

**The Role of Development Financial
Institutions in the Aquisition of
Technological Capabilities by Small and
Medium Enterprises in Kenya**

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Abstract

The research examines the role of Development Financial Institutions in the Acquisition of Technological Capabilities in Small and Medium Enterprises (SMEs) in Kenya. Empirical research has shown that technological capabilities hold the key to competitive advantage of enterprises globally. For the purposes of this research, we adopt Ernest et al (1994) who classifies technological capabilities into six areas: production, investment, minor change, linkage and strategic marketing and major change capabilities. Since it is doubtful that many SMEs in Kenya do have all these technological capabilities, we only focused on the first three capabilities; namely, production, investment and minor change capabilities. In this study, small and medium enterprises are defined as those employing one to 50 workers and having a capital investment up to Kshs. 5 million.

Our intention was to investigate how development financial institutions (DFIs) in Kenya have helped or hindered the acquisition of these technological capabilities in SMEs. Since it was not possible to investigate every type of DFI, our study concentrated on three institutions in Kenya. The rationale for selecting these institutions was that the financial sector is dominated by commercial banks followed by DFIs. We, therefore, selected three development financial institutions for study. These institutions have many roles to play including providing credit and consultancy services for technological development. Yet, their technological roles seem to be underplayed by research and technology policy makers. The research aimed at evaluating the role of these financial institutions as technology institutions and come up with policy guidelines for effective use by SMEs in Kenya.

Table of Contents

Abstract	i
Chapter One	
1.0 Introduction	1
1.1 The Role of the Government in SME's Development	1
1.2 Statement of the Research Problem	3
1.3 Objectives of the Study	4
Chapter Two	
2.0 Conceptual Framework	5
2.1 Conceptual Framework	5
2.2 Empirical Evidence	8
Chapter Three	
3.0 Research	12
3.1 Training of Research Assitants	13
3.2 Data Analysis	13
3.3 Problems Encountered in Data Collection	14
3.4 Research Findings from Field Interviews	14
Chapter Four	
4.0 Research Findings	16
4.1 Industrial and Commercial Development Corporation (ICDC)	16
4.2 Kenya Industrial Estates Limited	21
4.3 Kenya Industrial Estates - Informal Sector Program	26
4.4 Industrial Development Bank	29
4.5 Product Cycle and Capabilities	34
4.6 Acquisition of Technological Capabilities	35
4.7 Case Study Method	36
4.8 Appropriate Approaches to Financing	48
4.9 Implication for Policy	51
4.10 Conclusion	51
References	55

Chapter One

1.0 Introduction

This study is concerned with technological capabilities in small and medium enterprises (SMEs). Promotion of technological capabilities is said to increase enterprise competitiveness globally. This section deals with the role of the government in SME development and financial institutions in Kenya.

1.1 THE ROLE OF THE GOVERNMENT IN SMES DEVELOPMENT

The Government of Kenya (GoK) has attempted to address the constraints of financing by developing policies and strategies. The policies are contained in the Sessional Paper no. 2 of 1992 on Small Enterprise and Jua Kali Development and the Development Plan of 1989-1993. In these policy documents the problems facing SMEs are stringent collateral, low volume of credit to the sector and negative attitude of the banking sector. In addition to trying to improve the regulatory environment, the GoK has incurred expenditure to help the sector to become technologically competitive.

According to Mwamadzingo and Ndungu (1995) the amount of expenditure to the private sector has been rising. The government spends 10% of it on private sector research and development (R&D) annually. As shown in Table 1, the expenditure was approximately Kshs. 4 million in 1988/89, Kshs. 5 million in 1989/90, Kshs. 7 million in 1990/91 and Kshs. 8 million 1991/92. However, these findings tend to differ with the report of the National Council for Science and Technology (NCST) (National Council for Science and Technology, 1990) suggesting that the government support R&D expenditure to approximately 0.5% of the Gross Domestic Product (GDP). Despite the contradiction in data, the figure of 0.5% of R&D expenditure is similar to that found in several industrializing countries and higher than the average level for countries in sub-Saharan Africa (Biggs et. al., 1996). Some of the developed countries are spending 2-3% of their Gross National Product (GNP) (Abraham, 1994).

According to Ikiara (1995) the role of government in creating competitive industry in Kenya is catalytic. He views the catalytic role as being critical in the industrial transformation. The role of the government involves creating an efficient infrastructure that has implications for competitiveness of manufactured exports (see Table 2). Other roles include creating a predictable and enabling environment and a level playing field to enhance investment climate and promoting quality control and standards. The government needs to promote export markets and reduce industrial imported technologies (see Table 3).

1.1.1 Financial Institutions in Kenya

There are about 105 institutions with support programmes and schemes for SMEs sector in Kenya. These include five commercial banks and 98 non-governmental organizations (NGOs). Approximately 46 of these institutions and organizations have various credits and finance projects and programmes for SMEs. Choro (1995) lists 27 institutions that provide loans to SMEs in Kenya. Financial institutions in Kenya constitute the following:

- commercial banks
- development finance institutions
- non-bank financial institutions (NBFIs)
- non-governmental organizations
- government programmes

1.1.2 Commercial Banks

Kenya has a relatively sophisticated banking sector with 37 commercial banks with more than 225 fully operating branch offices and over 70 sub-branches all over the country (Oketch et al 1995). Four main commercial banks dominate the sector. They are:

- Barclays Bank of Kenya
- Kenya Commercial Bank
- Standard Chartered Bank
- National Bank of Kenya

These four banks mobilize 60% of all deposits, account for 60% of the credit volumes and control over 75% of the branch network in Kenya. The banking sector has registered steady growth in total assets and liabilities over the years. The bank assets increased from Kenya pounds (K£) 3353 million in 1990 to 8005 million in 1994 and recorded a growth rate of 17% in 1991, 19% in 1992, 29% in 1993 and 33% in 1994. The commercial banking industry has attempted to meet the financial requirement of SMEs through special credit programmes. Despite this attempt, all commercial banks are conservative and have demonstrated bias towards minimizing risk by lending to prime borrowers who provide collateral (Government of Kenya, 1989 and Oketch et al 1995).

1.1.3 Development Finance Institutions (DFIs)

Second sets of financial institutions that have historically been the most active in financing SMEs in Kenya, are DFIs. By 1995, the total number of DFIs in the country was nine, all operating in the industrial and commercial sector. The GoK started DFIs to promote industrial development. Some key DFIs include the Industrial and Commercial Development Corporation (ICDC), the Development Financial Corporation of Kenya (DFCK), the Kenya Industrial Estates (KIE) and Industrial Development Bank (IDB). DFIs provide long-term finance of up to 10 years with grace period of up to two years. Unlike commercial banks and NBFIs that insist on 100% security, DFIs lending is based on the viability of projects being funded and security is based on the fixed asset being financed. They also provide non-financial services, such as appraisal, implementation, monitoring of projects and training of entrepreneurs.

1.1.4 Non-Bank Financial Institutions (NBFIs)

There are about 43 NBFIs in Kenya. The number has decreased from 51 to 43 since 1995 following a decision by the Central Bank to encourage NBFIs to convert to banks (GoK 1994). Lending by most of NBFIs is security based and their loan maturity is longer than that of commercial banks (about 5 years). Lending to SMEs is limited because most NBFIs are security based.

1.1.5 Non-Governmental Organizations (NGOs)

NGOs are the latecomers in SMEs lending in Kenya. There are 98 NGOs that are involved with different informal sector programmes. The number of NGOs providing credit to SMEs increased during the last decade largely due donor interest in the field. There are about 43 NGOs providing credit to SMEs in Kenya. Active NGOs in credit delivery are:

- Action Aid (Kenya)
- Kenya Rural Enterprise Program (KREP)
- National Christian Council of Kenya (NCCCK)
- Presbyterian Church of East Africa (PCEA)
- Promotion of Rural Initiatives and Development Enterprises (Pride)
- Tototo
- Kenya Women Finance Trust (KWFT)

These institutions also provide non-financial promotion services.

