered an innovation. It has recently ordered a new machine to introduce a new product, which could be considered a product innovation. The product is new to the firm but not new to the market. The owner acquired new production machines and technology. This is an example of product innovation.

8. The shoe making company purchased a special machine that enabled it to produce better shoes than its competitors. The question arises as to whether this could be labelled an innovation, or just a product 'improvement'. The company still produces regular shoes. Although the owner has quite ambitious plans to expand, he has not done this yet, due to lack of finances and an uncertain institutional context.

Innovation

Compared to the earlier qualitative explorations in Ghana and Kenya, the companies in Tanzania are less innovative in terms of introducing substantial changes to raise productivity and competitiveness. Most of the interviewed SMEs introduced minor product and process innovations in order to survive. Although the new products and processes in the innovative companies are not radical and not 'new to the world', they are new for the companies, as units of analysis. The ideas for new products are mainly acquired from the market. Customers come with requests and suggestions, or the owners talk with clients. This is demand-driven innovation. There is no supply-driven innovation happening in the cases.

In terms of these innovation manifestations, Tanzania fits best in the classification of a factor-driven economy, as mentioned in chapter 2, competing on factor endowments, unskilled labour and natural resources. As a country becomes more competitive, productivity will increase and wages will rise with the advancing development. Countries will then move into the *efficiency-driven* stage (Porter et al., 2002). In the efficiency-driven stage, companies begin to develop more efficient production processes and increase product quality even more because wages have risen and they cannot increase prices. This is not yet the case in Tanzania. The cases do not reveal innovation aimed at increasing productivity by saving on input or labour costs.

Moreover, owners report that manufacturing companies close down because of competition with China and high local costs for production, such as electricity. Chinese products remain cheaper, while some owners mention that these have inferior quality. Interestingly, in such a context, innovation would be one way to make more efficient use of resources and processes and compete with imports on the local market. An innovation focus on quality would be a logical way forward. However, many manufacturing SMEs do not innovate at all and either choose, or are forced, to close down their business in the unfavourable institutional environment.

Internal capabilities

In all cases, it is the owner who initiates, coordinates and manages the new products and innovation process, including preparations for the innovation, technical details, and the product launch. Only the frozen fish company employs a specialist business development officer; other companies have neither an R&D department nor a specialist employee with this function. Most entrepreneurs have plans and see opportunities in the market, which provide them with ideas for innovation. In terms of employment creation, most owners demonstrate social awareness and see their importance in the community.

The Tanzanian workforce mostly comprises unskilled labourers. Most owners pay their employees based on output, not a fixed salary within fixed contracts. In addition, the workers get rewards and bonuses in most

companies, although the actual implementation is not always well managed. Sometimes the employees provide innovative ideas, to a greater or lesser extent. Several owners, however, stress the limited creativity of their workers and refer to a passive attitude. Most owners and managers do train the employees on-the-job, but this does not involve the development of creativity. Getting higher educated staff is a problem since the graduate employees have primarily theoretical knowledge and few practical skills. This is considered a serious constraint, as witnessed by the confectionery company working with engineers from Pakistan.

Typically the companies possess machinery purchased second-hand from Europe or China. The owners often have plenty of ideas and are well informed about technological possibilities though the internet or friends or via a member of an association. However, lack of finance and the uncertain institutional context prevent them from doing so.

External business environment and formal and informal institutions

All Tanzanian SME owners, except for the confectionery company, indicate that the business environment is challenging. They also indicate that the business and institutional environment in Tanzania prevents them from innovating and growing their business. All mention the issue of competition with imports, particularly from China. The costs of production in Tanzania are high.

All SME owners have more or less the same negative perception of government policies, legal regulations and systems. The government apparently promises a lot but actually implements little. There is no clear regulatory or policy framework for manufacturing SMEs. Many ministries and governmental agencies have different regulations that are not predictable. All the entrepreneurs complain about the high costs of production, such as electricity costs.

There is no innovation policy for SMEs, who do not feel supported by the government. They feel that they have to survive on their own and the past negative perception of entrepreneurs, being 'economic criminals', still exists. A few entrepreneurs mention that the government is after a 'quick buck' by earning on imports rather than earning tax on manufacturing.

The banking system is not an attractive source of finance for SMEs, and very few have secured credit. They all complain about high interest rates and complex paperwork. Instead, most SME entrepreneurs are funded from their own savings, family members, friends, or informal institutions, and invest incrementally as a result of large orders.

