ENABLING INNOVATION AND PRODUCTIVITY GROWTH IN MANUFACTURING SMALL AND MEDIUM SIZED ENTERPRISES IN LOW INCOME COUNTRIES

Exploration of policy and research issues in Kenya

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1. 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 4-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 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.

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 countries of study include Kenya, Tanzania, South Africa, Ghana, Ethiopia, Uganda, Vietnam, Indonesia, India, and Bangladesh. The evidence is made accessible and disseminated through a series of policy documents for policy makers in Africa and Asia. Research output as working papers and policy briefs are available at the EIP-LIC's website: http://www.tilburguniversity.edu/ dfid-innovation-and-growth/

1.1 Research challenges

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. The research methods include firm-level surveys in all countries of study (in cooperation with The World Bank), experiments and Randomized 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. EIP-LIC faces conceptual issues 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 necessarily 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, 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, 2013). 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 advanced economies' based literature and theory (deduction), 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 to 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 analyse and interpret the quantitative outcomes.

1.2 Qualitative research component

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 conduct a series of case studies into 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.

This report presents the first series of cases studies in Kenya. It is targeted at the project researchers as well as the broader academic community with similar research interests. In addition, it may help policy makers within governmental agencies, firms and NGOs to gain understanding on innovation from an entrepreneurs' perspective. It is also targeted at SME owners and SME branch organisations, who will hopefully see their business, socio-economic and institutional context reality accurately reflected in the report.

The report is structured as follows. Chapter 2 discusses the approach and methodology of the qualitative case study. Chapter 3 provides a brief introduction to the manufacturing SME sector in Kenya. Chapter 4 presents the main empirical part of the study, detailing eight selected case studies out of the 15 interviewed companies. Chapter 5 compares and analyses the cases and concludes with a summary of patterns and trends with regard to research and policy issues of innovation and productivity growth in manufacturing SMEs in Kenya.

2. Approach and methodology

2.1 Case study approach

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 Kenya. 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 approach involves a series (+/- 10) of case descriptions of a number 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 firm, the *innovation process*, the *internal capabilities*, the innovation system actors around the firm including *formal institutions*, the *business system* and *informal institutions* (attached as annex 1). These actors and institutions referred to encompass both formal and informal, private, public, and quasi-public institutions, 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 interview questions 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 generated data are entered and stored in qualitative data analysis software (Atlas.ti). 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 the 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. 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.

2.2 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% Kenyan owned/indigenous company. 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 and 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.

Fieldwork

The qualitative data collection through interviews in Kenya took place in Nairobi from 19-28 April 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 expose themselves. They hide and do not advertise via websites, for instance. Identifying exporting SMEs was particularly hard in Nairobi and around. Only in the Export Processing Zone (EPZ) the team was able to interview exporting SMEs. SMEs were identified by tapping into informal and personal networks, drawing information from the Kenya Association of Manufacturers (KAM) and also contacts with NGOs and donors. Even walking around approaching shops and business for other suggestions proved to be productive in finding SMEs that met the selection criteria. In total, 20 owners/managers of 16 firms were 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.

3. Introducing manufacturing SMEs in Kenya

3.1 SMEs in manufacturing

Manufacturing in the International Standard Industrial Classification (ISIC) is defined as the physical or chemical transformation of materials of components into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail. The definition includes assembly of component parts of manufactured products and recycling of waste materials.

The economic structure of any country is typically built up of a manufacturing (industry), agricultural and services sector. A balanced economy suggests that economic growth is sustainable once the economy is growing across different sectors in terms of contribution to the Gross Domestic Product (GDP) and employment. This balance in advanced economies often differs from LICs, where the manufacturing sector tends to be small, contributing little to the GDP. Moreover, the labour productivity of the manufacturing sector is typically low in LICs (Bloom et al., 2010).

This stereotype applies to Kenya, where the manufacturing sector only contributes about a tenth of the GDP. Enterprises in the manufacturing sector have been mainly involved in food processing and processing of consumer goods. Some larger enterprises in the country also refine crude petroleum into petroleum products, which are mainly consumed locally. Agro-processing of food commodities and refining of petroleum products are still dominant today (50% of the manufacturing sector output). About half of the total investment in the industrial sector is foreign, dominated by the United Kingdom but increasingly by investors from China and India. In terms of sector contributions to GDP, there has been a shift since the mid-80s whereby the services sector has gradually taken the largest share at the cost of agriculture. However, the share of the manufacturing sector has hardly changed since the mid-70s. The only notable change concerns the flourishing of the textile and garment manufacturing sector since the end of the 90s, but this is also largely dominated by large foreign companies.

The overall view of economists and policy makers is that the manufacturing sector over time has developed into an inefficient and uncompetitive sector dominated by traditional, light and low technology industries, which relies on imported intermediate inputs (Kinuthia, 2013). The shift from a light manufacturing and low-tech industry sector to the manufacturing of intermediate products and a medium-tech industry sector - machinery and electronic components - has not occurred. Kenya also lost its leading position in the region: for instance, the growth of the manufacturing sector in Kenya in 1990-2000 and 2000-2004 was far below that of the other East African countries (KIPPRA, 2009).

Moreover, the manufacturing sector is increasing under pressure from imports from India and China, amongst others. A recent article on the website of SME Today (http://www.smestoday.com/) is illustrative in this respect: "*The month of October (2014) was literally a black month in Kenya's labour market. This is because two companies decided to close down their manufacturing plants and effectively 500 employees lost their employment. The reasons given by the two companies for the unfortunate decisions are quite familiar in as far as the country's manufacturing sector is concerned. The companies reckoned that it had proved impossible to sustain the operations of the plants at a time when costs of production are hitting the roof, cheap imports are eating into their markets and counterfeits have flooded the local market".*

The situation of the manufacturing sector under stress takes place in the context of a growing Kenyan economy. Overall Kenyan GDP growth compares well with growth rates achieved by most reforming countries in sub-Saharan Africa. GDP growth was 8.4% in 2010, 6.1% in 2011, 5.0% in 2012 and 6.0% in

2013. The engine of growth has mainly relied on domestic consumption, which accounts for 75% of GDP. Exports remain a key weakness of the economy.

Most economists and policy makers agree that the manufacturing sector could be a major employer in a country where the unemployment rate still stands at 46% and which desperately needs to generate opportunities for the more than 60,000 fresh graduates joining the job market annually. The promotion of innovation within manufacturing SMEs, raising their productivity and competitiveness, is high on the priority agenda of the government.

Small and Medium-sized Enterprises

Small and Medium-sized Enterprises (SMEs) play a key role in manufacturing. Indeed, the SME sector in Kenya comprises partly manufacturing and trade (wholesale and retail) sub-sectors, with substantial engagement in agro-based activities, which directly affect a larger population in society. In policy documents, Micro, Small and Medium enterprises (MSM) are considered one category. Many of these enterprises fall under the popular informal sector called 'Jua Kali', which means literally 'hot sun' (referring to the outdoor nature of the work).

While SMEs have the capacity to achieve rapid economic growth, while generating considerable employment opportunities (Reddy, 1991), the reality in Kenya is that SMEs have limited technological innovation capacity and low productivity. This is illustrated by the fact that Kenyan SMEs provide almost 85% of all employment, but only contribute about 20% of total GDP. This implies dismal performance for the sub-sector, despite its potential contribution to employment, income and equity in Kenya (Ong'olo and Samson, 2013). Lack of access to credit is a major constraint inhibiting the growth of the SME sector, especially the small scale entrepreneur (Mairura et al., 2013).

3.2 Formal policy environment

Regarding innovation, there are few data available in research and policy documents about competitiveness R&D and other 'formal' innovation performance indicators (OECD, 2005). Based on the available official information, Kenya is lagging behind in terms of science and technology-based innovation (STI). According to the Global Competitiveness Report 2011-2012, Kenya's innovation capacity is ranked 52 out of 142 economies. As mentioned earlier, the relevance of these indicators within the EIP-LIC research context is questionable since the underlying Western-based STI indicators (R&D expenditures and number of patents) do not capture the more common innovation manifestations in a LIC, which more often concern incremental adoption and adaptation or new combinations of existing technologies.

The Kenya Vision 2030 is the national long term development blueprint that aims to transform Kenya into a newly industrialising middle income country, providing a high quality of life to all its citizens by 2030. The Economic Pillar aims to achieve an average economic growth rate of 10% per annum and to sustain this until 2030. The Kenya Vision 2030 envisages a knowledge-based economy which has the capacity to compete in the global market. Therefore, it recognises Science, Technology and Tnnovation (STI) as essential ingredients for the industrialisation and economic diversification of the country. The current constitution provides a new window of opportunity to address SME-related issues through a regulatory and institutional framework under the devolved government system, as well as the new SME Act. Several Kenyan ministries too are actively establishing STI policies and setting up innovation system structures (see for instance policy documents of the Ministry of Higher Education, Science and Technology '*A policy framework for Science, Technology and Innovation - revitalizing and harnessing science, technology and innovation in Kenya).*

4. Empirical data: Cases of manufacturing SMEs

This chapter present eight company descriptions developed from the interviews with the SMEs owners and managers. The eight cases are selected out of fifteen companies interviewed (20 interviews in total). The selection is carried out view to provide a concise overview of the issues from the various SME owners' perspectives, while keeping the number of cases manageable and avoid repetition. The last paragraph of this chapter lists several notable issues raised in the remaining company interviews.

The write-up format is similar for every case: a description of the innovation, internal capability and external environment (formal institutions, business systems and informal institutions). Moreover, particular issues outside this framework, which were stressed by owner/manager, are included as well.

4.1 Automobile spare parts - Engine gaskets (25 employees)

The first case concerns a company in Nairobi that manufactures engine gaskets for the Kenyan market, and also imports original gaskets from various well-known car brands. It is an Indian family owned business, established by the current owner's father in 1994. The company is a main supplier of a large assortment of gaskets and employs 25 workers, mostly technical staff in the manufacturing of gaskets. The company is located in the industrial area where all mechanics shop, and workshops are located within a 2-3 kilometre radius. All the spare parts shops are on one road.

The manufacturing process basically consists of the development of a die (mould) for punching the gaskets. There are about 20 to 30 types of gaskets per car. The workers product the dies manually with jigsaw machines, which requires fine craftsmanship. The die is completed by inserting in metal cutting strips. Once the die is ready, the workers punch the gaskets from various materials with a press machine. The material is imported from India, China and from the UK. The company has not registered a product patent or brand trade mark.