1.1.6 Government Programmes

The oldest actor in SMEs lending is the government. Lending is done through the Joint Loan Board Scheme (JLBS) launched in the 1950s and the Rural Enterprises Fund (REF) launched in 1991. They provide credit to SMEs and since independence, JLBS has provided SMEs with credit of Kshs. 170 million while REF has provided Kshs. 400 million (Government of Kenya, 1989). Most of these programmes have not been successful due to political and corrupt practices.

1.2 STATEMENT OF THE RESEARCH PROBLEM

This research focuses on the Role of Financial Institutions in the Acquisition of Technological Capabilities by SMEs in Kenya. Technological capabilities have been found from empirical evidence to hold the key to competitive advantage of enterprises globally. According to Ernst et al (1994) technological capabilities are classified as production, investment, minor change, linkage, strategic marketing and major change capabilities. An empirical study by Teitel et al (1993) found out that investment and production capabilities exist in SMEs in Kenya. Another study by Mwamadzingo (1996) revealed existence of minor change and production capabilities in all firms. It also revealed non-existence of investment capability. What is evident from these studies is that SMEs have acquired some technological capabilities. However, the role of financial institutions in acquisition of these technological capabilities was not part of the study. A study by Oketch on financial institutions reveals

that both the demand and supply of SME credit has been on the increase. However, this study is general and did not address the role of these institutions in acquiring technological capability.

The study, therefore, sought to assess existing major financial institutions to establish the extent to which they have promoted or hindered acquisition of technological capabilities in SMEs in Kenya. The major institutions included three DFIs, namely, IDB, ICDC and KIE. A national workshop held in 1995 on industrial transformation of Kenya to a newly industrialized country (NIC) by 2020 observed the disappointing performance of manufactured exports. It also observed that economic growth could only be achieved through increased competitiveness. Kenyan SMEs, therefore, have to develop the capacity to compete in the local, sub-regional and world markets. Failure of SMEs to compete is a problem because they need to survive or sustain themselves in the long run. To compete, SMEs need to acquire technological capabilities through the support of local technological institutions. SMEs, therefore, may not expand production without financial and technological assistance from these institutions. The role of these institutions as technology institutions cannot be ignored particularly if the country has to be transformed into a NIC by 2020. To generate the desired dynamism in SMEs, these financial institutions have to play a bigger role in acquiring technological capabilities, reducing their bias and taking on more risky projects initiated by SMEs.

1.3 OBJECTIVES OF THE STUDY

The overall objective of this study was to examine how financial institutions have been performing their role as technological institutions in acquiring technological capabilities (TCs) by SMEs in Kenya. The particular objectives were: -

- To review lending by three development financial institutions namely, Industrial and Commercial Development Co-operation (ICDC), Kenya Industrial Estates (KIE) and Industrial Development Bank (IDB) to manufacturing enterprises in Kenya
- To investigate considerations given to technological innovations at different stages of the project cycle with particular reference to small and medium manufacturing enterprises
- To undertake case studies involving SMEs in food processing, wood work and engineering sub-sector
- To explore, jointly with the DFIs and members of S&T/R&D community, alternative approaches to financing technological innovations in Kenya's manufacturing sector
- To evolve policy recommendations that will improve facilitating role of financial institutions towards SMEs in Kenya

Chapter Two

2.0 Conceptual Framework

This study has adopted a conceptual framework by Ernst et al (1994) that classifies technological capabilities into six main areas. These are production, investment, minor change, linkage and strategic marketing and major change capabilities. The first three capabilities are required for sustained existence within any sector of manufacturing. These capabilities have been found from empirical research to hold the key to competitive advantage of enterprise globally. Small and Medium Enterprises (SMEs) that lack these capabilities cannot sustain positions in the long run due to inability to compete at firm level. In a competitive environment, individual firms are responsible for their own fate.

2.1 THEORETICAL LITERATURE

The desire to promote rapid economic development and to be self-reliant in industrial output led to the establishment of financial institutions to finance industrial projects. Most African countries believe that industrialization and acquiring technological capabilities will enhance their political status in world affairs. International experiences since the 1960s firmly suggest that the degree of a nation's political and economic influence in the world affairs is directly proportional to its industrial and technological concentration. To narrow the industrial and technological gap between developing countries and less developed countries, industrialization has become a major priority for African countries (Onoh 1982).

It has been observed that countries that have broken out of vicious circles of poverty, ignorance and disease are those that have successfully combined socio-economic development and accelerated industrialization. Kenya has already set stage towards this process through the ongoing structural adjustment reforms - against the background of what is happening on international scene.

The promotion of technological development may be undertaken largely by three types of institutions. First are those institutions that promote technology development directly. Included in this category are universities, polytechnics, research and technical institutes, ministries of education, research and technology, the Ministry of Labour and Human Resource Development and private industrial enterprises. These are 'hard core' technological institutions. The second category of institutions that promote technological development are those that advance the process of industrial technology by producing goods and services. The third category are those that promote technological development indirectly, for example, financial institutions that provide complementary assets. Access to such complementary assets helps SMEs to create, mobilize and improve technological capabilities

(Ernst et al 1994). For the purpose of the study, we adopted SMEs as enterprises employing one to 50 workers and have capital investment up to Kshs. 5 million.

Our major concern was to explore the role of financial institutions to act as technological institutions. A technological institution is defined as any organization, public or private, national or international, small or large that plays a clearly identifiable part in technological innovation, promoting and financing research or developing a country's technological capabilities (Nicholas et al 1989). Technological capabilities are information and skills - technical, managerial and institutional that allow productive enterprise to use equipment and technology efficiently (Nelson and Winter 1982).

Once a SME has acquired a technology of any sort, it must have adequate production capabilities to remain in business. Production capabilities are the skills and knowledge needed for operating and improving a plant. These capabilities range from routine functions to intensive and innovative efforts to adopt and improve the technology.

Every application of technology begins with an investment. According to Ernst et al (1994), investment capabilities refers to the knowledge and skills used in identifying, preparing, designing, setting up and commissioning a new industrial projects or the expansion or modernization of existing ones.

Within this broad group are capabilities needed before investment is undertaken (the so-called pre-investment capabilities) and those needed for carrying out the investment itself (project execution). Re-investment capabilities cover a variety of activities ranging from pre-feasibility and feasibility studies, site selection and the scheduling of investment to the search for sources of technology, negotiation of contracts and the bargaining for suitable transfer conditions.

Minor change capability is probably one of the most important elements in successful technological catching up strategies (Bell and Pavitt 1993). Minor change capability is a firm's ability to improve and continuously adapt its products and processes. It refers to the vast area of adaptive engineering and organizational adjustments involved in the incremental upgrading of product design and performance features and of process technology.

Financial institutions should, therefore, promote industrial research and use local resources to encourage the acquisition of indigenous technological capability. Financial institutions can promote the acquisition of technological capability by providing risk capital and special credit lines for strengthening local consultancy services.

Financial institutions can also play a positive role in acquiring technological capabilities if there are policies towards this goal. For instance, they play a key role in sponsoring entrepreneurs who come up with high priority projects that can also conserve foreign exchange earnings if products are manufactured locally. Financial institutions can invest in risk projects based on new and unproved technologies that have high potential for success. South Korea is one of the countries where financial institutions have financed the acquisition of technological capability jointly with the government and industry. The financial institutions in Kenya, therefore, can also play a vital role in assisting firms to acquire production, investment and minor change capabilities to stay competitive.

Commercial banking and development finance plays several functions including providing long-term loans for acquiring productive industrial assets by mobilizing savings for investment and channelling savings to more productive activities. Another key function is devising different types of securities with different maturity period that are acceptable to the borrowers of loanable funds for

purchasing securities and secondly, to the lenders of such funds. Commercial banking and development finance institutions are an indispensable institution for a country whose government is bent on indigenizing its economic base.

2.1.1 Financing of Technological Projects

Technological role of commercial banks and development finance institutions (DFIs) in financing investment project in SMEs takes some form of cycle. It starts with the identification of the project and ends with technical and economic evaluation that is conducted once the project has been completed.