Interaction with technology institutions is virtually non-existent. Many SMEs indicate that they would like to cooperate with universities to undertake research at their premises, sharing the research insights obtained. There is very little spill-over of technology as a result of cooperation between firms, subcontracting or other forms of collaboration within value chains, business clusters or networks.

These findings are confirmed in recent literature. Wangwe et al. (2014) identifies constraints and challenges facing the manufacturing sector in Tanzania. They underscore five broad categories of the major challenges facing the country's manufacturing sector. A first technical challenge concerns the unreliable power supply, use of old machines and equipment and the lack of proficient manpower. A second administrative challenge ranges from the macro level (policy dimension) to the micro level (firm-specific administrative conditions). With regard to the policy arena, manufacturing is constrained by ineffective policies, particularly because of poor enforcement of laws, complex legal and institutional frameworks, as well as a disapproving attitude towards the use of locally produced goods, which has led to overconsumption of foreign products. A third challenge concerns the difficulty in accessing financial resources and the high cost of capital, which can be explained by the fact that firms operate largely on borrowed capital acquired at high interest rates. Raw material and other inputs, such as energy, are expensive. A fourth challenge concerns the market and particularly competition from products produced abroad. Some imported goods, which are more price-

competitive than those made in Tanzania, are low-quality counterfeits. Lastly, the policy challenges and hindrances include tax laws, local government bylaws, environmental legislation requirements, etc., payable to both the central and local governments.

4.2 Policy issues – insights for policy makers to consider

The cases confirm the picture that SMEs, the 'missing middle', are weak in Tanzania because of challenging business conditions: poor infrastructure, inefficient legal systems, inadequate financial systems and unattractive tax regimes. Many firms stay micro and informal and use simple technology that does not require extensive use of the formal institutional context. They prefer to stay at a distance from the formal institutions.

As argued in the introduction of this report, it is desirable to develop innovation within manufacturing SMEs. Some believe that technological innovation is critical for SME development and catch-up in LICs. Technological innovation has, however, been traditionally concentrated in developed countries, given the costs and risks involved in stimulating technological innovation. Foreign sources of technology account for a large part of productivity growth in most countries, as witnessed in the Tanzanian cases. Therefore, the development process in LICs could be supported by tapping existing knowledge and know-how.

It seems that the notion of growth as 'manna from heaven' as reflected in convergence theory, see the exogenous growth model of Solow and Swan (1956), might work because of the free and widespread access to knowledge and technologies via the internet. In fact, all owners in the cases are well informed about the technological possibilities of their business. The knowledge itself is available for local companies in Tanzania. The institutional context, providing trust, predictability, stability and access to finance is more of a problem in preventing investment in technology and innovation and thus 'convergence' from happening.

How then can the innovative capacity of SMEs in developing countries be increased? According to the World Bank, an efficient innovation policy by governments will address the overall innovation climate, which goes beyond traditional science and technology policy. At the same time, government action can usefully focus on a few generic functions to help SMEs to grow. It can facilitate the articulation and implementation of innovative initiatives, since innovators need basic technical, financial and other support.

The government can reduce obstacles to innovation in competition and in regulatory and legal frameworks. Government-sponsored research and development structures can respond to the needs and demands of surrounding communities. Finally, the education system can help form a receptive and creative population. Regarding actual innovation policy development, there has been a considerable amount of work in developing countries, such as the World Bank (2010) report '*Innovation Policy: A Guide for Developing Countries'.*

The lack of relevant education is a problem for the companies interviewed, who feel there are insufficient skilled workers and operators to work with modern machines. SME owners and managers complain that university and college graduates do not have the required technical and craftsman's skills, exposure to modern technologies, or an entrepreneurial and creative attitude. One entrepreneur specifically suggested creating establishments that train workers in the use of the latest technology. The enterprises could employ these skilled workers and give the owners the confidence to purchase new equipment and machinery.

As mentioned earlier, several ministries and agencies are engaged in efforts to develop and promote innovation policy, usually labelled as Science, Technology and Innovation (STI) policy. Despite considerable effort in developing strategies and plans, actual implementation is challenging, due to the limited availability of public budgets and knowledgeable staff.

Moreover, the stories and experiences of the owners and managers raise the issue of whether an STI approach would match the realities of the manufacturing SMEs on the ground. Most of the required technology is

already available, but elsewhere in the world. Without too much difficulty, the owners and managers find the technology themselves by drawing on various sources of information (the internet, informal business contacts and trade fairs). Moreover, the companies themselves refine and adapt the existing technology once acquired. So, although setting up technology development projects and programmes may help SMEs, it is not perceived as a barrier to innovation by the owners and managers.