The company holds a large stock of produced and imported gaskets - *"we have thousands of different gaskets"* - but this seems not to pose a risk. In Kenya, cars are driven for many years and are repaired over and over again. Stock management and administration is handled by a combination of books, computer records and the personal experience of the production manager of the workshop, who has worked for 40 years in the company.

Innovation and internal capabilities

The owner is aware that the equipment and machines are becoming outdated. The jigsaw machines do not provide the accuracy required these days, and some customers have complained. He is planning to buy new machinery. He has a network of clients who have suggested directions and ideas for innovation and ideas - *"in Kenya the business community is very open and there are many informal contacts*". He made various

business trips, to trade fairs in India and China amongst others, and saw new technology products for manufacturing dies and gaskets.

He has identified a computerised laser machine, produced in Germany and China, which is able to produce accurate dies for gaskets very rapidly. The owner realised that if he wants to stay in the market, he will need this machine, and is now arranging to make a purchase. He is in a dilemma because the product is expensive - the price ranges between 100,000 and 150,000 Euros - but it will enable him to attract more customers and expand the business. Regarding risk taking, the owner developed a remarkable view on calculating and analysing returns and risk in detail - *"the biggest mistake is to calculate everything; my biggest mistake was to do an MBA, now I am scared".* He refers to people in Kenya who do not have an understanding of detailed calculations - "*they just put things to work, if it doesn't work they then forget it."*

The company has a production manager, sales and production staff. Within the company, it is the owner who comes up with the initiatives and ideas for innovation. The production manager and the production staff only (but often) suggest improvements in the manufacturing process of the dies. It might happen that a client makes a mistake in the design of a cardboard box, for instance, which the worker sees and corrects. Besides this, the production staff are simply given instructions for production and are not involved in exploring new advanced technology or technological innovation.

Staff turnover is low. The workers are dedicated and loyal to the company, and most have been employees for 10 to 15 years. The owner values the skills and motivation of the workforce, many of whom are specialised craftsmen. The owner also recognises that they are fast learners. A new worker, usually a young person, is trained on-the-job by the production manager. Older workers also take the initiative to help newcomers learn how to operate the machines: learning by doing.

The workforce have very little experience with computer and digital production technology and machines, which the owner identifies as a gap in education in Kenya. Another problem is that other companies sometimes *"hijack"* good workers from his company, as soon as they find out that the workers are well-trained, skilled and experienced. This discourages the owner from providing formal training for the workers.

Nor does the owner give workers slack time to develop innovation activities. He is aware that some employers encourage creativity in their employees, who come up with ideas that might improve the company, but he has never tried it. He is aware that there is a good deal of creativity among his staff, but he has never been able to tap it - *"if you train people, if they are more exposed to other ideas, that could help".*

External business and institutional environment

With regard to investing in the new machines, the key problem is finance. Getting financial backing for an innovation idea is a *"big headache"*, according to the owner. The owner is now considering his options. The interest rate of Kenyan banks is 16%. The owner argues that he has to make sure that the laser die machine assures a profit margin of over 16% to cover the interest.

The owner has heard that the Kenyan government aims to promote innovation, but his company has never participated in a programme nor benefited from a policy. In fact, his experience with governmental institutions is not positive – "*at least two government officials are coming every week. They check permissions, regulations etc. and impose all kind of 'taxes' and bribery"*. He mentions that government officials harass the company all the time. At the company's location in Nairobi, they are located right on the front line - *"you have the customers walking in and you have the Government officials walking in".*

Regarding other technical support, an NGO, the Don Bosco Missionary, has a full training facility, good light machine operators and also does some engineering work. They provide the company with machine parts.

There are only three manufacturers of gaskets in Kenya, so there is little competition. All companies are similar in size. There is little competition from other importers. The owner sees it as essential to establish a good relationship with customers and provide good service. Pricing is also important, but the owner's experience indicates that clients are willing to pay a slightly higher price for a good service.

As an Indian, the owner has strong ties in the Indian community in Nairobi. Enterprise owners and managers in this community often help each other. He will regularly call a friend if he has a question concerning a certain technology or supplier. In his experience, when starting a business, family and friends are critical in supporting the start-up. In the Indian community especially, relatives support each other, by providing new businesses with orders.

4.2 Personal hygiene products – Tissue paper products (42 employees)

The company, launched in 2006 by a female Kenyan entrepreneur, produces tissue paper. Located in the industrial district of Nairobi, the company employs 42 workers, of which 30 are women and 12 are men. The company has advanced machines that cut pulp paper into tissue paper and subsequently package the products. The input – pulp paper on a big roll – is purchased from a supplier in Kenya. This supplier imports the raw material from Uganda and the virgin paper from Egypt. There is a paper pulp recycling plant in Kenya, but it is too expensive.

The products are sold to small and medium supermarkets in Nairobi, but not yet to major supermarkets. Initially, the owner and her staff delivered the products themselves, but she now has contracts with distributors that deliver the products to supermarket chains. The owners recently expanded the range of products to include hand washing soap, shampoo, nappies, paper napkins and kitchen towels.

After repeated burglaries, the company moved from their original site on the outskirts of Nairobi to their current location in the South-eastern industrial district. They enjoy the protection of the security service of a bigger company nearby. The rent is higher than their original location, but it is more secure.

Innovation and internal capabilities

Before staring her company, the owner was a distributor for a large foreign soda company in Kenya some 5 years ago. She did not enjoy the work as a sales representative; she was *"dreaming"* of owning a company

and a brand by herself. Reflecting on fast moving consumer goods with constant demand, she came up with the idea of tissue paper. She saw a good opportunity and good prospects because more and more people in Kenya are adopting better hygiene habits. There are few local producers of tissue paper in Kenya. She started to collect information and went to supermarkets, bought several ranges of tissue paper products to explore and learn the details. Nobody believed in the idea and her plans – *"not even my own family".*

She borrowed a small amount from a women's credit group to start up the business. She registered a brand name. Then, instead of producing tissues by herself, she bought some existing tissue products. She re-packaged, re-branded and sold these in order to test the market for her own brand name. After the first prompt sales, she became convinced of the opportunity. She approached the Kenya Women Finance Trust, a specialised bank for women-owned companies, for a larger amount enabling her to produce by herself. The signature of her spouse was a prerequisite (in Kenya the man usually owns collateral). She agreed with an Indian business woman to lease a machine for a few shillings per day. She started to produce good quality tissue paper, a premium product. Initially, revenues were still very small. She and her only employee had to do all the work - "*I was the sales person, I was the tea girl, I was the sales representative, I was the manager, I was the accountant, I was everything".*

With the first commercial evidence, she successfully approached the bank for another loan to establish a production plant herself. She learned that she could buy such a machine in India. In 2011 she went to India to investigate and buy a machine. The Indian manufacturer taught her how to make tissue paper, serviettes, and facial tissue papers. Once in operation in Kenya in 2013, she employed 21 people and introduced a lower-quality tissue paper product for a larger market.

Again she looked for ways to improve her business, as the Indian machine was semi-automatic. The employees had to do the gluing, cutting and packaging manually. She found that more advanced machines were available in China. She and her husband, who by this time had left his regular job and joined her business, toured through China. The bank was supportive and enabled her to buy 4 machines, with ten times the capacity of the older machine from India. The new machines are able to produce a range of products: paper napkins/serviettes, facial tissues, kitchen towels and disposable handkerchiefs. With the new multi-purpose machines, they are able to produce new products. She is currently expanding the range of products into cleaning and hygiene products, including hand washing soap, shampoo, conditioners and industrial detergents.

She had to struggle a lot for many years, but she is enjoying great inner satisfaction – *"the company is mine'*. Besides running a good business, she wants to create employment opportunities, in particular for women. She considers that a social obligation. In her view, creating employment for women has a particularly positive societal impact because women feed their families and can be more independent. The company pays for their employees' health insurance.

Running the business involves a top-down management approach. She is the director, does the marketing and sales. The director develop ideas for new technology and new products. She listens very carefully to the needs of the clients. The buyers provide ideas for innovations, by doing new patterns or printing patterns. Sometimes the employees also have ideas for improving production. Her husband takes care of the technical operations. The finances are run by their son, who recently graduated from university. All staff have been loyal so far - no one has left since the start the company. In the morning they have devotional meetings. Staff members are invited to come forward with a comment, worries and concerns.

The employees are trained on the job. When the machine from China came, it was included in the agreement with the Chinese supplier that an engineer would teach the operations manager and staff for 10 days. This

included the operation of the machine, replacement of spare parts and repairs. In fact shortly after the installation of the machines, there was a technical problem and some parts had to be replaced. Fortunately local people are available who can do such repair work.

External business and institutional environment

The director is not aware of government innovation programmes or polices. She benefitted from networking events organised by the government, such as COMESA exhibitions, drawing manufacturers and suppliers from other countries, which are a good opportunity to identify new products, interact with manufacturers and talk about branding and registering one's own brand.

She mentions that government laws and regulations are easy to follow. There is one concern, that the law in Kenya requires a company to join the labour union once it has more than a hundred employees. She is reluctant to join the labour union, which will force her to employ workers under their terms not under her own - "*It is a good thing if I was employed but it's not a good thing for the employer"*. She considers the unions to be stronger than the employer who is creating the employment.

An essential element in her entrepreneurial experience was her participation in a short training course on women entrepreneurship organised in 2011 by USAID (an American bilateral donor). The course provided good insights into business planning, organisation and management, accounting, public relations and marketing. The course also underlined the necessity to collaborate and network with other organisations. She joined the Kenya Association of Manufacturers (KAM) and the Kenya Association of Investors. She already had contact with the Kenya Bureau of Standards during the process of registering her brand. She participates in regular KAM seminars.

Her early days as a female entrepreneur were not easy. Within her family and in business circles, she felt that she was initially not taken seriously. Other businessmen would say that *"she is after another man"*. She encountered the idea that a woman should not be in business. Securing credit and the formal proprietorship of the company with her husband was also a complicated procedure to sort out. Kenyan law on business ownership by married women is complex and biased towards men.