2.1.2 Project Identification

This is the first stage in the project lifecycle and may involve an enterprise approaching the DFI for financial assistance. This stage ensures that a feasibility study has already been done either by the enterprise or with assistance from the DFI. In most cases, a DFI has guidelines that need to be operationalized and sectors requiring support are usually targeted. It is, therefore, not unusual to find that some enterprises may fail at this stage. Four out of every five started enterprises fail. Every project comprises an embodied technology that is the hardware and software. Hardware includes machinery, equipment and spare parts while software includes organization's skills and managerial experience. Later stages seek to modify the technology involved in a project while the general nature of the technology remains unchanged.

2.1.3 Preparation Stage

Preparation stage involves detailed calculations and fundamental architectural drawings. This stage usually involves not only the bank and the consulting firm working on technical aspects of the project, but also the agencies that will be executing the project. This particular stage of the project lifecycle involves all technical and non-technical information relevant to the project is taken into account. Any serious oversight carried over from the identification is taken care of.

2.1.4 Appraisal Stage

This stage is the exclusive responsibility of the DFI and it is expected to work on its own, even though it may contract the services of external consultants and also make use of information gathered during identification and preparation stages. The DFI tends to devote the greatest amount of time and effort in appraising projects as they generate detailed and formal documents to be produced in the course of the project lifecycle. At this stage, a DFI brings in its most sophisticated tools for appraising the project aimed at evaluating its economic and financial viability and its social and development benefits. A report prepared at this stage helps management or the board in approving the project. Nicholas and Yao-Su Hu (1989) observed that, investment in time and effort means that by the time a project reaches the stage of presentation to the board, chances of rejection is minimal. Any rejection at this stage implies that there must have been an anomaly in the process until then, for instance, the laid down procedures were not taken into account.

2.1.5 Negotiation and Decision-making

The stage of negotiation and decision-making is a bilateral or multilateral affair involving the DFI and the local stakeholders in the project. The DFIs board of directors makes the final decision. The DFIs grasp of the technology markets, local and foreign, comes into play at the negotiation and decision-making stage. The decision to invest in the project is accompanied by the declaration of the level and nature of financial commitment of the bank. The bank may decide on either equity financing or debt capital.

2.1.6 Project Execution

This is the sole responsibility of the borrower and not the bank although the bank may from time to time visit the borrower to supervise the project if necessary. If the client is a firm, then this is where its technological capability comes into play. The technology role of the DFI is dictated largely by the nature of the project. A DFI may be involved in the whole process of acquiring the equipment or machinery and services required by the project. It can, for instance, assist in structuring the tendering documents to allow small local firms to make bids for some project components.

Success in sustaining the project will depend on the firm's ability to sustain itself. This requires frequent monitoring of industry trend or upgrading of the technology to remain competitive in the market.

2.2 EMPIRICAL EVIDENCE

2.2.1 Technological Capabilities and Learning Mechanisms in Nigeria

The study by Banji et al (1994) was concerned with establishing whether economic reforms helped or hindered technology imports and accumulation of endogenous technological capability in Nigeria. Based on the results of a survey of 82 enterprises that responded to their questionnaire, the study showed that 56% of the firms made new investment in production and process technologies in the six years under review. The investment was mostly for refurbishing existing plant and machinery. Linkage with sub-contractors, equipment suppliers and product users were very weak, research and development (R&D) expenditures were also small, while contract R&D was almost non-existent.

The study also indicated that pre-investment and investment capabilities were weak, with production and maintenance capabilities being more prevalent. The survey concludes that technology development objective and by implication, the objectives of generating long-term structural growth have not been served by the macroeconomic instruments of economic reforms. It also concludes that pre-occupation with short-term economic objectives, the central focus of the reforms in Nigeria, has led to little accumulation of industry-level and firm-level technological capabilities

A report by Bamiro (1996) on DFIs and technological development in Nigeria reveal that DFIs are willing to take on the technological role. The study revealed that for DFIs to perform credibly as agents of development, they need to act as technological institutions by forming strong linkages to the R&D system and other government agencies involved in the development of local technological capabilities for the productive sector in the country, while also sourcing for funds locally.

2.2.2 Technological Capabilities and Learning Mechanisms in Ghana

The first detailed study to assess technological capabilities in an African country is by Lall et al in 1994. This study examined a sample of manufacturing enterprise in Ghana when the country was going through structural adjustment since the mid-1980s. The study was part of the Regional Programme for Enterprise Development (RPED) funded by the World Bank. The study was aimed at analyzing the dynamics of enterprise growth in several countries in sub-Saharan Africa. It covered four industries, namely, food processing, woodwork, metalwork and textiles and garments. The importance of case studies and panel data surveys were threefold. First was acquiring technological capabilities in firms. The second purpose was to identify technological strengths and weakness of different types of enterprises. The third purpose was to find out the influences on acquiring technological capability in enterprises.

The major conclusion of the analysis of technological capabilities of the sample enterprises was that the general level of technological capabilities in the sample was very weak, by standards of developed and industrializing countries of Asia and Latin America.

2.2.3 Technological Capabilities and Learning Mechanisms in Kenya

An attempt to study technological capabilities and learning mechanisms was made by Teitel et al in 1993 and was part of the RPED. The data for the survey were obtained from two primary surveys conducted in each of the three sub-Saharan African countries: Ghana, Kenya and Zimbabwe. The first survey used a large-scale questionnaire covering comprehensive set of issues related to the firms activities in product markets labour markets and financial markets as well as aspects related to general firm characteristics, entrepreneurial attributes, infrastructure, regulation and technological capabilities. In Kenya the survey instrument was applied to 224 randomly selected samples while a case study covered 35 firms drawn from food processing, metal work, textile and wood work. The case study yielded the following findings:

2.2.3.1 Investment Capabilities

Firms in the RPED survey showed that a significant amount of investment activity with two-thirds of micro-enterprises, over 80% of small firms and all the larger firms reporting a major addition to or change in plant and equipment since 1990. Almost 90% of the firms have undertaken such an investment within the last 10 years. The mean value of investments undertaken by firms during 1990-92 ranges from 9% to 18% of the replacement value of their capital stock. The objective of the investment was to add to capacity, improve production or introduce new products. The outcome of the investment reported by the firms was a reduction in their cost of production per unit of output in at least 40% of the cases (except for micro-enterprises).

On initial acquisition, 13 of 35 firms in the case study surveyed started as small operations without feasibility study being carried out. Eight firms did not undertake feasibility study but started as large-scale operations with a full production line, seven firms were acquired as going concerns while eight were cases where firm inception was preceded by formal feasibility studies. On installation, most firms reported some technical problems, such as equipment breakdown affecting one-third of the total number. Fourteen of the case study (45%) firms started with commissioning the physical capital. Primarily, the supplier of the equipment or the foreign partner or parent firm provided external help.

2.2.3.2 Production Capabilities

Concerning production technologies, most of the firms surveyed indicated that the design of the products were of local origin. In more than half the cases, the product was copied from a similar locally produced product indicating a great deal of emulation among manufacturers. There were cases also where the product came from foreign specifications but modified to suit local conditions. The firms in the case studies showed that plant facilities were poorly maintained except for the food processing industries. Most firms operated on shifts and capacity fell below 75% for 80% of the firms, with a third reporting capacity usage rates below 50%. There was also evidence of technical adaptation, quality control and industrial engineering taking place in firms. Finally the survey showed that there were three learning mechanisms taking place in firms, namely, on the job training (OJT), research and development efforts and organization of technical knowledge.

Mwamadzingo (1996) undertook the most recent study on technological capabilities (TCs) in Kenya. In the study, 18 operating firms were covered in four major towns: Nairobi, Nakuru, Nyeri and Thika. A total of 28 firms were approached for inclusion in the study but 10 firms declined. According to the study of textile and garment manufacturers, the main findings revealed that the existence of the various TCs at the SMEs is very different depending on the concrete situation of each firm. The survey of case studies revealed the existence of production capabilities. The conceptual framework identified three factors to be influencing production capabilities. These are production management, production engineering, repair and maintenance of physical capital.

According to the survey, all the companies could run their production facilities independently and had capable staff who could deal with production activities, such as operating machines, adjusting technological lines, quality control, maintenance and preparation of equipment, production planning and implementation. However, few companies still hire expatriate staff at certain levels, especially in quality control.