Nearly all SME owners and managers suggest that creating a stable and predictable institutional context would be an efficient and effective way to promote innovation in Tanzania. All kinds of innovation policies and programmes could be developed, but the results of such policies will be undermined by the weak and unreliable wider formal institutional context.

Another policy idea emerging from the DFID project is that several owners and managers suggest not to focus on governmental policy makers only, but on direct advice to SMEs on how to improve their business. One idea is to develop non-governmental business information exchange networks and platforms, establishing contact between entrepreneurs in Africa and beyond, to facilitate discussion and deals within the various sectors. SME owners suggest that the DFID project could establish a network of all SME owners and managers contacted during the implementation of EIP-LIC and create a website for them to stay in touch with each other.

4.3 Research issues - insights to address the research questions

The qualitative analysis of Tanzania, and also the earlier studies on Kenya and Ghana, show the many internal and external factors supporting or hindering innovative behaviour of owners and managers of manufacturing SMEs. The econometric analysis and the mathematical models approach within EIP-LIC implicitly seeks correlations and causal relationships between independent variables such as internal capabilities, a favourable policy context, the availability of finance and technology, and the occurrence of innovation and innovativeness as dependent variables. The associated economic theories explain and predict economic outcomes as a basis for further policy development.

However, a limitation is that the claims of econometric analyses are true only ceteris paribus — that is, they are true only if there are no interferences or disturbing causes. Critics say that the most important methodological issue is the simplification, idealisation, and abstraction that characterises econometric research. However, the qualitative research element of this project shows the numerous disturbing causes in reality. This is problematic once research outcomes are translated into policy, from which true impact is expected, and constitutes an emerging methodological challenge in terms of developing meaningful and effective policy recommendations in the EIP-LIC research project.

One apparently secure way to determine causal relations is via randomised controlled trials (RCTs) in the project. If the experimenter sorts subjects randomly into experimental and control groups and varies just one factor, then changes in the outcomes given the common features of the control and treatment groups should be due to the difference in that one factor. This makes RCTs attractive. However, some caution is required too; the treatment and control groups may not be representative of the population in which policy-makers hope to apply the causal conclusions, and the causal consequences of the intervention may differ across different subgroups within the control and treatment groups.

Theme 1 'Innovation Systems'

In reviewing the innovations in the cases against innovation systems theory, one would expect that the SMEs would be surrounded by a *network of institutions in the public and private sectors whose activities and*

interactions initiate, import, modify and diffuse new technologies (Freeman, 1987). However, it appears that the incremental SME innovations in Tanzania are mostly in-house activities. The same phenomenon has been observed in Kenya and Ghana. The cases suggest several firm-level factors playing a critical role in the engagement of incremental innovative activities, more than supporting institutions. The innovation process is initiated, managed and owned by the company without any external involvement or support from other businesses. It is the owners who develop ideas for innovation, with employees playing only a limited part by suggesting improvements at the operational level. Most owners and managers indicate that limited creativity and commitment and decreasing appreciation for craftsmanship and skilled labour by young people in Tanzania are obstacles at the firm level.

By contrast, the motivation, contacts and international exposure of the owner are key factors in engagement in innovative activities. Moreover, the availability of funds as a result of profits is essential. Regarding the risk-taking of their innovation projects, most owners and managers are confident about the market opportunities in Tanzania, the region and beyond.

There are no cases of collaborative innovative activities. Although the companies are open to sharing information about their needs, most of the owners/managers avoid cooperation with other companies.

Regarding external networks, none of the cases has been involved in collaborative innovative activities or joint technology acquisition with other businesses or with technology institutions. There are no spill-overs as a result of subcontracts or clustering of firms. Likewise, no company enjoys the spill-over of technology from larger, foreign or other technologically more advanced firms. There are no examples of large foreign enterprises subcontracting and making technology available to SMEs or exchanging information. The companies in Dar es Salaam are very scattered and seem to have no relationship with each other.

There are virtually no links between the interviewed SMEs and public sector actors, such as universities, governments, or NGOs, as presented in the 'Innovation Systems' analytical model. The so-called innovation system, as a co-evolutionary network of actors (lecture definition) does not exist. Instead, the business system actors and informal institutions play a key role in providing information, technology, credit and overall stability and predictability. The role of these actors could be further explored in EIP-LIC research, with particular regard to the doing, using and interacting (DUI) approach in learning and innovation processes, as suggested by Lundvall et al. (2009).