However, entrepreneurship in Kenya is now somewhat easier for women than before. Kenyan men still think women are not up to it – *"in tendering they still think that a woman entrepreneur cannot do it"* – and they must run both the company and family affairs. Women owners have to be very careful in shift timings, in that men can work overnight, while women cannot. There are other obligations in social life such as church commitments – "*When you are doing well, they expect you to be their leader and inspire other women."*

After the USAID entrepreneurship training, the participants formed a group called 'Magnet Mothers'. This informal group support female entrepreneurs in doing business better and learning business skills together. Successful entrepreneurs give assistance to other members in business skills. For the owner of this firm, the satisfaction of running her own business motivated her to help others. She sees and shares the value of networking – *"together you can go very far. The group will bring ideas to you because as you share with them they also share with you."*

4.3 Textile and clothing – Company uniforms and accessories tailoring (30 employees)

The company is a Kenyan-owned textile and garment manufacturer located in a commercial area in South Nairobi. It has a small workshop with one production line and 30 employees. The company is involved in the stitching, tailoring and branding (printing logos) of company and school uniforms and work clothes. Occasionally other promotional items such as T-shirts and polo shirts, caps and reflective jackets are

produced. The enterprise usually deals with big private companies, hotels, NGOs and schools in Nairobi and the surrounding area, because this involves a certain mass production: only 20 pieces or more are cost-effective. The company does not export, but there are buyers from Tanzania and Southern Sudan, who themselves take the products back to their countries.

The textile inputs and fabrics come from suppliers in Nairobi. The company has an agreement with the suppliers allowing payment after a certain period of time. This is because most of the clients do not pay cash upfront or directly after delivery, but usually after 30 days or more.

The enterprise is young, one and a half years old. The owner, also young, is motivated to develop his company and committed to developing business more widely in Kenya. As a child, he lived with his family in the USA for a time. However, the Western world was not what they expected, and so the family returned. The owner is happy that he gained exposure to the outside world, which helps him to do business today in Kenya.

Despite the fact that Kenya is a developing country, the owner sees great opportunities. Most of the successful businessmen he knows started small, and he is aware that starting a business is not only about money – "*If you are only money oriented your business will never live on"*. In his opinion, an entrepreneur has to like what he or she is doing - "*If you like what you are doing, you will come up with new inventions which people will really like. Then the money will follow"*.

Innovation and internal capabilities

He started the business in 2013. Previously, he tried to get a regular job, but without success. He started to explore other opportunities, such as starting a business by himself. The idea of a textile business came from a friend who owns a textile company. Visiting this company gave him the inspiration to start the uniforms business.

Initially, he started a 'briefcase' company by acquiring orders from corporates and hotels for uniforms. Once he got an order, he subcontracted it to a friend who had a small tailoring workshop. He subsequently delivered the product to the client and earned a small commission. After a while, he realized that he could get a much higher profit margin by manufacturing the textiles himself. The sewing and printing machines are usually expensive to buy, but luckily, he was able to borrow a machine from a client asking to have 200 shirts stitched. Shortly after, more clients placed orders for clothes, enabling him to buy another machine and expand the company.

In fact, his growing client base has forced the owner to innovate and expand. He plans to increase production capacity and move to a larger production hall in the industrial area, where he will get double the amount of space for the same rent. By installing two more production lines, he will be able to handle a big order of, for instance, 1000 or more overalls or dust coats. At the same time, he will be able to handle other orders. The owner sees the necessity to innovate. He is aware that if an entrepreneur wants to survive in Kenya, he or she has to be innovative and think outside the box - "*Because if you don't, somebody else will and they will kick you out"*. He knows that if he does not come up with new machinery, the company will have to close down. The owner also mentions that Chinese traders, with modern machines, may take over the market soon. It is better that Kenyan firms capture the market right now.

He is making arrangements and investigating possibilities. He has found an Asian supplier of the new machinery, which is technologically advanced and much more efficient. He is also exploring the possibility of producing leather products, such as handbags and ladies' shoes, the latter currently imported from China. He is considering importing the raw materials and manufacturing shoes locally.

The business currently has 30 employees. Most came without previous knowledge or experience, and were trained on the job. Some are qualified, and train others in how to tailor new products. There is no formal training within the company. The supplier of the sewing machines provides instruction on how to use the machines.

Most of the time, clients ask for specific pre-designed products. However, the owner would like to do more of his own design work in the future – *"It's not the client who drives me, it's me who drives the client"*. He develops his own ideas and researches internet retail sites to see what is available on the market in other countries.

He has a designer meeting twice a week. Some new designs are successful, while others are not. The experienced staff also come up with ideas that are worth trying. On a few occasions, the designer improved a design proposed by the client, much to the satisfaction of this client. However, there is little time to think abou innovation and testing new ideas on the work floor, where the staff are under pressure to meet tight production deadlines every day.

External business and institutional environment

The owner finds the business environment in Kenya hard – *"It is every man for himself"*. He feels that the government is letting small companies down because of the many taxes and laws. Government officials visit often and deliberately look for administrative mistakes. The government creates an uncertain and hostile business environment. A company never knows when the government officials will visit, and "*when they show up, you go down"*. The owner's critical opinion grew from witnessing more challenges as his company was growing - "*If the government officials were doing what they were supposed to do we would be doing well"*. What really upsets the owner is that there are so many young people in Kenya with great ideas and energy, but stuck in a political system that prevents them from taking initiative and growing new businesses.

The owner is not really concerned about the increasing imports of cheap products. He thinks that the advantage of being located in Kenya is the quick delivery time of tailor-made products, last-minute production and close proximity to the client.

Without the financial and emotional support of his family and friends, he could not have set up his business. They were very supportive in overcoming initial insecurities. He attributes much of the success of his business to his wife and parents. They help him in developing ideas and running a business -*"we go through these problems together".*

4.4 Textile and clothing – Kikoy beach towels (70 employees)

The company producing Kikoy products[1] was established in 2010 by a young Kenyan entrepreneur in Mombasa. After coincidently meeting European customers looking for Kikoy products, he suggested – without having a production facility - that he could deliver much better quality than the available products. Having secured an agreement, he quickly established a business in Mombasa that included four sewing machines employing 10 people. The newly established entrepreneur quickly found out that with high quality materials and accurate stitching, his business could be a success.

Shortly thereafter, the owner got word about a newly constructed 'Export Processing Zone (EPZ)' in Nairobi. The idea of a government-funded EPZ is to set up an attractive investment environment for export-oriented

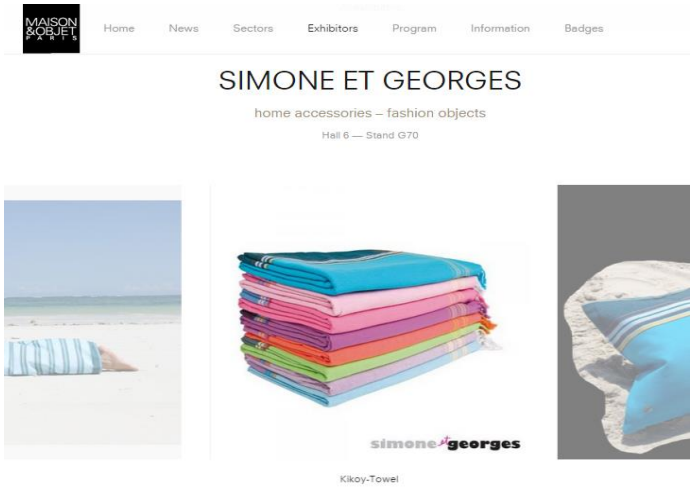
[1] Kikoy Mall EPZ contact: Danlop03200340@gmail.com or sajaad.alibhai@gmail.com

businesses. The EPZ provides tax incentives (no corporate tax for 10 years, export and VAT tax holidays amongst others) and provides infrastructure and facilitation in export procedures, logistics and acquisitions. In 2012, the company moved to the EPZ near Mombasa Road in Nairobi.

At the EPZ in Nairobi, the company grew rapidly and specialized in producing their main product: Kikoy beach towels. The Kikoy beach towel is 2 sided: one side toweling and the other the Kikoy. At present, the company has 26 sewing machines employing 46 people. The company exports to Europe (Denmark, Germany, Italy, Spain, France, The Netherlands and the UK) and to Japan.

They wish to export to the USA - a big market - but do not do so yet. The problem with the American market is that the input textiles are locally produced and the quality does not meet American standards.

The company adds the brand names of their customers, such as Simone & Georges, who advertise the product on their website as *"a colorful sarong lined with a very thin towel. This best seller is a funky fashion solution for the beach and also for home use"*.



Innovation and internal capabilities

The product is subject to a seasonal production cycle, following the sales season in the European shops. April to September is low season for Kikoy. This year, the company sold 80,000 pieces, but next year the order will reduce to 40, because there are still products in stock. So the market is saturated at present.

The changing demand for Kikoy beach towels forced the company to think about new products. The owner sees the necessity to introduce new products. Last year the company started to produce leather bags with Kikoy fabrics on the inside. A Spanish customer asked the company whether they could manufacture bags as well. They sent some samples and suggested using Kikoy fabric on the inside. The company developed some test bags accordingly and sent them back to the customer in Spain, who then placed a larger order.

The staff are also developing some products using ideas from the owner. The company has a small space for design and product development, where they are currently working on an idea to produce hotel textile items such as bed sheets, pillow covers or towels with a Kikoy lining at the end. The company is currently testing this and buying input from a local supplier. The owner believes that this could be a good product because the hotel business is relatively constant - customers never stop going to hotels.

Another recent opportunity arose when a friend of the owner placed an order to stitch 50,000 gowns. This friend owns a production factory in Indonesia where they manufacture gowns to be sold in Egypt. This friend visited the Kikoy company, and the owner explained about the low production of beach towels in the low season (April – September). The owner asked his friend whether he could undertake some of the gown production, in order to retain his skilled workers. Instead of doing the production in Indonesia, the friend asked to do the production in Kenya and export it to Egypt, which is an easy and convenient procedure at the EPZ.

Innovation is essential for the continuation of the company. The owner wishes at all costs to avoid laying off skilled and experienced workers, because getting these people back is a problem. Hiring new staff and teaching them to stitch takes 2 to 3 months. The owner does not want to lose staff because they have unique skills – *"it's not everyone who can do this*".

Ideas for new products and securing new orders come from the production manager and the owner. The owner does many business trips to Europe. He employs a designer who develops ideas for new products from pictures in magazines or websites. It is essential that the new products sell well, because the development is costly – *"if you don't get someone with that innovative spirit, the business cannot work"*.

External business and institutional environment

There are no specific innovation regulations or policies at the EPZ. The owner sees many advantages in being at the government-supported EPZ, which provides an environment with a good supply of both employees and customers. To do business in the EPZ, a firm must be exporting outside the country.