Most of the firms surveyed did not have investment capability at all. About 89% of the firms imported 80% of the machinery and equipment from Europe, especially Germany, Netherlands and the United Kingdom. Most of the machinery was nearly 20 years old.

2.2.3.3 Minor Change Capabilities

According to the survey by Mwamadzingo (1996) minor change existed in all the firms. Staff members from these firms were involved in such kinds of technological minor changes including improving product specifications, change or modifying models or designs.

The survey observed that only two capabilities, namely, production and minor change are most available. Investment capabilities were not so developed.

2.2.4 SME Financial Institutions and Development in Kenya

Oketch et al (1995) conducted a study on 16 financial institutions to determine the demand and supply of credit to the SME sector. The study revealed that the demand and supply for credit have been on the increase since 1991. It also revealed that the demand has only been met by 16% of what is required. The study also revealed that although financial institutions lend to prime borrowers with collateral security, there is need for these institutions to increase their lending to SMEs.

2.2.5 Factors Influencing Firm's Technological Capabilities

The development of TCs requires conscious and sustained efforts of both the governments and enterprises. At the firm level, technological capabilities need the management to be aware that it requires to develop such capabilities and is willing to do so. The enterprise should have access to financial resources and be willing and capable of investing in productivity enhancing efforts.

Ernst et al 1994 defined policy dynamics, markets forces and the historical practices of enterprises as three categories of factors affecting enterprise ability to build TCs.

Policy dynamics incorporates the array of policy instruments instituted by governments to influence enterprise level innovation strategies. This could be directly through tax credits, subsidies for the purchase of equipment or research and development or indirectly through their impact on macroeconomic environment, on factor markets, demand-structure, pattern of competition, labour and other practices.

Historical practices become fundamental elements in the incentive system because over time, firms develop ways of thinking about and dealing with the challenges of change and competition. When such practices are generalized across many enterprises and when they achieve some measure of longevity, they shape subsequent decisions on TC formation of an enterprise.

Market forces that affect the behaviour of enterprises originate from various sources including actor markets, the size and structure of demand and the structure of the industry. The operation of factor markets, particularly labour and capital can play a key role in determining the extent of an enterprise's inevitable resources and in shaping its decision whether to invest in the development of TCs. Studies have also shown that the volume and structure of demand have played a key role in explaining the growth in a country's industrial output (Chenery and Syrquin, 1975). Demand can arise from domestic or export markets or both, since many industrial technologies are characterized by increasing returns to scale.

Most underdeveloped countries have different industrial structures, average enterprise size and distributions by size of enterprises. These differences adversely affect internal financial resources for investment hence inadequate investment in acquisition of technological capabilities.

2.2.6 Constraints to Technology Growth in Kenya

Aduda and Kaane (1999) identified two categories of constraints to technological growth that must precede industrial growth. These are lack of capability among SMEs to identify, seek and use appropriate technologies in their production and a non-enabling environment that impedes access to technology. These factors limited access to technology information, technology services and non-functional innovation system weak linkages between medium size enterprises (MSEs) and medium and large enterprises. Other factors include underdeveloped entrepreneurial skills, limited access to appropriate technology and lack of skills in technology management (Aduda and Kaane 1999 and Namusonge 1999). To minimize these constraints, SME require on the one hand, support services provided by non-governmental organizations (NGOs) and public institutions and on the other hand, the need for the government to provide the necessary enabling environment.

Chapter Three

3.0 Research

This research was concerned with the study of lending operations by three development financial institutions (DFIs), namely, Industrial and Commercial Development Corporation (ICDC), Kenya Industrial Estate (KIE) and Industrial Development Bank (IDB) selected from nine DFIs in the country. The DFIs have a long history in promoting small and medium enterprises (SMEs). In addition, their lending limits are in line with the capital investment for SMEs as defined in this study.

The study, involving case studies of DFIs, was carried out in Nairobi, the head office and the administrative hub of the DFIs. Since it is not possible to undertake a survey of all the target beneficiaries, western Kenyan towns of Bungoma, Busia, Eldoret, Kakamega, Kisumu and Kitale were selected. First, three DFIs were studied, followed by target beneficiaries of these DFIs. The final phase involved target beneficiaries in Busia and Kisumu, and discussions with policy makers that addressed seeking a consensus on alternative financing for technological projects.

Before beginning the study, DFIs required that a survey instrument and letter of introduction were forwarded to them in advance for consideration. ICDC, IDB and KIE agreed to participate in this study. During the study, it the Small Enterprises Finance Company (SEFCO) was winding up its activities but the researchers were able to interview the project officers and also include decided to include IDB in the study. The next stage was to interview target beneficiaries that are by the three DFIs: ICDC, IDB and SEFCO. However, they declined to provide names of their clients on the grounds of confidentiality but KIE was willing to assist the researchers to meet staff in their branch offices. The target beneficiaries were interviewed to determine the impact of DFIs support in facilitating the acquisition of technical capabilities (TCs) by small SMEs.

The data collection methods employed in this study involve reviewing reports and interviewing project officers as well as top management officials of three DFIs, Central Bank of Kenya (CBK), Ministry of Research and Technology (MR&T) and the Ministry of Finance and Planning (MoF&P). The other three organizations: CBK, MR&T and MoF&P were included in the data collection exercise due to their supervisory or ancillary roles as far as the lending operations of the DFIs are concerned. The specific information being collected include:

- type of firm, manufacturing sub-sectors and level of financing
- project financing for training and other forms of technological learning
- sources of equipment and materials

Other information include:

- sources of technical expertise
- types of technological capabilities and learning promoted explicitly or implicitly in firms undertaking projects and continuous improvement
- science and technology (S&T) and research and development (R&D) linkage considerations in project appraisal

The information collected from reports and interviews with DFIs as well as client enterprises was analyzed qualitatively and quantitatively to determine the success rates of different categories of project finance from DFIs. Of particular interest were those projects that attach a high priority to developing TCs in the enterprises and sourcing of local technological resources. Projects selected for detailed analyses in the case studies were those involving lending to small and medium manufacturing enterprises in the woodwork and engineering sub-sectors.

Whereas the primary users of these research findings are DFIs and manufacturing enterprises, S&T policy makers and researchers should also be able to put the results in good use. The research, therefore, employs a structured case study approach with critical elements in the methodology being the participation of the DFIs and manufacturing enterprises and other key actors in the technological innovation process, especially industrial associations, S&T or R&D personnel and policy makers.

3.1 TRAINING OF RESEARCH ASSISTANTS

The training of research assistants took place from mid to end of June 2000. It involved classroom type of teaching and, to a limited extent, role-playing. The purpose of training research assistants was to ensure that they are conversant with techniques of data collection. To eliminate bias or ambiguous questions, pre-testing of DFIs and target beneficiaries was done during the first week of July.

Fieldwork started in July. The research assistants were well supervised. Because of the nature of work, it became necessary to hire research assistants, preferably university staff of the rank of tutorial fellows/assistant lecturers, who are conversant with the field study and could be trusted by project managers.

Each DFI provided the names of project officers to be interviewed. Some managers from such institutions as IDB, SEFCO and ICDC were unwilling to divulge information about the client firms but KIE gave names of client firms to be interviewed. Thirty firms of target beneficiaries were interviewed in Bungoma Busia Eldoret Kitale, Kakamega and Kisumu.

3.2 DATA ANALYSIS

Qualitative and quantitative data were collected. The type of data determined the method of analysis employed handling the research objectives or research questions raised in this study. The data was analysed two fold. One general approach has been applying descriptive statistics including measures of central tendency, such as arithmetic mean, medium and mode. Measures of dispersion include

standard deviation and variance. Percentages and bar graphs were also used. The second approach was through detailed case studies where financial institutions were selected for detailed study.