The outcomes of the qualitative inquiry suggest that technology and underlying knowledge may not be the problem. Regarding the diffusion of technology, most of the entrepreneurs are well-informed about technological possibilities and are able to import the technology by themselves with little difficulty, provided funds are available. For most of the technical problems faced by the SMEs, there is already a technical solution developed somewhere in the world, so there is little need to develop local 'new to the world' technologies. There is therefore little need for intermediaries to bring producers and users of innovation/knowledge together. There are few 'breakthrough' technologies that could be disseminated on a wider scale, and the owners and managers seek to meet their specific needs with available technology. They can identify where to source the technology and have suppliers. In some cases, a local technician can make a copy of the machine. There is little local innovation for local problems.

Regarding risk taking in the process of innovation, most company owners report that government institutions bring more uncertainty than stability and predictability. According to the owners, the most critical barrier to innovation is the weak formal institutional context. Research could investigate the adverse impacts on innovativeness of weak formal institutions, a context which may wipe out the impacts of specific and explicit innovation or policies or programmes.

Theme 2 'Finance for Productivity Growth'

Finance is considered a critical constraint by most interviewed companies. In all companies, the owners aim to introduce new products and raise productivity because they see business opportunities in doing so. Learning and acquiring the technology is not a problem. Many entrepreneurs are ready to invest in machines they have identified from internet research, informal networks and fairs. SME owners develop their business with small, incremental investment. They do not take a leap and make a large scale investment. Although there are well developed ideas for innovation and confidence in the market, investments are put on hold because of limited access to credit. Instead, SME owners invest by using the profit of larger orders they have, or by using the contract upfront to secure supplier credit.

The Tanzanian cases provide some insights into the formal and informal financial institutions. One key issue is that banks charge high interest rates for loans to manufacturing SMEs, which prevents several companies from investing in technology that could enable them to increase the speed of production and broaden the range of products. Although they are 'proven' entrepreneurs of registered businesses, able to assess risk and handle a difficult business environment, they are not considered creditworthy. Most of the interviewed companies were given informal loans and gifts by family and friends. Another channel was through informal money lenders, who are flexible but demand even higher interest rates than the banks.

With regard to managerial practices and innovation decisions, many entrepreneurs do little in terms of in-depth calculations and forecasts. Most owners are self-made entrepreneurs, due to a combination of their limited knowledge of financial management and the uncertain and fast-changing economic and institutional context. It is very difficult to make a financial forecast in the Tanzanian context, as the regulations are unclear and change continually. Sometimes these regulations are enforced and sometimes not, and it is unpredictable when government officials will visit. Managerial decisions concerning finance are very ad hoc.

Unlike M-Pesa in Kenya, SMEs in Tanzania do not use mobile banking for business transactions, although most company owners do see its advantages. SME owners have no access to these services and are reluctant to use mobile banking because of security weaknesses.

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Annexes

Annex 1: List of questions for semi-structured interviews

A. BASIC INFORMATION

1. Name of business and owner, location, legal status, years of operation, types of products, manufacturing subsector, productive activities, number of employees, management structure, some indication of turnover and profit and average investment size.

2. Short history and background of business model. How is the company generating value? Position in a value chain if applicable, suppliers, major clients/markets.

3. Did the company grow/expand in recent years? To what extent (why) does the owner consider his/her company as an innovative company as compared to other manufacturing SMEs in Tanzania?

4. Did the company itself introduce a new product, process or technology to raise productivity or to face competition? Provide examples of product/process/technology innovations that enabled survival/growth/ expansion in the past 3 years.

B. INNOVATION

<u>New</u>

1. Description of the type of innovation (process, product, incremental, radical). What is new? Did some innovations enable/trigger other types of innovation within the company? Management innovation in terms of goal setting?
2. Is the innovation 'new to the world' involving inventions by internal R&D, or is it a copy, adaptation or adoption of an existing product or technology?
3. How does the owner, employees, clients and others actors perceive the newness? (just a small improvement or as a 'breakthrough')?

<u>Process</u>

4. Idea: Where did the idea and motivation for the innovation come from? What were the first steps in the idea formulation and who initiated these? What was difficult and what was easy?
5. Testing: What were the subsequent steps in testing? At what point in time did it become clear that the new product or process would become a success? On what basis did the owners decide to further implement/commercialise it? Did the owner try new things that failed?
6. Commercialisation: what were the steps towards the implementation? What confidence/trust provided back-up? What was difficult and what was helpful?