The EPZ management organize customer visits, taking company products to display elsewhere, and sometimes bringing customers back. Other people come to visit the factories. Outside the EPZ, it was difficult to convince potential clients to come, but when they come to the EPZ office, they see the company profile, and sometimes come in. The company has secured 2-3 customers in this way. At the EPZ, the manager finds the taxes and government regulations transparent and easy to complete, much easier than outside EPZ. The EPZ provides clear information about government regulations.

Outside the EPZ in the past, a company had to pay various taxes (VAT amongst others). If products are exported, the company can reclaim the taxes because the product is not sold on the local market. However, while in Mombasa, the company found that this reclaim procedure was very lengthy. Indeed, reclaimed taxes from 2010 to date have still not been refunded, which makes business complicated.

The owner feels that the EPZ is a good location, much more efficient, in particular as regards export procedures and paperwork. Before the company entered the EPZ, they had to take their products to the airport, and complete the documentation and procedures by themselves. It usually took a week before the products could actually be shipped. Now, thanks to the efficient customs office at the EPZ, if the product is finished by 3 pm, then by 6 pm it is at the airport with the procedures completed and ready to go.

Regarding support for innovation, customers in Europe demand quality standards and regulations with which the company has to comply, which stimulates the company to produce high quality products. The clients first ask the firm to deliver a sample. The customer in Europe will check the quality, stitching and packaging and then give the go-ahead for the company to start producing in bulk.

The process of marketing and finding customers has changed fundamentally. The owner now only infrequently goes out and visits customers. These days, most of the customers search and find textile producing companies via their websites, and it is through its website that the company gets most of its customers. Only last year, the owner met a customer in person for the first time, having supplied them with products for three seasons (a year) - "*That is how business goes these days".*

The owner identifies the secret to their success as pursuit of quality, hard work and doing many things by themselves -*"we are trying to squeeze ourselves to develop it; to make it happen".* The owners and managers are passionate about their job.

4.5 Agro-processing – Poultry feed (19 employees)

The company is owned by a Kenyan woman who has been involved in agricultural activities and poultry for many years. Her plant, a small production facility in a rural area north of Nairobi, produces high quality poultry feed. The product is based on her own formula of balanced nutritious feeds. The various input components, mostly agricultural products such as maize jam and rice bran, are milled and mixed and put in bags of 40 kg and transported to the clients. The company currently employs 19 people: 7 in marketing and 12 in production.

Innovation and internal capabilities

Having previously been a small poultry farmer, she and her husband were generating some income, transporting milk products to Mombasa in small trucks. Both are educated in accountancy, and found the high costs and low quality of animal feed from local manufacturers a problem. Imported feed is expensive and its quality unreliable. This inspired them to start manufacturing their own high quality animal feed. The owner was not concerned about demand for feed because there is a stable market for poultry in Kenya – *"people are fond of eating chicken".* She was confident to take the risk because she knew the market was promising. Some other small companies had been producing animal feed for a few years and they were quite successful.

She gradually realized that for many farmers, feed quality is more important than price. They are willing to pay for high quality feeds, knowing that when they compromise on quality, they produce fewer poultry products and eventually lose money.

Initially she produced the feed at home in the 'Jua Kali' way, but did not achieve the quality she anticipated. Poultry production was affected and she realized that she had to professionalize the business.

She attended a one-week course on animal feed production at the Kenya Industrial Research and Development Institute (KIRDI), in cooperation with the University of Nairobi. After the course, she tried to develop her own formula of a nutritious mix of animal feeds. She experimented with the feed on her own poultry first, with manually mixed feed, and asked some family members and neighbors to do the same. Once

she realized that her formula was good, she started mixing and selling in small quantities at local markets, which turned out to be successful.

Then she decided to produce larger quantities with a professional mixing machine. Importing a machine from China was too expensive, so instead, she hired a technician based in the light industry area nearby, who was able to make a similar machine based on existing designs. They started mixing feeds in bulk, buying inputs from Mombasa and distributing their products more widely in Kenya.

An additional advantage was that her husband had trucks to transport goods back and forth to Mombasa. Since the raw materials for poultry feed are cheaper in Mombasa, they started to pack the returning empty trucks with raw materials. Transport is quite an expensive requirement for many businesses.

The owner has further plans to expand the company by installing a machine to produce broiler poultry pellets, in response to demand from farmers. They are investigating the investment and capital requirements, and whether it will be too expensive to import. If so, she will engage a local technician to build the pellet machine in the 'Jua kali' way.

On top on their poultry farming and transport experience, the owners have a good educational background in accountancy. This broad experience and knowledge enabled them to set up the company. Initially the owners were doing everything, but now they employ a staff of 19.

The full-time marketing team travel around the country seeking new orders and customers (they do not deliver the product). The owner sets targets and they receive a small commission for every new client. They work alongside a team of delivery staff, through whom the company was able to reach different geographical areas in Kenya. The marketing staff provide a lot of feedback on the quality of the poultry feed, potential improvements and new opportunities in the market.

Using their background in accountancy, the owners have set up an advanced computer system to manage the amounts of inputs, outputs and financial transactions. This internal control system is critical in managing the company. Few other businesses in Kenya operate in this way.

The employees do not get free time, and the work routine is very structured. Some internal training is available. The nutritionist sometimes provides briefings for the marketing and delivery staff, so they know what they are selling and delivering to the farmers. When the owner hires a new member of the marketing team, she looks for someone with good marketing skills, who will learn about the feed, rather than the other way around.

External business and institutional environment

The owner is not aware of innovation policies or programs. She gained a large network during her training, including contacts with university professors and lecturers, who gave input on the formula of her feeds. She also has contacts with other animal feed producers and with farmers. The government provides some support, in particular organizing agricultural trade fairs and exhibitions. She goes to these shows every year, where she is able to meet other manufacturers and strengthen her network with farmers.

The owners checks the quality of the feeds on a regular basis. After buying raw materials, she sends a sample to a privately owned laboratory in Nairobi. The government laboratory is too bureaucratic and slow. After they mix the feed, they take it to the lab for analysis again.

She has registered the company, which she did not find a complicated procedure. She also consulted a lawyer who assisted them with most of the legal documents. She has not registered a trade mark, brand name or

patents for her feed formulas. The owner sees little use in patenting the mixing formula, because this keeps changing according to the availability of raw materials. She is not aware of other people using her brand name (and borrowing its reputation) to sell their own products, which is possible since she has gained a reputation for high quality feeds. She is not worried about this because of the way she packages the feed. She keeps the formula secret, and only the person who issues it to the production team knows the details.

Getting credit and capital is always a challenge, but the owner's bank have been very supportive, assisting with finances to enable expansion. The owner has difficulty with Kenya's business transactions not being 100% on a cash basis. The company does credit sales, but there are clients who are problematic and do not pay. The company is promoting the use of M-PESA by the farmers, which means the driver who delivers the feed does not handle cash.

The owner's principal motivation is positive client feedback on feed quality. Clients tell her that although her company is small, the feed is far superior to many competitors. She can compete with the big companies, which makes her feel proud. She also uses feedback to modify and improve production.

Her family was important in setting up the business. She has a friend or 'mentor', who succeeded in their business and is guiding and helping her in running her own. There is still an informal link with the university professor who helps her with the composition of the feed, and other issues that cannot be handled by the nutritionist she hires.

4.6 Printing – Flyers, cards, banners and books (7 – 17 employees)

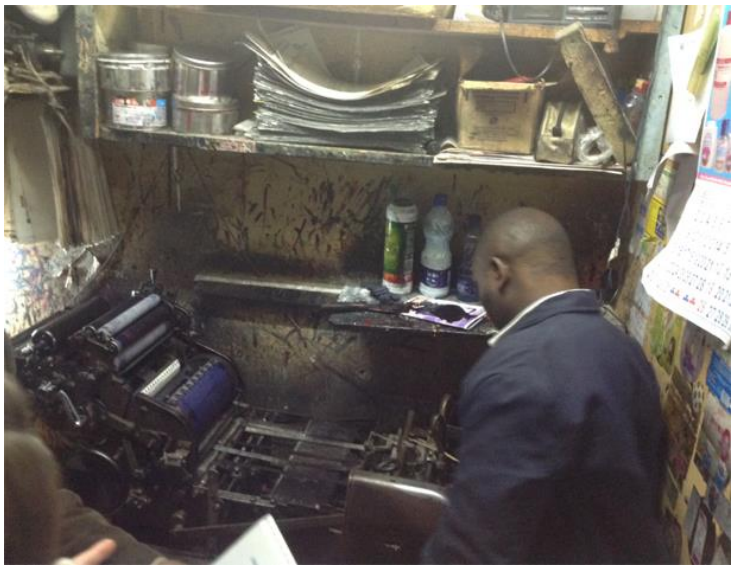
The company is a registered small design, printing and publishing company in downtown Nairobi (River Street). It is located in a building with many other print companies and workshops. The company has two small workshops in the building and has "*old but efficient printing machines"*. The printing machines and computers are second hand, as new imported printing machines are too expensive. The firm's products include flyers, wedding cards, banners, African themed handcrafted cards, school books and administration booklets. The company does production and delivery to order. There are 7 permanent staff: 3 in design and 4 in production. If the owner has to deliver a big order, he engages a further 10 people on an occasional basis.

The clients are mostly other businesses, organizations, political parties and schools in Nairobi. The company also supplies cards and prints to other retailers, such as the sellers at the Masaai market. In downtown Nairobi there are many competitors and competition is fierce. The company does some advertising by distributing flyers promoting their service. More importantly, the manager has an extensive network of contacts through which he gets the orders.

Innovation and internal capabilities

The initial idea of starting the business began when the owner lived in poor conditions in the slums of Nairobi. He sold Kenyan magazines to earn a few dollars a day. Instead of selling new copies, he went to the production firms, *"talked sweet to those guys"* and asked whether he could get their old copies. *"I told them I used the magazines as packaging"*. He then sold the magazines as new copies for half price. He became interested in magazines, printing and publishing and saw opportunities to make money.

He started as a broker, getting orders from clients, then subcontracting the actual printing and publishing to a company. By saving some of his profit, he was able to buy a printing machine to start his own business 9 years ago. He learned about printing and publishing through interaction and learning by doing. He never went to a formal training school.



The owner sees the importance of continually developing new ideas to develop his business. He is often thinking of new products.