3.3 PROBLEMS ENCOUNTERED IN DATA COLLECTION

As aforementioned, the study involved a visit to interview some DFIs including ICDC, IDB and KIE. The study team also visited some of their clients in western Kenya and they encountered the following problems:

Whereas all the above institutions were easily accessible, it was not easy to interview the managers. In some cases, it took almost a whole day or a week to find audience with them after seeking clearance with the top management and a month to meet a senior manager. At IDB, the team waited for almost three months before getting clearance from the Projects Manager to interview one of his officers. During this research, SEFCO had already wound up its activities and efforts to get information from the Development Bank of Kenya (DBK) that had taken over the company's operations were not fruitful on the excuse that the bank was no longer a DFI. All these procedures took much of the research assistants' time and affected the initial research schedule.

Apart from holding interviews with top managers of these institutions, the exercise was also planned to extract useful information from their records. This was, however, not possible because the respective officers said that their transactions are classified. Brochures, the only source of information, were inadequate.

In many instances, the brochures from these institutions contained outdated information that did not match what was elicited from the interview sessions. Where this was detected, the interviews were the preferred sources of information about these DFIs.

Apart from KIE, the other two institutions - ICDC and IDB were reluctant to permit the interviewing of their clients. In some cases, permission was sought from the Chief Executive at IDB while ICDC categorically refused to allow research assistants to talk to their clients.

3.4 RESEARCH FINDINGS FROM FIELD INTERVIEWS

The field interviews were, therefore, only held with KIE as a case study of the DFIs clients. The team visited the KIE Branch offices in Bungoma, Eldoret, Kakamega and Kitale and since the focus was on western Kenya. Apart from delays experienced at the Bungoma, the branches in Kakamega and Eldoret co-operated. The Branch Manager in Bungoma was not in the station and the team could not be cleared to visit their clients. After a week, interviews were postponed for two weeks when the manager would report back to the station. The research assistants, however, interviewed some of their clients.

All the KIE clients that were visited are in the informal sector, therefore, no information was collected from the formal sector programmes of the institution from the field. Tracing these clients in the field was also not easy since some are not well-established entrepreneurs. Some premises did not have signposts to given direction while others operated in makeshift structures, an aspect that took much of the researcher's time in locating them.

Most of the clients initially were suspicious and reluctant to talk to field staff calling for a lot of persuasion to win their confidence. Most of them could not tell the difference between the role of field staff and that of KIE staff.

The interview sessions with the senior managers of the DFIs show that these institutions are currently focusing on promoting technological capabilities (TCs) in the country. IDB and KIE, for instance, are currently funding the acquisition of all TCs in the area of major change. Although this is not being done separately from other aspects of project financing, it is expected that these funds be utilised properly for intended purposes. Apart from this, these two institutions unlike ICDC are even keen in assessing the kind of technologies which their clients would like to apply in their projects so that they can advise them accordingly. Furthermore, the institution staff also make follow-ups to their clients with a purpose of offering both the professional and technical advice as well as verifying the goods and services that they have helped purchase to ensure that they are of good quality and appropriate technology.

It was also clear that the willingness by these DFIs to support the acquisition of technological capabilities in the country being impacted on negatively due to lack of well formulated policies by these institutions that can assist in guiding and co-ordinating their activities with the other research institutions in the country with regard to training and product development. It is hoped that if well nurtured, such a relationship will enable the DFIs to participate actively in the promotion of S&T and R&D. But as things stand now, DFIs seem to be responding reluctantly to client initiatives instead of being on the forefront in technological developments and their promotion.

Interviews with KIE clients show that this institution is supporting them technologically especially in the acquisition of production, minor change, investment and marketing capabilities. The institution is even more involved directly in the acquisition of the last two capabilities by maintaining training sessions for its clients. Most entrepreneurs however prefer that KIE emphasises more on technical training which is more likely to increase their efficiency in production and the making of minor modifications (changes) to their products.

All the KIE clients on the whole do appreciate the kind of services that have been provided to them especially the credit facilities. These have enabled a number of them to diversify their operations and also acquire technological capabilities. They however strongly feel that more ought to be done to satisfy their needs. For instance, the institution should increase its funding levels. KIE should also improve their evaluation/follow-up services, which at the moment focus more on loan repayment than offering of business advice to the clients.

Chapter Four

Research Findings

The research findings have been classified according to the objectives stated in 1.3 of the introduction. The purpose of this section is to review lending by three DFIs: ICDC, IDB and KIE to the manufacturing enterprises in Kenya.

4.1 INDUSTRIAL AND COMMERCIAL DEVELOPMENT CORPORATION (ICDC)

4.1.1 Background Information

Industrial and Commercial Development Corporation (ICDC) was established in 1954 as a development finance institution (DFI) under the name, Industrial Development Corporation (IDB). Its main objective was to encourage local and foreign entrepreneurs to work together in promoting industrial development in the country.

After Kenya's independence in 1963, the introduction of commercial activities under its purview expanded the Corporation's scope, necessitating the change of name to ICDC. Its objective at the time was to accelerate industrial and commercial development in the country by assisting indigenous African entrepreneurs by providing credit facilities to purchase business premises and establish enterprises. This was in response to the Corporation's new task of assisting the people to participate actively in the economic development of their nation.

In line with this objective, ICDC has initiated several small-scale programmes that have enabled thousands of Kenyans to set up commercial and industrial enterprises across the country. ICDC has promoted over 60 medium and large-scale projects in all sectors of the economy in partnership with other investors or solely. This has formed a base upon which future development can be built.

As a development finance institution, ICDC has remained effective over the years because of its ability to change and adapt to new economic conditions in the country. The need to operate on a more commercial footing, for instance, led to a major restructuring process from 1992 to 1994 aimed at enhancing its effectiveness and profitability in a liberalized economy.

4.1.2 Mandate

Following the above-mentioned restructuring process, the Corporation's mission was given a new focus. Today, ICDC is charged with the responsibility of facilitating the industrial and economic development of the country by providing: - venture capital finances in a minority capacity; secured long-term loan finance and expert financing and management advisory (consultancy) services.

4.1.3 Services Offered by ICDC

To realize its mandate, ICDC offers industrial and commercial loans, management support and consultancy services to the public.

Industrial and Commercial Loans

ICDC has two types of financing for the industrial and commercial business ventures:

(a) Long term loan finance

- To qualify for this type of financing, the following conditions have to be met:
 - i) All lending must be fully secured up to two-thirds ($\frac{2}{3}$) of the security value.
 - ii) Minimum and maximum loan amounts are: -

◆ Industrial loans	min. Kshs. 0.2 million
	max. Kshs. 10 million
◆ Commercial loans	min. Kshs. 0.2 million
	max. Kshs. 10 million
 - iii) Loan repayment period is between 5 and 10 years.
- All loan accounts must be repaid each month through a standing order. Accordingly, the loanee must be operating a current account or savings account in a bank.
- Lending rates will be pegged to the ruling market interest rates.
- In the case of start-up ventures, the applicant must put a minimum of 25% of the project cost up-front and in cash or the equivalent in relevant assets recently acquired for the project.
- An appraisal fee of 2% of the loan will be charged on approval. Charges for valuation of the security and other fees will be borne by the applicant (loanee).

(b) Management support and consultancy services

ICDC and/or the subsidiary company also offer general management support and consultancy services on various disciplines. These services include accountancy systems, advise on mergers, acquisitions and disposals, computer service, directors, equity valuations of companies, internal audit and management.

4.1.4 Financial Procedure

To qualify for financial assistance from ICDC, prospective clients ought to be involved in commercial or industrial business ventures. Security also has to be provided against the loan applied for since the Corporation does not enter into unsecured loan arrangements. Applicants also ought to be operating bank accounts at the time of making the application.

In determining the amount of money that can be disbursed to small and medium enterprises (SMEs), prospective clients have to prepare business plans that have to be submitted to provincial or extension officers for appraisal. This process is meant to determine the viability of the project and assess whether it can repay the loan and still remain profitable to the entrepreneur. The applicant must demonstrate ability to repay the loan as evidenced by secured assets and operation of a bank account or cash flow. The applicant is also required to answer some questions to verify the application.

Project appraisals that are normally conducted by ICDC are based on the character of the entrepreneur, industry risk and the ability to sell the product or the level of cash flow.