<u>Value</u>

7. How do product/process/technology innovations create value for the company?
8. Did the innovation increase productivity, if so how? (lowering production costs per unit, labour/capital input)?
9. Did the competitive position change as a result of the innovation, if so how? (via premium products, better, newer fashionable products and new export markets)?

C. INTERNAL CAPABILITIES (FIRM LEVEL CONDITIONS)

What are the internal strengths and weaknesses with regard to the innovativeness of the company?

Dynamic capabilities

Sensing and shaping opportunities for product/process/technology innovations

1. To what extent do you (and the employees) see the need/urgency to be innovative?
2. How do you or your employees identify new business/innovation opportunities?
3. Who is actively involved in identifying these opportunities?
4. How is raising productivity and competitiveness linked to identifying opportunities for innovation?
5. How do you target a new market segment? How do you consider the competitiveness of your company?
6. How is your company adjusting to customer needs?
7. How does the company select the ideas that it is willing to invest/innovate in?
8. Who is involved in this process?

Reconfiguration of the company

9. How do you adjust by being innovative to the surrounding business environment?
10. How do you share knowledge within your company?
11. How are employees informed about new developments?
12. How does your company train employees to adjust to new developments?

Goal setting

13. Do you have an implicit or explicit goal setting system to improve performance?
14. How do you pay employees for performance? (more salary, rewards)
15. How to you increase motivation? Is there intrinsic motivation (ambition, ownership) and external (money) motivation?

Slack time

16. Do you give employees time to develop or try out a new approach or develop new ideas about products or services, or business processes?

    If yes:

    - What exactly was expected from employees during this time? What kind of activities should employees undertake during this time?
    - Did all the employees get some time or was it restricted to a specific group; and if so, which group?
    - Why did this establishment give employees this time? What was the goal/idea behind it?

    If no:

    Have you ever considered giving employees some time to develop new ideas? If yes, what was the reason for implementing it? If not, why not?

D. FORMAL INSTITUTIONS

How does the owner perceive the opportunities and threats for product/process/technology innovations of the surrounding business, policy and regulatory context in Tanzania?

1. Is the owner aware of governmental policies/programmes in Tanzania that specifically aim to stimulate product/process/technology innovations in manufacturing SMEs? What is the owner's idea and perception of these governmental policies (programmes/projects)?

2. Does the company actively participate in, or benefit from, such governmental policies/programmes/regulations? (specify in what ways these stimulate the company's innovativeness)

3. What role do intellectual property rights and patent laws play in your innovation activities? Does the owner aim to patent innovations? If so, which patent office is used? Does the owner find intellectual property rights and patent laws helpful for innovation activities? Does the owner respect the intellectual property rights of others when innovating? If not, why not?

4. Are other generic governmental policies/programmes (not explicitly aimed at promoting innovation, stimulating education or providing access to finance) supporting the company's innovativeness in an effective way?

5. Do certain governmental policies or regulations prevent the owner from introducing and investing in innovation? What threats in terms of policy and government regulations emerged in the innovation process?

6. Does the company participate in, or benefit from, programmes or projects stimulating innovativeness run by NGOs and/or international development agencies? (kind of programmes/projects and impact)

7. How does the owner acquire knowledge and technology for product/process/technology innovations? When conducting innovative activities, does the company collaborate with formal bodies, such as universities, R&D centres, research institutes and so on? Why (not)? Which kind of organisation? Does the owner encounter any difficulties in collaborating with such organisations? If so, of what kind? Are these collaborations ultimately beneficial for innovativeness? If not, why not?

E. BUSINESS SYSTEM, SPILLOVERS, EXPORTS

To what extent (and how) are contacts and interactions with other businesses - local, national and international - important for stimulating product/process/technology innovations within the company? Examples?

Business systems interaction

1. Has the company ever introduced a new product/process/technology to suit the needs of a local client/buyer? If yes, did the client/buyer help in any way to make these changes?

2. Has the company ever followed the advice of a supplier in introducing a new product/process/technology?

3. Does the company have active business cooperation (subcontracts)? What is the nature of the cooperation and what is the benefit? Did that involve a new product/process/technology?

4. Does the company buy from or sell to any multinational firms located in Tanzania? If yes, has the company ever benefitted in any way from cooperation with these firms to develop a product or improve production techniques?