Not long ago, an idea emerged to edit and publish a quarterly lifestyle magazine reflecting Christian values. The owner is a Christian and sees the magazine as an opportunity to serve the community. He is now approaching people from different working backgrounds for contributions. There is no similar magazine currently on the market, and he plans to do it *"in style"*, so quality should be good. Within a few months he expects to launch the first issue and intends to start with 1000 copies, although he is able to print up to 2000.

Having set up his business and escaped poverty, he now has a sense of mission to help other underprivileged young people achieve their vision. When he lived in the slums as "*a bad guy"*, as he puts it, "*I went through so many challenges to survive and set up a business, so I have a passion for empowering other young people in poverty to also achieve their vision*". The employees in the business are young people and the work helps to empower them.

The owner has strong personal motivation. He enjoys running a business, making a meaningful contribution to society, and seeing the fruits of his efforts -*"We are moving upwards – we only need a small hand up".* One of the strong points of the company's staff, according to the owner, is that they overcame their poor background. They are proud and motivated to work in the company. They are a very good working team and need little supervision.

Both owner and staff generate innovative ideas, in particular one technical team member, an educated computer and graphic designer. The owner usually comes up with an overall idea and his team suggest technical design and computer solutions for the actual implementation of the print work. He also exchanges ideas with other small businesses in the cluster. Through walking around River Street, and talking to potential customers, the owner conceives of new ideas, products or designs. He is satisfied that he has built a network of clients, who choose his company over the competitors. He attributes this to courtesy, delivering on time and the quality of the job.

External business and institutional environment

The owner had no support from government programs, and got no credit from either a bank, or family and friends. Registering the business was a complicated process, involving 'extra' payments to speed up the procedure. The advantage of registration, instead of operating informally, is to get the formal business name

and a tax compliance certificate, as well as the possibility to tender for government orders. Orders from the corporate sector are possible without being registered.

In pursuit of winning tenders for printing and publishing orders, the owner networks regularly with government officials and ministerial staff. The tendering process is not based on quality or price, instead *"the government officials awarding the tender expect something back from the winning company".* In fact, following the regular and official procedures is a waste of money, in the owner's view. Sometimes he tries to organize a deal with someone inside the government, but it is very expensive and time consuming. At such times, *"we call ourselves the hustlers of River Road".*

Another constraint in doing business is getting credit. Going to a bank is not an option for the owner, because the application procedure is complicated, and moreover the interest rate is around 25% for small businesses. His return on investment would be only 10%. In the printing business, revenues can rise and fall quickly. For instance, the political campaign season is a good period for business, when the company produces a lot of posters for political parties. Sometimes the owner approaches informal money lenders – "*Shylocks*". The interest rate they offer is even higher, but they are flexible.

The owner thinks that formal organizations supporting innovation could be of help. Links with universities, for instance, would be beneficial. However, the owner also sees limitations. If university graduates do not practice their skills, they will serve no commercial purpose. When the company is stuck with design or IT problems, the technical staff member uses informal contacts with his former professor, who usually provides a theoretical answer.

Technology is also a challenge for the company. There are some large printing companies with advanced technology and (large format) machines, owned by retired civil servants with the financial means to invest in state-of-the-art technology, and connections in government. These companies set the standard, which is challenging for smaller companies. For instance, the owner cannot print banners, bill boards or logos on cups for political campaigns; or hot foil glossy prints. If they do get an order of this type, the owner outsources to another company, and gets a profit margin. Networking with larger companies who can do such print jobs is essential.

Unfortunately, the large businesses do not come to River Street to subcontract an order to a smaller company – *"I am dependent on them while they are not dependent on me".* In terms of competence and professional skills, the owner believes that he is ahead even of the larger companies "*because some of these guys, they have the money but they don't have competence".*

The reason why the company is based in the River Road area is its strategic location: a network of other printing and publishing workshops, clients, skilled workers, paper retailers and wholesalers are all close by. Many clients come here for good deals, even from larger corporates. This company is one of the larger firms. The offices and workshop space are very small, but the rent is reasonable compared to other parts of Nairobi. If the owner gets a particular order that exceeds his capacity or he does not have the required machine, it is very easy to involve a neighboring printing company in the cluster.

4.7 Food processing – Yoghurt products (60 employees)

This Kenyan owned company processes fresh milk into yoghurt products with strawberry, vanilla and passion fruit flavors, packaged in small bottles for household consumption. Up to now, the company has been manually processing milk into yoghurt. The finished products are delivered by the company's refrigerated transport vans to various large supermarkets in Nairobi, Mombasa, Kisumu and Nakuru and several other

smaller towns. The female entrepreneur and owner has been successful and the business has expanded considerably in recent years.

The company employs 60 workers at present. Soon the owner expects to move to new plant, with new machines. For the time being, the company still has very small premises in a rural area north of Nairobi. The location brings advantages because of the many farmers and farmers' cooperatives nearby, who supply fresh milk as the main input. The supply of fresh milk can fluctuate considerably during the year, particularly in periods of drought.

The owner has a higher diploma level education in marketing. She is confident that her education has given her an edge. With her knowledge and skills, she sees the food business as providing great opportunities in Kenya, but few people dare to take the risk to set up a business, as she has done. Before starting her company, she had a day job with a reasonably good salary. She resigned and started her business because she wanted *"a feeling of pride in something that is my own*".

Innovation and internal capabilities

The owner has been able to save some of the recent years' profits on product sales, and is now installing a more spacious plant nearby. She invested in the construction of new buildings and purchased state-of-the-art milk processing machines that will be in operation within a few months. The new machines will be able to separate the milk from the cream, enabling the company to introduce new products and generate additional value.

The new machines will also enable improved conservation of yoghurt products, which consequently increases their shelf life in the supermarkets. This will also enable the company to export. She is taking some risk with her new investment but is confident because she has seen data on how the market is growing.

At present, the company is organized into three departments: production, finance and marketing. The owner herself heads the marketing team of 15, including marketers, sales and delivery staff. The delivery staff are also present in the supermarkets, awaiting the arrival of the products. They arrange the product displays on the shelves and make sure that only the fresh products are for sale. Once in a while the marketing staff come up with new ideas, which the owner follows up. The production of butter and cream, for instance, has been proposed by the marketing department.

The owner makes sure that shops are supplied well. She knows that if the product is temporarily unavailable, customers will switch to another product, so reliability and availability are critical. Availability is a particular challenge in periods of drought, when the supply of fresh milk is low. She is making sure she does not lose customers.

The production of the new products will require some training within the company. The staff have an educational background in dairy product processing and the company provides informal in-house training.

External business and institutional environment

The owner accepts the fact that she is on her own in setting up and running a business. She is the one who comes up with the innovation and investment ideas. There are no external support organizations to help her, nor does she collaborate with others in the businesses. There is no support from technological institutes, universities or any government policies or support programs, although the owner would like to work with researchers to learn more about dairy processing and conservation. She will probably look for business partners now that the business is growing.

The dairy products department of the Kenya Bureau of Standards (KEBS) checks on quality. They buy products in the shop, test them, and if there is an issue, they contact the owner. So far the owner has had no problems.

The business environment in Kenya is quite complicated and difficult. The owner has to pay many types of taxes. Sometimes the taxes de-motivate her, particularly in the past, because the government was not improving the living conditions in the country. Another difficulty is late settlement of accounts by the buying supermarkets. The 'risky' accounts are large supermarkets that fail to pay within the agreed 30 days, instead taking about 120 days to pay, during which time the company keeps on supplying them. This causes serious cash flow problems.

The owner took some external advice from a dairy expert, to identify and purchase the right milk processing machines. She also contracts external technicians from the industrial area in Nairobi to install the machines. The company has to organize and pay for all external advice.

The company faces little competition from imported yoghurt products. The owner is not concerned because she deals in fresh products with a relatively short shelf life. Domestic competition is also poses few problems because her yoghurt products are cheaper than those of the competitors. One dominant company has their own target A class market. The company targets the B class.

She is carefully hiding her plant so that government officials cannot easily find her. She is somewhat nervous about a take-over by the dominant company in Kenya. This large company, owned by a well-connected political family, do systematic buy-outs or 'annexation' of smaller dairy producers, giving them a near-monopoly. If they do approach her, she intends to turn them down – "*I am not ready to sell because this is my baby, I just want to grow the baby*". She has made a long-term investment in marketing and feels quite strong since the supermarket owners support her, because of the good products.

In the beginning, when she had a business idea but insufficient capital, support from her mother was important in starting up the firm. Her family has always been a great support.

4.8 Carpentry – Tailor made design furniture (134 employees)

The company, employing 134 workers, produces high quality custom-made hardwood furniture. It is located on Mombasa Road in the industrial district of Nairobi, an area with a large number of furniture shops. Style, original design and quality are the main selling points of the company. In particular, the finishing is different in style from that of other furniture products available in Kenya. The company has two large showrooms, one for traditional furniture and another for modern styles. The company was established in 1948. The owner is a Kenyan national from an Indian family, who has been resident in Kenya since the Second World War.

The company mainly produces for the Kenyan market, with occasional clients from other East African countries, and some in the UK and USA. The company has a more or less stable market share of 2% in Kenya, a niche market of customers looking for high quality stylish design furniture. New rich Kenyans have also started to appreciate quality products.

The customers visit the showrooms and place orders. The company also does exhibitions, and has started some online marketing using social media and a website, but most of the clients come through word of mouth recommendations.

In recent years, the company has faced increasingly serious competition in Nairobi, in particular, cheap mass-produced furniture imported from China. The HR manager regrets that so many people are buying cheap furniture today - "*most people do not even understand what quality means in furniture"*.

There are fewer and fewer companies in Kenya manufacturing furniture locally. In the '80s there used to be about 400 furniture manufacturing companies in Nairobi, but currently there are a maximum of about 80. One of the company's main competitors in Kenya just closed down its manufacturing plant, and now sells imported furniture from China.

Innovation and internal capabilities

The company does not have an explicit innovation strategy to face competition, but nonetheless several innovations have been introduced in recent years. Despite the competition, the company has expanded during the past 4 years as a result of increased demand. It grew from 96 to 134 employees in that period.