4.1.5 How to Apply for Loans

The prospective client can apply for a loan from any of the ICDC offices countrywide. The loan application form is filled by the applicant with the assistance of the ICDC Provincial Officer or any other authorized officer and returned to the respective provincial office. These forms are used to assess the client. If the project is deemed viable, the entrepreneur is then required to provide an identity card to prove nationality, a business registration license, business accounts or statistics for the last one year and land title deed as collateral.

Once the above requirements are fulfilled, the loan is then advanced to the applicant.

4.1.6 Financing Preference

When financing business, ICDC does not give loans based on location. It is the initiative of the people that determine which projects to fund whether they are located in rural or urban areas as long as the client meets the basic conditionalities.

4.1.7 Implementation

ICDC neither implements projects nor acquires machines or any other facilities for their clients unless this aspect happens to be part of the loan package. The Corporation does not dictate to its clients how to use the loan. ICDC, however, can monitor and evaluate projects if the client requests and meets the cost of services rendered. The same policy also applies to managerial assistance that is also available to people who are not necessarily funded by ICDC. General assistance and advice is available through the Corporation's field officers who normally visit project managers. Constant communication between ICDC staff and their clients can also be maintained through mail.

4.1.8 Loan Repayments

ICDC in most cases gives its clients a one-month grace period before they start the deductions. In case of industrial projects, the grace period varies depending on the nature of the funded project. When repaying the loan, the loanees are expected to instruct their respective banks to remit the money on a monthly basis by standing orders. The clients can also pay the monthly amounts to the provincial or extension offices in person.

4.1.9 Training and Technical Learning

ICDC does not finance or conduct training; neither does it engage in any other forms of technical learning. The Corporation only offers management and consultancy services to the public, including non-loanees, at a fee.

ICDC does not also engage in linkages for materials, products and quality for their customers because of the large number of customers that they have to serve. It is only during exhibitions, such as agricultural shows where different manufacturers come together that exchange of ideas is possible. There may also be a few clients who engage in cross-referencing on their own.

4.1.10 Promotion of Technology

In financing businesses, ICDC does not give preference to projects that promote the use of technology. The primary objective of the Corporation is to advance credit facilities to entrepreneurs and not the development of technology. Loans are, therefore, disbursed to those who need them as long as they meet the Corporation's conditionalities. But since most businesses use technology of some kind, by assisting them, ICDC also promotes their technology in some way.

4.1.11 Financing of Technological Capabilities (TCs)

ICDC does not finance TCs separately from the main project although such financing is possible if the acquisition of that kind of capabilities form part of the loan package. Since most entrepreneurs approach ICDC for funding when they are already in business, they receive support for production capability because such funding provides working capital. The same applies to investment capability because most clients get loans for this purpose. Such loans are normally spent on purchasing machinery and other items that need to be acquired before the projects begin. ICDC also funds minor change capability especially where the funding is for purchasing new machines capable of making modifications to products.

4.1.12 Project Funding

a) Idea Generation

This is not funded separately by ICDC but when appraising projects, ICDC staff assist clients in refining it.

b) Feasibility Study

ICDC does not finance this aspect of the project unless it is a shareholder. The Corporation can, however, carry out the study for a client at a fee.

c) Project Design

This is also not funded by ICDC unless it forms part of the loan package.

d) Project Appraisal

The Corporation ensures that all projects are appraised before the funds are disbursed. These appraisals do not, however, aim at the improvement of science and technology (S&T), research and development (R&D) and creating linkages. The process is only meant to determine the viability of the project in question.

e) Implementation Supervision

The Corporation does not fund the implementation of projects. On receiving the loan, it is up to the clients to decide how to use it.

f) Evaluation/Follow Up

ICDC does not evaluate the projects because of the many customers that it has to attend to. The Corporation thus saves on personnel and transport and site facility expenses that would have been incurred through the exercise.

4.1.13 Future Plans

a) Increased Funding

It is hoped that the high default rates will be curbed to enable the Corporation improve its cash flow and use the money for loans. As a financing institution, ICDC should also brace itself for the negative effects of a liberalized market that has introduced stiff competition among the players. These players include development finance institutions, such as IDB, KIE, the Development Bank of Kenya (DBK) and the National Bank of Kenya (NBK).

b) Supporting Application of Technology to SMEs

ICDC does not want to be on the forefront of advancing technology in the country. However, the Corporation is ready to respond to new challenges and it hopes to adjust accordingly. Presently, the Corporation's efforts are only geared towards providing financial support to interested entrepreneurs whether or not they are involved in technologically oriented ventures.

c) Relaxing the Lending Conditionalities

Relaxing lending conditionalities may not be possible in the near future because ICDC is doing what is needed. The Corporation may be experiencing high default rates but it shows that these conditionalities are not meeting their intended objectives fully. Since all business investments are risky, the kind of appraisals that the Corporation carries out are meant to minimize such risks. Presently, ICDC stand is that these conditionalities are adequate in guarding against possible defaults but new policies will still be sought to address future challenges as they occur.

d) Continuous Improvement in Technology Learning

This will be addressed if it becomes necessary. Otherwise, ICDC's focus at the moment is more on providing finances to business projects.

4.1.14 Alternative Approaches to Financing of SMEs

It is the feeling of ICDC that although the approaches that are being taken by development financial institutions in providing finance to this sector cannot be the best, they are nevertheless the most practicable at the time. There is need, however, to review them continuously to bring them in line with the changing business environment to respond to the needs of the market.

4.2 KENYA INDUSTRIAL ESTATES LIMITED

4.2.1 Background Information

Kenya Industrial Estates (KIE) is a wholly government owned financial institution that finances small-scale industries in Kenya. As a financing institution, KIE was carved out of the Industrial and Commercial Development Corporation (ICDC) by an Act of Parliament in 1967 to promote small indigenous enterprises in Kenya.

To date, KIE has given financial and technical assistance to over 6000 enterprises in the country. Out of these, about 4000 are in the informal sector programme (ISP). ISP was established in 1988 to address the needs of small traders after it was realized that these traders were among some of the very needy people that were not being adequately catered for in terms of financial support. This programme continued to operate as a separate entity up to 1997 when it was again incorporated into the mainstream KIE.

On average, KIE disburses over Kshs. 100 million as loans in a year with the informal sector accounting for approximately Ksh. 58 million. This has made KIE one of the most important and strategic funding institutions for the small and medium enterprises (SMEs) in Kenya.

4.2.2 Mission

From its inception in 1967, the mission of KIE has been to promote entrepreneurship in the country by financing and developing small and *Jua Kali* enterprises that are owned and managed by indigenous Kenyans.

To achieve this mission, KIE engages in the following activities:

- providing credit
- providing consultancy services
- developing industrial sheds for sale or letting

The target group for KIE funding ranges from *Jua Kali* artisans to modern small-scale industries. For businesses in the two sectors to be financed, they should meet the following requirements:

- owned and managed by indigenous Kenyan
- located within the Republic of Kenya
- total investment not exceed Ksh. 5,000,000/
- be economically viable and technically feasible
- be a start-up or expansion

About joint ventures, it is required that indigenous Kenyans should own at least 51% of the shares as an indication of the applicant's ability for commitment to the venture over time.

4.2.3 Types of Loans and Projects Financed

- (a) Start-up capital
- (b) Expansion/modernization capital for existing businesses.

- i) Short-term working capital - These types of loans are advanced to people who are already in business and have been running them for more than 12 months. The maximum amount should not exceed Ksh. 300,000/-.
- ii) Long-term working capital is only advanced to projects that had been assisted earlier on.
- iii) Rehabilitation loans to projects initially assisted by KIE and have experienced problems.

KIE's funding level varies depending on the projects to be financed. Loans are given out from as little as Ksh. 10,000/- to Ksh. 250,000/- in the informal sector, and up to Ksh. 4,000,000/- for the formal sector projects.

4.2.4 Aspects of Financing

Machinery and equipment up to 100% of the cost. These are then mortgaged by KIE; vehicles required for projects up to 60%; land and buildings on special cases; working capital up to 80%; pre-operational interest.