5. Where does the company typically recruit employees? Has the company ever recruited employees from a client, supplier or competitor? Were these employees particularly helpful in improving products or production techniques? Has the company recruited employees with the explicit aim of improving products or production techniques? Where did they work before?

Location

6. How long has the company been located at the present address? Did the company move to this address or was it created at this address? What were the main reasons why the company was moved to/founded at the present address?

7. How does the presence in the location/region affect the company's performance, innovation, growth? What is the owners' perception of the dynamics of the present location/region with regard to the businesses around (micro, SMEs, large, multinational)? What is the size of the region to which the owner refers?

8. Are the other businesses in the region similar or different in terms of size, production, sector and type? To what extent do firms produce comparable goods in the region?

9. Alternatively, to what extent are these other business hindering and competing? Does the owner see them mostly as competitors? Does that imply a need for innovation?

10. Does the company buy inputs (what, quantity) from firms located in the region? What is the quality of local inputs? Did the owners ever ask a local supplier to change a product to suit certain needs? If yes, did the company help the supplier make these changes in any way?

Export

11. Has the company ever exported some of its products to foreign countries? If yes, when was the first export? Has the company exported some of its output abroad in the last year? To which countries?

12. What was the main driver of the company's decision to export? Did the company actively look for foreign clients? Did foreign clients or a wholesaler contact the company (if yes how: website, fair, etc.)? How did the company hear about export opportunities or has the company ever been recommended to foreign clients? If the company was contacted or recommended, why was this the case?

13. Has the company ever improved an existing product or created a new product with the explicit aim of exporting it? If yes, was it at the direct request of foreign clients or to find new foreign clients? Did the company make improvements to comply with standards and regulations?

F. INFORMAL INSTITUTIONS

1. Family and friends (overseas)
2. Cultural perception of innovation. Is innovation something good? Or should we strive for stability and harmony in society?
3. Informal think tanks, informal knowledge through contacts with university experts
4. Rent seeking individuals, corruption
5. Hindering culture, traditions or customs
6. Social learning, collective learning
7. Community solidarity, craft traditions

Annex 2: List of companies interviewed

Manufacturing SMEs interviewed in Dar es Salaam in chronological order (21 -31 October 2015)

	Subsector	**Products**	**# of employees**
1	Leather	Shoes	11
2	Machinery	T-shirt printing machines	7
3	Construction	Metal wire weaving for wire crates	13 + occasional workers
4	Cigarettes	Food and consumption	150
5	Animal feeds	Agriculture processing	25
6	Food processing	Frozen octopus and prawn, live crabs	50
7	Publishing and printing	School books	15
8	Confectionery	Bubble gum	70
9	Soft drinks	Food and beverages	40
10	Polyester and nylon	Fishnets	26
11	Carpentry	Home and school furniture	12
12	Metal	Household utensils	40 clustered household

Annex 3: DFID research questions

The DFID research project takes an 'economics' perspective on innovation, and involves econometric analysis of a set of variables concerning barriers at firm, regional and national levels and their causalities with the *innovative behaviour/capability of entrepreneurs* and subsequently innovation and productivity. This constitutes a reductionist and deductive approach in defining variables for analysis in which the impact of individual factors on innovation is assessed by applying quantitative econometric methods (ceteris paribus). The DFID project key research questions are grouped under two themes:

Theme 1 'Innovation Systems':

- What firm-level and regional-level factors hinder or foster the engagement of firms in innovative activities?
- What is the impact of in-house innovation activities versus collaborative innovative activities or technology acquisition activities on the innovative performance of firms in developing countries?
- What is the role of economic spillovers within clusters of firms in fostering economic growth and innovation?
- What are the most critical barriers to the process of innovation and the diffusion of technology in low income country settings?
- What types of links between the public/private sectors, universities, governments, NGOs and the private sector are more conducive to innovation activity?
- What is the role of intermediaries to bring producers and users of innovation/knowledge together?

Theme 2 'Finance for Productivity Growth':

- How does the design of formal and informal financial institutions affect firm productivity dispersion across SMEs?
- What are the firm level margins that make finance matter for productivity?
- What role do observable managerial decisions (e.g. managerial practices, innovation, product market competition, product quality, technology adoption, location of the plant and the trade status) and managerial characteristics (e.g. gender, age, education, behavioural aspects) play in explaining the nexus between financial development and firm productivity?
- How does firms' productivity respond to exogenous developments in the financial environment?
- What are the macroeconomic implications of such development experiences?