The company invests in product innovation: coming up with unique creative designs of hardwood furniture. The team of 5 young designers are given a free hand in designing and come up with new ideas. The management try as much as possible not to steer this process. Clients also come with suggestions for creative designs. In total, 40% of the carpentry products come from client suggestions, and 60% are in-house designs. Sometimes the designers go to the client's house to see the space and how it would match the furniture design ('space management'). The designers must come up with a new design every month. The HR manager finds the designers a bit difficult to manage - *"sometimes they sit and are just wasting a lot of time during the day. Then it's around 3 and they get an idea and they will sit here up to midnight".*

Recently the company has introduced a new line of products: kitchen cupboards and wardrobes from softwood and hard- and fibreboard for house and apartment construction projects. There is an increasing demand for these types of softwood products. The company identifies opportunities: once a large housing construction project is planned, the marketing team contacts the construction developers and architects. The traditional production, using high quality hardwood from Congo, has become very expensive. There are a large number of suppliers of the cheaper softwood in Nairobi, imported China, South Africa and also Germany.

According to the HR manager, human capital is the gold of the company. The company is proud to have highly skilled carpenters among their workforce. Recently the company reorganized its staff into more

specialized teams. Instead of multi-skilled people, there are teams for carving, for sanding and for finishing. The company also trains the workers on-the-job, with older workers teaming up with the younger ones.

The company is continuously looking for good carpenters, but it is becoming very hard to find good skilled workers with the right attitude. Even employing workers from factories that close down is not really an option, because their skills do not meet the company's standards. The HR manager refers to the fact that most of technical universities have closed or changed their education system, because people have stopped appreciating the skill of carpentry. There is only one school in Nairobi offering a rigorous skilled carpenter training program.

The director has run the business for a long time. As a family owned business, it used to be a *"one man show"*. The director is himself a skilled carpenter and knows the ins and outs of the production process. He works closely with his staff in the management and daily operation of the firm. There are weekly creative meetings with the management team, designers and production managers. In the past, the director did everything: procurement, machines, management etc. Some years ago, a formal and professional HR system was established including an organigram, HR policies, HR plan, HR manual, induction systems and health & safety systems.

Despite the harsh business environment, the HR manager explains that the director's passion for the job and the company is central in this business, and is the reason why the company survives. He takes good care for the quality of the work. He is very hands-on - *"He does not sit in the office, wear a suit and just sit there and wait for the meetings to come*". Every morning he does a walk around the workshop, to see if there is something that requires his attention. He joins the production work if there is pressure for a delivery. He is an example for workers. That is *"why we have people who've worked here for almost 20 years"*. There is a feeling of ownership among the workers. The company takes good care of the workers, according to the HR manager. It provides extra severance pay, on top of the mandatory number of days. Working hours are 7 am–4 pm, to avoid traffic jams. Workers also benefit from a medical scheme that covers them and their families, and life assurance.

External business and institutional environment

The company deals with operational and innovation matters itself. The government sometimes makes the operation of the company difficult by levying taxes; taxation on the labor force in particular has become very expensive. Acquiring hardwood from Congo is getting more difficult, not least due to transport costs to Nairobi. There are numerous police checks and road blocks.

The HR manager is not aware of government innovation policies or promotion programs. There are no organizations that support the company in their efforts to innovate, except an NGO called "Don Bosco", which has a training school for carpenters. The company is a member of the Federation of Kenyan Employers. Most, but not all, of the workers are members of the Kenya Building and Construction Timber Furniture and Allied Industries Union.

There is interaction with business partners such as wood and machine supplies, housing constructors, plumbers, architects etc. The supplier of the wood processing machines for the factory provides ideas on the latest technology. Although the company bought the machine 10 years ago, they still have a good relationship.

The family of the owner is very important in the support and continuation of the business. He has a large network of friends, including in the Indian community. The owner is also concerned about society as a whole. Besides taking care of his employees, he also demonstrates environmental concern. Because of the wood used for their products, the company implements some CSR practices by tree planting in the Nairobi National Park twice a year.

5. Analysis and conclusions

This qualitative study aims to support the quantitative research of EIP-LIC by enabling the researchers to validate, compare and complement existing theory and research design with the contemporary realities on the ground in Kenya as perceived by manufacturing SME owners and managers. In particular, several elements of the EIP-LIC project surveys are further considered and illustrated with the case descriptions. These elements concern how innovation processes and mechanisms are manifested within manufacturing SMEs, the internal capabilities and the external environment including formal institutions, the business system and the informal institutional context (see Annex 1). In addition, the owners and managers shared their stories outside this framework and advanced issues that they perceived as relevant and critical in innovation and productivity in SMEs.

In the paragraphs below, the trends and notable patterns across the cases are analyzed and reviewed against current theoretical insights. It is important to note that this concerns a first analysis of the empirical material, which is to be followed up in more depth with a view to developing academic papers (the original transcriptions are stored and available). Some initial policy ideas and implications are suggested. The chapter concludes with several observations with regard to the set of research questions within the research themes of EIP-LIC.

5.1 Trends and patterns

Innovation definition

The owners and managers in all the interviewed companies, in different ways, introduce new products, new processes, new technology, or machinery in order to improve and expand their business operations. In advanced economies' innovation terms, in which R&D expenditures and number of patents are typically measured (OECD, 2005), these cases would not be assessed 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.

However, taking a broader perspective on innovation, viewing it as a more incremental adoption and adaptation or new combinations of existing technologies (Szirmai et al., 2011), it is evident that the new elements introduced in the interviewed companies resulted in better and more efficient business operations, creating value. 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 (Çapoğlu, 2009). How should researchers distinguish innovation in LICs from other activities? The broadest possible definition of innovation would be everything new that the company does to survive and be ahead of its competitors. Innovation could be considered as a 'means' towards the ultimate objective of raising productivity and increasing competitiveness. A cross analysis of definitions in innovation theory from recent decades shows that innovation is repeatedly typified by three key elements: newness, process and value creation (Voeten et al., 2011).

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. Although the new products and new processes in the interviewed Kenyan companies were not radical and 'new to the world', they were new for the companies, as units of analysis. Interestingly, most company owners and managers did not perceive their incremental adoption, adaptation and new combinations of existing technologies to be innovation. They associated innovation with a radical technological invention or breakthrough. In many innovation definition

and measurement documents, such as the OECD Oslo Manual (OECD, 2005), an explicit distinction between product, process and other forms of innovation is made[2]. However, the Kenyan cases show a combination of new technology, new processes, new products and new clients within the companies. One could not unambiguously distinguish one type of innovation within the interviewed companies.

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, this is not a planned and formalized process involving a pre-defined innovation strategy and an R&D department. In fact, all the innovations observed in the cases are the product of experiential learning and a process of doing, using and interacting (DUI), as earlier described by Lundvall et al (2009).

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. Several of the interviewed companies clearly pursue a higher sales revenue strategy via high quality, while others invest in machinery that is faster and brings lower input costs, which raises labor and capital productivity.

Many of the innovating entrepreneurs are in pursuit of high quality products – this contrasts with the general idea in Kenya that local products are of poor quality. The owners of the interviewed companies are well aware that quality counts, and creates an opportunity for an alternative to cheap (counterfeit) imports.

Table 1: Summary innovation manifestations in the cases

Case #	***Novelty***	***Value creation***
1 Automobile parts	Process (technology) – laser die machine	Faster production raising productivity and quality (competitiveness)
2 Tissue paper	Process (technology) – machines from China Product – tissue paper, hand washing soap	New markets, competitive products
3 Kikoy	Business practice – export in EPZ Product – gowns, hand bags	High quality and competitive edge in exporting, survival
4 Animal feed	Product – animal feed Process – pelleting machine	Premium product, new clients
5 Food processing	Product – cream, butter Process – machines, technology, premises	Increased productivity and competitiveness, new clients
6 Carpentry	Product – creative design, softwood and hard- and fibre board wardrobe and kitchen units	New clients
7 School uniforms	Process – machines, new production facility	New clients, increased productivity
8 Printing	Product – new magazine	New clients, increased competitiveness

Internal capabilities

The EIP-LIC research agenda includes an assessment of firm-level barriers, which refer to the internal capabilities of the companies. A common feature in all cases in this respect is the resilience of owners and managers, who all have a clear vision, determination and persistence in setting up their business as well as a 'drive' to continually improve their business operations.

[2] Kaplinsky and Morris (2001) identified 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 organize business and attract new clients; (iv) functional innovations – assuming responsibility for new activities in the value chain, such as design, marketing and logistics; and (v) inter-chain innovations moving to new and profitable chains.

The SMEs typically have a workshop or production hall where the employees work with machines and are sometimes organized in production lines. The SMEs have an organogram of separate production, marketing and finance departments. The marketing department is typically large in most companies and includes the marketers, sales persons and the delivery staff.

The owners generate and launch new ideas. Although ideas from the workers and production managers are generally appreciated, they only suggest improvements on the production level. Except for creative design activities, the owners indicate that most of their employees have little knowledge or exposure to new technologies, products and other outside information. The management of the innovation process does not follow a planned and 'projectified' strategy involving a research department, a cost-benefit analysis of R&D expenditures and a financial forecast. The owners and managers of the interviewed cases simply work step-by-step and see what works and what does not.

The owners mention that the skills and knowledge gained through formal education do not match the company's requirements. Moreover, it is difficult to find skilled craftsmen to do the manual manufacturing work in Kenya today. Despite these shortcomings, no interviewed company provides additional formal training for the workers, opting instead for on-the-job training. Some owners are reluctant to provide formal training because they are afraid that workers will move to other jobs. However, workers are loyal and have worked for a long time in most of the companies. Most owners and managers do not give employees free time to develop their own ideas, except for design activities. The workers do what they are told to get the job done. Some owners acknowledge the potential innovation capacity within the workforce, but this is not applied in practice. This outcome suggests a research focus on the development of capabilities and the possible positive impact on innovative performance (further elaborated below in the section on implications for EIP-LIC research questions).

Several owners explicitly mentioned that they did not establish the company for profit reasons only. The sense of fulfillment and achievement ('passion") gained from setting up the business is valued, regardless of how difficult it is to make ends meet. Owners take environmental and social considerations into account, and go 'beyond compliance' in terms of employment creation for the community stakeholders, and women in particular, and contribute to poverty alleviation. In the literature, most examples of responsible entrepreneurship and Corporate Social Responsibility (CSR) concern advanced and large business operations (Hart, 2007). The cases show that these considerations also apply for several managers of manufacturing SMEs in Kenya.

Formal institutions

In innovation systems theory, innovation is not considered as a firm-level effort only. The support of a network of formal institutions, or innovation system (Freeman, 1987; Lundvall, 1992) is critical, complementing government Science, Technology and Innovation (STI) policies (Kuhlmann et al., 2010). Innovation system institutions include R&D and technology development centers, innovation and research funds, the financial and banking sector, universities and education institutes, patent registration bureaus and certification offices, to name a few. Governments in most LICs today, including Kenya, see the importance of promoting innovation via setting up and strengthening innovation system institutions and are developing STI policies accordingly.