4.2.5 Terms and Conditions of Lending

KIE provides funds for business development subject to the following conditions:

- a) Loans to individual projects are advanced up to a maximum of 85% of the total cost of projects below one million shillings up to 80% for investment exceeding one million shillings.
- b) Loans are given out to projects that are legal activities, i.e., registered either as sole proprietorships, partnerships or limited liabilities companies.
- c) KIE gives preference to the following projects: -
 - generate or conserve foreign exchange
 - use local raw materials
 - are rural based
 - aim at job creation

All KIE loans also require collateral security in terms of title deeds, guarantors, life policies, share certificates and existing assets.

4.2.6 Interest Rates

The interest rates levied on the KIE loans since 1995 have been 24.5% p.a. for the formal sector projects while 2.7% per month for the informal sector loans and short term working capital respectively. Interest starts accruing immediately after the disbursement of the loan.

4.2.7 How to Apply for Loans

A prospective client makes an application, which in most cases is done through the submission of a project proposal. The proposal is then appraised and a paper prepared on it for presentation before a vetting committee. Once the committee approves the paper, the implementation stage follows

where the loan will be disbursed to the applicant. This is then followed by hands-on supervision and monitoring of the project by the KIE staff.

4.2.8 Managerial Assistance

KIE in most cases manage projects that happen to go under receivership. They, however, do not have to wait until such critical moments to make last minute attempts to rescue projects that they have already assisted through financing. Accordingly, interventions into the running of projects can come at anytime so that the client and KIE can stand to benefit. Although this is highly detested by its clients, the organization cannot afford to keep aloof especially when it has a pool of highly qualified professionals who can assist its clients. Apart from this, it is also necessary for KIE to make such interventions as a means of safeguarding its interests.

4.2.9 Training and Technical Learning

KIE funds technical training and learning for its clients to enable them become more competent in their business activities. This is also being done as a response to the government policy, which would like to see small businesses grow to medium scale. Since the training aims at building the capacity of the clients, it focuses on aspects such as the expansion of production, modernisation of technology and efficiency. Apart from this, management training is also carried out and touches on basic and medium level financing, production and resource management. Before mounting such training, KIE carries out a needs assessment that not only gives it a focus, but also makes it client-driven as much as possible.

The training expenses are always met through cost sharing between KIE and its clients as well as donor funds. Most of the equipment and the technical expertise used in facilitating such training are normally provided by KIE in collaboration with other institutions such as the Kenya Industrial Training Institute (KITI), KIRDI, polytechnics and universities. The selection of the said experts depends on particular needs that have to be addressed in the training.

4.2.10 Promotion of Technology

KIE prefers funding projects, which promote the use of technology. This is done as a response to the government policy, which calls for the promotion of labour intensive technology and the exploitation of the local raw materials. In line with these aspirations, KIE desists from giving support to very modern and complex technologies such as computers, which hinder job creation. Instead, a lot of emphasis is directed towards the application of appropriate technology suitable to the Kenyan situation. KIE therefore tries as much as possible to impress on its clients on the need to collaborate with developing countries e.g. India, China and South Africa among others because their technological development can be adapted easily to our local situations.

4.2.11 Supporting Technological Capabilities

a) Production

- This support is given by KIE through regular seminars that are normally meant to enhance production and managerial capabilities. KIE also offers training on the expansion of production through the acquisition of necessary skills and knowledge.

- KIE has constructed workshops and industrial sheds for its clients. The organisation has also employed engineers to undertake repairs and the maintenance of machinery used by its clients within the sheds as well as those clients who operate from their own premises.
- In cases where a client fails to service a loan, KIE conducts an assessment to determine the cause of default and advises accordingly.

b) Investment

- KIE normally provides both the initial and working capital since these pose a lot of problems to most of the indigenous entrepreneurs.
- KIE undertakes feasibility studies for people that have generated ideas but are unable to carry out the said studies. Where this is done, a fee of 3% of the value of the project is charged.
- KIE can also write business plans for the clients.
- Generate business ideas, conduct feasibility studies and sell the idea to interested entrepreneurs.
- The company's ISP does not venture so much in the above named activities because it does not fund start-ups. In spite of this, project appraisals still involve feasibility studies, business plan and cash flow projections among others. And where KIE is able to assist in streamlining and rationalising the loan application documents, it can be done.

c) Minor Change

- The acquisition of this capability forms an important aspect in KIE's financing. This is also where the bulk of ISP's funding goes. Many of the KIE loanees normally identify strategic options for improving their businesses. Such strategies may include capacity expansion, modernisation of existing technical systems or procurement of additional machinery. Over 70% of ISP credit goes towards the modernisation of technology.

4.2.12 Funding Relative to the Project Life-Cycle

Project development comprises definite phases, which can be said to form a cycle. It starts with idea generation and progresses gradually to feasibility study, project design and implementation/supervision and evaluation.

a) Idea Generation

- KIE normally does not fund this stage. The initiative is always left to the client as much as possible. Limited assistance is, however, offered to some clients in terms of refining the idea especially those that have been unable to crystallise the idea behind their proposals. This may include location and diversification. For example, if the owner of a posho mill wishes to diversify to animal feed production, KIE can

- on request assist by giving suggestions on how the existing capability may be adjusted to accommodate animal feed milling.

 - It should be noted, however, that KIE could fund this aspect if the project idea has been generated by the organization. This may involve financing data collection and its interpretation.

b) Feasibility Study

This is normally undertaken when appraising the project. KIE can, however, carry this out for a client if requested for which a fee of 3% will be charged. Apart from this, KIE normally meets the cost of this cycle if it generates the idea for the project.

c) Project Design

KIE does this jointly with the client. It provides the services for preparing the business plan whose cost has to be borne by the client. It also finances the purchase of machinery and other equipment.

d) Implementation

KIE is always very active at this stage where it engages in the hands on supervision to guard against the diversion of funds. This can be achieved through the provision of the following services: -

- financing implementation, such as the construction of premises
- providing location/space where a client decides to operate within KIE sheds
- repairing and maintaining machinery and equipment
- assisting in the installation of machinery
- providing short-term working capital to the entrepreneurs who have operated their businesses for a period of six months

e) Evaluation/Follow-up

KIE normally becomes a stakeholder in a business immediately it disburses funds to a client. This makes it have special interest in the performance of projects especially during the credit period. Consequently, KIE staff try to monitor as closely as possible the performance of such projects and advice accordingly. Backstopping and on site assistance during project implementation is within the mainstream mandate of KIE. Apart from this, follow up for purposes of assessment where loans are not being serviced is usually done and where necessary loan repayments can be rescheduled.

4.2.13 Future Plans

a) Increased Funding

The rapidly changing economic situation that the country is going through right now is likely to incapacitate KIE from marshalling resources that can enable the organization operate effectively as a lending institution. At the same time, operating in a liberalized economy means that the sector is likely to attract many and sometime stronger competitors to KIE. As a consequence, KIE is most likely to be more of a facilitator than a direct player in terms of credit provision. It hopes to do this by

collaborating more with the banking institutions while it engages itself more in offering non-financial support to the public.

b) Supporting the Application of Technology to SMEs

Supporting the application of S&T as well as R&D especially that which seeks to uplift SMEs in the country is KIE's priority at the moment. It is hoped that this kind of support will increase production and efficiency in the business sector. KIE is, however, very careful as it goes about this as it would not like to see the acquisition of this technology impacting negatively on job creation.

c) Relaxing the Lending Conditionalities

It may not be easy for KIE to relax its lending conditionalities as it is doing what is possible and more practicable at the moment in assisting its clients. As already shown elsewhere, the company's interest rates are lower than the market rates especially those of the banking sector. Comparatively, the rates are heavily subsidised and it may be necessary to impress on the entrepreneurs that too much subsidy may not be good for the country's economy.

4.3 KENYA INDUSTRIAL ESTATES - INFORMAL SECTOR PROGRAM

4.3.1 Background Information

The Kenya Industrial Estate (KIE) is a wholly government owned financial established in 1967 to assist indigenous Kenyan entrepreneurs start small-scale industries. This still remains the main objective of KIE today. The institution has to date given financial and technical assistance to over 6,000 enterprises in the country, with the bulk, about 4,000 enterprises being those engaged in the informal sector (activities).