However, the contemporary reality of the interviewed companies is different; there was no support of formal innovation systems institutions in their efforts to innovate. All the owners mention that they are not aware of innovation policies, nor did they benefit from or participate in innovation support programs. The innovation systems theory involving formal and (semi-)governmental support institutions, such as technology development centers and universities, did not apply for the interviewed companies.

In fact, most owners referred to the fact that the formal government institutions, represented by the government officials, make their business environment even more challenging. There are unclear business and tax regulations. While usually entrepreneurs in any country complain about government taxes, the situation in Kenya is even more stressful and unpredictable as a result of bribery and corruption. As a result, most companies are careful to avoid external exposure, which would attract government officials. This is not in line with common marketing practices of advertisements and other PR signs that attract clients. Owners consider this a trade-off dilemma. While entrepreneurs need a formal institutional context that assures stability and predictability, the Kenyan reality seems to be the other way around, implying extra uncertainty and risk. This is a notable outcome of the case descriptions, adding to the insights gained by the project surveys.

The banking sector, as another formal innovations systems institution, is not providing credit to most of the interviewed companies. The owners mention yearly high interest rates of banks ranging from 16 to 25% per year, which is difficult to cover, given the low profit margins of their operations. The owners face challenges in obtaining finance at a viable rate, for instance through banks or government funded foreign loans. Some companies are in contact with formal institutions such as the Kenya Industrial Property Institute (KIPI), responsible for examining and granting patents in Kenya. The Kenya Bureau of Standards checks food quality. These institutions are considered useful for their business sectors. In two cases, NGOs provided training and support: vocational training and women's entrepreneurship training. These initiatives were very much appreciated by the participating owners.

Business system

Instead of the narrow theoretical and STI view that the innovation system is an exclusive concern of (semi-) government institutions and policy, recent theoretical ideas about innovation systems and policies in LICs show that actors can also be understood as business system and value chain actors (World Bank, 2009). The cases confirm several ways through which the business system stimulates innovation.

Competition is one example of mutual interaction that stimulates innovation. A competitive environment forces businesses to stay 'sharp' and look for innovative ways to do better than their competitors. As confirmed by the owners of most cases, a key challenge for the Kenyan context is competing with imports and cheaper counterfeit products from China and India. The low quality of imported products is considered by several companies as a motivation to innovate, focusing on affordable durable consumer goods. Developing firm capabilities is critical in a competitive environment, since internal capabilities significantly contribute to the innovative performance of companies in dynamic institutional and business contexts (Teece, 2007).

Regarding the demand side, most interviewed companies are client-oriented and see the need for innovation to respond to changing demands. The clients often come with requirements and suggestions, to which most owners are attentive. The marketing teams come with product improvement suggestions, as well as export client and partners. In these cases, the buyers and clients are the driving force for innovation, corresponding to the theory distinguishing buyer-driven from producer-driven value chains (Gereffi, 1994).

Many ideas for innovation, and available technology in particular, come from the supply side. Researching supplier web sites to identify existing technology that could be adapted or adopted to the local context, was not considered a major challenge. Most owners and managers are well informed by suppliers about the technology options required for manufacturing SMEs, and the country from which they can be sourced. Another form of mutual interaction within the business system is establishing joint innovation projects. In the interviewed cases, no companies developed collaborative projects, and there were no examples of informal cooperation. Technology spill-over through subcontracting did not take place.

Informal institutions

The role of informal institutions supporting innovation is increasingly acknowledged in innovation in LICs. Informal institutions are broadly understood as links and ties with networks of friends and family and social capital, but are also considered as the informal 'rules of the game' including traditions, culture, habits and mental models (Scott, 2001).

Most company owners mentioned that friends and family were critical in the set-up and survival of the business. These networks provide a safety net as well as encouragement and stimulation. This informal institutional context, acknowledged in DUI practices described by Lundvall (2009), takes over the role of the insecure formal institutional context and provides stability and predictability.

Beyond family and friends, informal channels and contacts within the business sector and government agencies are essential for getting orders and winning tenders. The interviewed companies source credit mostly from informal financial institutions, as bank interest rates are too high and have complicated loan conditions. Most of the companies were given informal loans and gifts by family and friends. Informal money lenders, or 'Shylocks', demand even higher interest rates, but provide flexibility.

As is often observed, many businesses in Nairobi have Indian owners, forming a strong community. The Indian population came to Kenya as early as the 1940s, brought by the British colonists for railway construction projects. Many families have been in Kenya for generations and gained Kenyan nationality. Over time, newer Indian arrivals settled in Kenya, principally to start a business. The original Kenyan population accepts the presence of Indians and takes a pragmatic attitude - *"The Indians provide jobs and stimulate economic development"*. During the interviews, no conflicts were mentioned between the groups - *"there are more conflicts between the indigenous local tribes in Kenya"*. Many mention that the Indian population is well integrated in Kenyan economic life and society. At the same time, the Indian community is quite a close and independent community – there are few interracial marriages, for instance. They informally help each other in setting up business, and often live in the same areas, families taking care of each other's children.

5.2 Policy ideas

Based on the research outcomes, EIP-LIC is to deliver a series of policy briefs on promoting innovation in manufacturing SMEs in LICs, targeted at a broad audience of policy makers. Innovation policy makers are usually understood to be government officials and staff within various ministries (S&T, industrialization, higher education and economic planning). However, innovation policies and strategies are equally designed and implemented by managers, business owners and branch organizations in the private sector. Likewise, development agencies, donors and NGOs also consider and integrate (inclusive) innovation policies in their programs and projects. All these actors mutually interact and could be enrolled in networks that promote and enable innovation in manufacturing SMEs in LICs. It is envisaged that all these various stakeholders will make use of the EIP-LIC policy output.

This qualitative study reveals some initial policy ideas and clues that confirm the justification for promoting innovation in manufacturing SMEs in Kenya. All interviewed companies innovated, expanded their business operation, responding to market opportunities, and hired more staff as a result. The cases confirm the positive impact of innovative manufacturing SMEs on employment generation. Most of them created employment income for poorer groups. There were no cases where jobs were replaced by machines or other technology. Instead, SME owners innovated and expanded to respond to business opportunities. The cases also involved local production for the local market, substituting imports. This is in line with the underlying policy assumption of supporting manufacturing SMEs in LICs, as indicated in the introductory chapter of this report.

Promoting innovation among manufacturing SMEs in Kenya could focus on better products at reasonable prices, as import substitution.

Regarding Kenya's economic structure, innovation and raising productivity in manufacturing SMEs is critical to raising SMEs' contribution to GDP. Today 85 percent of the Kenyan population finds employment in SMEs, whereas these SMEs only contribute to about 20 percent of the total GDP. The manufacturing sector contributes 10 percent of the total GDP. The majority of manufacturing takes place in large and foreign owned companies. These productivity figures are quite low. This supports the policy assumption with regard to the need to increase productivity within manufacturing SMEs through innovation.

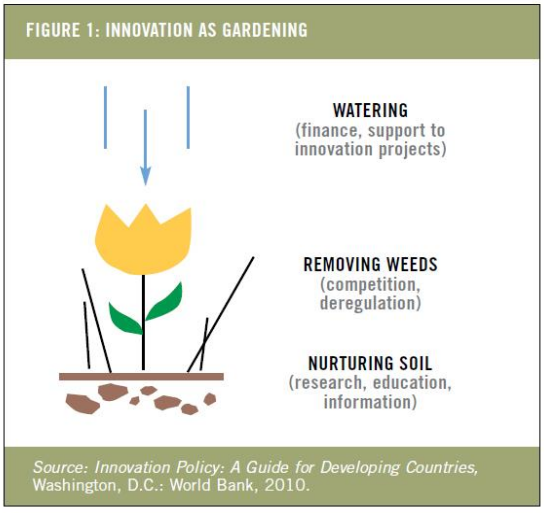
Whether promoting innovation among manufacturing SMEs is also in line with *inclusive* and *sustainable* development principles remains to be seen, and will depend on the sector, the technology involved and the attitude of the owners. There are many examples of environmentally harmful practices of SMEs in LICs and a widening income gap. However, many owners interviewed in this qualitative study in Kenya demonstrated a remarkable sense of responsibility. Most of them show concern and responsibility towards the community in their role as business owners: the tissue paper company provides employment opportunities particularly to poor women, the printing company uses the more expensive eco-friendly ink cartridges, and the furniture company is planting trees to 'give back.

With regard to women and entrepreneurship, many of the companies interviewed were set up by women. It was not difficult to identify enterprises run by women. The interviewed women indicated that setting up the business, despite the hard work, contributed to improving their living conditions. However, one entrepreneur signaled the difficulties of societal prejudices in sorting out formal business ownership by women.

Initial policy ideas

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'.*

Box 1: Innovation policy approach WB



According to the World Bank, an efficient innovation policy by governments addresses the overall innovation climate, which goes far beyond traditional science and technology policy. At the same time, government action can usefully focus on a few generic functions comparable to nurturing plants to help them grow. It can facilitate the articulation and implementation of innovative initiatives, since innovators need basic technical, financial, and other support (watering).

The government can reduce obstacles to innovation in competition and in regulatory and legal frameworks (removing the weeds).

Government-sponsored research and development structures can respond to the needs and demands of surrounding communities (nurturing the soil). And finally the educational system can help form a receptive and creative population.

As mentioned earlier, several ministries and agencies are engaged in efforts to develop and promote innovation policy in Kenya's Vision 2030. The official innovation policy document adopts the STI approach

of setting up an innovation system through the establishment of technology development centers, amongst other initiatives. Despite the considerable effort in developing strategies and plans, actual implementation is challenging due to limited availability of public budget and knowledgeable staff, which was indicated at the EIP-LIC innovation policy stakeholder meeting organized in October 2013 in Nairobi.

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 required technology was already available - elsewhere in the world. Without too much difficulty, the owners and managers found the technology themselves by drawing on various sources of information (internet, informal business contacts and trade fairs). Moreover, the companies themselves refined and adapted the existing technology once acquired. So although 'watering the plants', by setting up technology development projects and programs, may help SMEs, it is not perceived as a barrier to innovation by the owners and managers.

Moreover, SMEs indicated that they avoid interactions with government (and government officials). They do not want to expose themselves, and doubt whether government could effectively and efficiently develop relevant technology for manufacturing SMEs - *"Let the entrepreneur be the entrepreneur"*. The owners of the interviewed companies suggest that the government should not do the work for the entrepreneur by sorting out the technology, without considering its commercial application, and taking on the development risk. The capacity of the government to launch policy programs and develop innovation systems institutions aiming to reach a wide audience, such as technology development centers, remains to be seen.

'Removing the weeds' emerges as the dominant need, from the perceptions and stories of the SMEs. Several SME owners and managers suggested that creating a stable and predictable institutional context would be an efficient and effective way to promote innovation in Kenya. All kinds of innovation policies and programs could be developed, but the results of such policies will be undermined by the weak and unreliable wider formal institutional context.

Regarding the World Bank's 'nurturing the soil' metaphor, strengthening and gearing the education system more towards the requirements of the work floor also seems to be a way forward. 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 to creating establishments that train workers on use of latest technology. The enterprises can employ these skilled workers and give the owners the confidence to purchase new equipment and machinery.

In terms of policy advice to emerge from the DFID project, several owners and managers suggested 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 suggested that the DFID project could establish a network of all SME owners and managers contacted during the implementation of EIP-LIC and create website for them, enabling, for instance, textile producers in Kenya to get in touch with textile producers in Vietnam.

5.3 Concluding remarks – Additional insights to address the research questions

EIP-LIC defined a set of research questions within the 'Innovation Systems' and 'Finance for Productivity Growth' themes (see Annex 3). The case descriptions and analysis provide several additional insights that may complement the researchers' efforts in addressing the research questions. Researchers may also access the original interview transcripts to develop and refine their working papers and other academic output.

Theme 1 'Innovation Systems'

Regarding firm-level factors hindering or fostering the engagement of firms in innovative activities, in all companies interviewed, it is the owners who develop ideas for innovation, with employees playing only a limited part by suggesting improvements at the operational level. Although most owners and managers indicate that the employees are eager to learn and motivated to work, their limited exposure to sources of information (internet) and limited creativity is considered an obstacle at the firm level. It is important to note that this might differ according to the sector type, as suggested in the cases. For design and printing for instance, the young staff team is very well informed about technical possibilities; indeed, they are better informed than the owners. For the more traditional manufacturing subsectors, automobile and furniture, with a focus on manual craftsmanship, the skilled workers are less exposed to the latest technological and production information. In fact, a firm-level limitation is the decreasing appreciation for craftsmanship by young Kenyans.

Concerning regional-level factors hindering or fostering innovation, the interviewed owners and managers were not involved in collaborative innovative activities. However, the location in the industrial area of most interviewed companies brought several advantages in terms of the proximity of suppliers, buyers and competitors. The presence of competitors enabled them to keep up to date with the latest technology, and forced them to stay alert with a view to their competitiveness. Location is very important to the company located in the export processing zone. It brings critical advantages, in particular the predictable institutional context (paperwork and procedures for export), enabling reliability assurance towards the client overseas. All interviewed companies are located in or near Nairobi, taking advantage of the proximity of both markets and suppliers. Regarding the risk-taking of their innovation projects, most owners and managers are confident about the market opportunities in Nairobi.

The innovative activities reported by the company owners and managers were all, mostly involving machines that produce high quality products at lower price and save on production costs. The innovation process was initiated, managed and owned by the company without any external involvement or support from other businesses. There were no cases of collaborative innovative activities of joint technology acquisition. Although the companies are open to sharing information about their needs, most of the owners/managers avoid cooperation with companies and keep everything for themselves.

Likewise, no company enjoyed the spill-over of technology from larger, foreign or other technologically more advanced firms. There were no examples of large foreign enterprises subcontracting and making technology available to SMEs or exchanging information. As recently reported, large manufacturers have pulled out of Kenya, and Chinese and Indian manufacturers have taken over the market by importing goods. There is some information exchange, but the managers and owners get most of their ideas for new products and existing technology from information available on the internet. Business trips and trade fairs were also considered an important way to be informed about the latest technology.

The issue of diffusion of innovation among SMEs in Kenya is not explicit in this way. 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 innovation or polices or programs.

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. 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 DUI approach in learning and innovation processes as suggested by Lundvall et al. (2009).

Theme 2 'Finance for Productivity Growth'

The Kenyan cases provided 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 prevented 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 were not considered credit worthy. Only the women entrepreneur secured a bank loan, which she used to invest in machines to increase her productivity. Most of the interviewed companies were given informal loans and gifts by family and friends. Another channel was through informal money lenders, or 'Shylocks'. They are flexible but demand even higher interest rates than the banks.

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.

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 Kenyan context, as the regulations are unclear and change continually. Sometimes these regulations are enforced and sometimes they are not, and it is unpredictable when government officials will visit. Managerial decisions concerning finance are very ad hoc.

Mobile banking, M-Pesa, is popular in Kenya and is widely used for personal transactions. SMEs use it less for business transactions, although most company owners do see its advantages. In particular, mobile banking avoids staff having to carry cash, which is usually the case after delivery of products by the company's drivers. SME owners are reluctant to use mobile baking because of security weaknesses. There are certain 'tricks' to wheedling money from account holders.

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Annexes

Annex 1: List of questions for semi-structured interviews

List of questions and topics to be addressed during the interviews. From the information and answers the data(set) will be generated for the case study descriptions (stored in Atlas.ti). The list is structured as follows: basic info of the company (A), innovation (B), internal capabilities (C), formal institutions (D), business system interactions (E) and informal institutions (F).

Several considerations:

- The list includes topics and questions, not necessarily formulated as the exact question phrases. How the topic is discussed depends on the way of the discussion proceeds. Moreover, the interview may deviate from the sequence of the questions, as long as all topics are addressed in depth in the end.
- For every part, the discussion starts with a broad and open introductory question to set the stage. This will allow the owner to freely share and brainstorm his or her overall ideas, perception, views, concerns on the part. It helps to open up the discussion in a holistic way for the subsequent focused questions. Moreover, the owner may reveal critical issues that we did not think of.
- The topics include generic part and a featured part. The generic part reflects the template of the case study descriptions, to be used as for all case studies in the 10 countries. The generic part has been designed the such way that the case study presents one comprehensive story that is builds up from a logic construction of information. The featured part relates a particular working paper issue and provides supporting evidence for correlation/causality interpretations.

A. BASIC INFO:

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

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

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

4. Did the company itself introduce 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. product/process/technology innovations in manufacturing SMEs

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?
2. Is the innovation 'new to the world' involving inventions by internal R&D, or is it a copy, adaptation /adoption of existing product or technology?

3. How does the owner and do employees, clients and others actors perceive the newness? (just small improvement or as a 'breakthrough')?

Process

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 subsequent steps in testing? At what point in time it became clear that the new product or process would become a success. On what basis did the owners decide to further implement/commercialize it? Did the owner try new things that failed?
6. Commercialization: what were the steps towards the implementation? What confidence/trust provided back-up. What was difficult and what was helpful?

Value

7. How does the product/process/technology innovations create value for the company?
8. Did the innovation increase productivity, if so how? (lowering production costs per unit, labor/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 internal strength 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 you 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 are 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?

Slack time

13. 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; which group?
    - Why did this establishment give employees this time? What was the goal/idea behind it?

If no:

Have you ever considered to give employees some time to develop new ideas? If yes, what was the reason of not 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 Kenya?

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

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

3. What is 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? Does the owner find intellectual property rights and patents 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/programs (not explicitly aiming 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 did emerge along the innovation process?

6. Does the company participate in, or benefit from, programs or projects stimulating innovativeness that are ran by NGOs and/or international development agencies? (kind of programs/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 knowledge institutes, such as universities, R&D centers, research institutes and so on? Why (not)? With which kind institutes? Does the owner encounter any difficulties in collaborating with such institutes? If so, of what kind? Are these collaborations ultimately beneficial for the innovativeness? If no, why not?

E. BUSINESS SYSTEM, SPILLOVERS, EXPORTS

To what extend (and how) are contacts and interactions with other businesses - local, elsewhere in the country and abroad - important for stimulating product/process/technology innovations within the company? Examples?

<u>Business systems interaction</u>

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 you make these changes in any way?

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

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

4. Does the company buy from or sell to any multinational firms located in Kenya? 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 your 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 is the owner referring to).

8. Are the other businesses in the region similar or different in terms of sizes, production, sectors and types? To what extend do firms produce comparable goods in the region (DEFINE)?

9. Alternatively, to what extend are these other business hindering and competing? Does the owners 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 (DEFINE)? 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 time of the 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 to stability and harmony in the 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

Subsector	*Products*	*Ownership*	*# Employees*	*Export*	*Location*
Printing and publishing					
1. Printing and publishing	Books business	Indian	90	No	Westland
2. River street company	Graphic design, banners, invoice books, wedding cards,	Kenyan	7-17	No	Downtown Nairobi
House care products					
3. Tissue paper	Tissue paper, washing product	Kenyan	42 (12 men, 30 women)	No	Industrial district
4. Cleaning products, hand washing soaps	Cleaning materials	Indian	80	No	Industrial district
5. Healthcare	Over The Counter (OTC) medicins	foreign owned Aspen Pharma	205 permanent. Occasional + 130	Yes	Industrial district
Food and agri processing					
6. Food processing	Fortified blended foods	Kenyan	30	No	Village nearby Nairobi
7. Food processing, fresh dairy	Yohurt products	Kenyan	30	No	Village north of Nairobi
8. Food processing	Packaging of mango pulp and chutney manufacturing	Kenyan	Not yet in operation	No	Not yet
9. Animal Feeds	Animal Feeds production	Kenyan	19	No	Village northeast of Nairobi
Carpentry and interior design					
10. Carpentry	Meubles	Kenyan/Old days Indian	134	No	Industrial district
11. Creative interior design and construction		Kenyan	8 permanent staff and 30 casual staff	No	Nairobi centre
Textile and garment					
12. Textile and garment	All kinds of uniforms	Kenyan	30		Nairobi centre
13. Kikoy EPZ	Kikoy beach towels and hand bags for **export!**	Indian	30 permanent 14 casual	Yes	EPZ
Automobile parts					
14. Gaskets	Spare parts (cylinder head gaskets)	Indian	50	No	Factory str
Unregistered informal household business					
15. Craft household	Hand bag decoration	Kenyan	19	No	Outside Nairobi
16. Craft household	Dipers		4	No	Ourside Nairobi

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 behavior/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 setting?
- 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 user 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?