4.3.2 The Informal Sector Programme

The Informal Sector Programme (ISP) was established in 1988 as a separate entity from KIE. This came as a result of a survey carried out by KIE on the financial needs of its small entrepreneurs. At the time, it was strongly felt that the small traders in the country were not being adequately catered for the mainstream KIE in terms of financial support. This was confirmed by the survey and led to the decision to start the ISP to specifically give financial support to small and micro enterprises in the country to enable them purchase cheap machines costing between Ksh. 10,000 to 20,000/-.

The establishment of ISP was made possible by financial assistance from the German Technical Corporation (GTZ). GTZ also provided some of the staff including the head of the department to oversee its daily activities. This support continued up to 1996 when GTZ pulled out of the programme and left KIE to take over its full operations. But due to insufficient funding from the government, ISP could not be sustained as a separate entity. The department was subsequently dissolved and its activities were taken over by the mainstream KIE in 1997.

At the start of its activities in 1988, ISP provided character loans to small enterprises (*jua kali*) ranging between Ksh. 10,000 to Ksh. 50,000/-. This arrangement did not require the provision of collateral security and prospective clients only had to meet the following conditions: -

- must have been in business for at least six months to one year
- ought to have kept business records for at least one month
- be ready to attend training organised by KIE which lasted between 2 and 4 weeks

The funding levels have since been revised such that ISP now lends upto Ksh. 250,000/-. This, however, only applies to second borrowers as first borrowers can only get a maximum of Kshs. 100,000/-. These adjustments especially in the funding levels have necessitated a revision of ISPs lending conditionalities.

4.3.3 Terms and Conditions of Lending

To qualify for ISP funding, entrepreneurs should fulfil the following conditionalities:

- The business must have operated under a license for at least one year. This must be supported by trade documentation transacted during the year of operation.
- The business must have a growth potential as evidence by trends in sales volume, profits and other measures of venture viability.
- The business must be sustainable as evidenced by cash flow analysis over a period of six months (bank statement).
- The borrower must have a definite strategic plan indicating how the loan funds will contribute to enhanced business performance.
- Security for the loan must be provided. ISP accepts any of the following items as security: equipment chattels, plots in urban centres, share certificates, motor vehicle log books, life insurance policies, etc.
- Preference is given to businesses that fall in the manufacturing and service sectors.

4.3.4 Funding Relative to Technological Capabilities

Although ISP does not have a written affirmative policy on technological support, it nonetheless gives attention to technological innovations. ISP accordingly supports small traders to acquire technological capabilities in various ways for the industrial development of the country.

(a) Production Capability

KIE supports the acquisition of this capability by sponsoring seminars as a way of enhancing their production and managerial skills. The support, however, only lasts during the credit period.

(b) Investment Capability

ISP does not finance start-up ventures and, therefore, has less emphasis on the acquisition of this capability. ISP, however, contributes directly towards this capability by advancing loans that assist its clients to buy modern machines and equipment.

(c) Minor-Change Capability

The bulk of ISPs funding is directed towards the acquisition of this capability by its clients. Majority of its borrowers normally identify strategic options for improving their businesses. These strategies may include the modernization of existing technical systems or the procurement of additional machinery. Over 70% of ISP credit support goes to these types of business performance enhancements.

4.3.5 Project Life-Cycle Financing

Project development comprise definite phases that resemble a cycle. It starts with idea generation and progresses steadily to feasibility study, project design, implementation/ supervision and ends with evaluation follow-up.

(a) Idea Generation

Idea generation in a project life-cycle involving the creation and refining of a business idea. ISP does not fund this phase because it encourages a people driven idea. Some limited assistance is, however, given to those people who wish to diversify their businesses but are unable to crystallize the idea behind their proposed innovations. For instance, the ISP staff may assist a posho mill entrepreneur who would like to diversify to animal feed production in suggesting how the existing capability may be adjusted to accommodate the milling of animal feed.

(b) Feasibility Study

This stage is not funded by ISP since it only funds projects that are already in operation.

(c) Project Design

ISP does not fund this phase since it is upon the client to generate the idea of the business and make the necessary plans. ISP only comes in when the business is already in progress.

(d) Implementation/Supervision

ISP funds project implementation at various stages after the first successful year of operation. The funding is usually in form of working capital but it may also be used to acquire additional assets.

(e) Evaluation/Follow-Up

Evaluation that entails the formal assessment to determine the success or failure of a project and follow-up aiming mainly at the assessment of the project's sustainability are both carried out by ISP although they are not funded directly. As a stakeholder in the entire project that it funds, ISP is very much concerned with their performance during the credit period. ISP, therefore, closely monitors their progress and readily provides advice on corrective measures. Backstopping, which is on site assistance on project implementation, is within the mainstream mandate of the informal sector programme.

4.3.5.1 Summary of Project Life-Cycle Funding

The table below gives a summary of ISP's Project Life Cycle Funding.

Table 4.3.5.1 Summary of Project Life Cycle Funding

Phase	High Funding	Low Funding	No Funding
Idea Generation		Yes	
Feasibility Study			Yes
Project Design			Yes
Implementation	Yes		
Evaluation/Follow-Up	Yes		

4.3.6 Conclusion

KIE's informal sector programme has played a unique and key role in enabling SMEs to diversify through its financial support. ISP happens to be among very few funding agencies that give 100% loans for working capital. The programme's flexibility especially on security has also enabled many Kenyans to benefit from its funding. Apart from this, ISP also supports the acquisition of technological capabilities by small entrepreneurs in the country. Emphasising on projects that exploit technological opportunities in the environment does this. However, KIE through ISP can play a greater role in assisting small entrepreneurs by liberalizing its credit policies.

4.4 INDUSTRIAL DEVELOPMENT BANK

4.4.1 Introduction

The Government of Kenya established the Industrial Development Bank (IDB) as a financial institution in 1973. Its objective was to help further the economic and industrial development of the country. To achieve this, IDB assists in the promotion, establishment, expansion and modernization of medium and large-scale industrial enterprises. The Bank has accordingly sponsored industrial activities in mining, agro-industries, engineering, tourism, transport, shipping and other enterprises approved by its Board.

4.4.2 Mission

IDB was mandated by the Government to facilitate the industrial and economic development of the country through the provision of:

- medium and long term finance
- working capital, machinery finance and export trade related banking facilities
- guarantee for loans from other sources
- corporate advisory services

4.4.3 IDB's Services

IDB's main activity has been the provision of medium and long-term loans to facilitate the acquisition of capital goods and services. The minimum loan size for first time borrowers is Ksh. 10 million.

Short-term financing is also offered by IDB to compliment its traditional role of long term financing. This facility operates a funding level of between Ksh. 1 million to Ksh. 30 million.

IDB also offers other services to the public which include: fixed deposits, letters of credit, bridging loan, forex dealing, bills discounting, correspondent Banking services, export and import financing, commercial banking services and consultancy services.

4.4.4 Terms and Conditions of Lending

IDB's lending is subject to the following conditions:

- First, the Bank finances limited companies that engage in manufacturing oriented activities.
- Second, the sponsors of the project should provide collateral security that should be 1.5 times of the loan amount. This will include a first charge on all immovable assets, a first debenture on all movable assets as well as personal and joint guarantees by the directors of the project.
- Third, the Bank does not give full loans to projects being financed. The project sponsors should, therefore, be ready to provide a percentage share of the project financing.
- Fourth, projects financed by the Bank should maintain comprehensive insurance policy cover on all assets pledged as collateral security for the loan with the Bank's interest endorsed thereon.
- Fifth, the Bank automatically becomes a substantive director on the project's Board during the credit period.
- Sixth, the project should submit its progress reports and accounts regularly to the Bank as per the loan agreement.
- Seventh, the Bank employs competitive bidding as the criteria when it comes to the procurement of goods and services financed by the Bank. It normally requires at least three quotations. Apart from this, the said procurements should be of appropriate technology, high standards and ought to come from reputable suppliers.

4.4.5 IDB's Financing Policy

For effective operation, IDB has come up with a very elaborate financing policy. The following are some of its major aspects: -

- The Bank gives financial preference to projects that aim at creation of new productive assets. It does not engage in the refinancing of operations or the transfer of existing assets.
- The Bank finances the expansion and development of new and existing medium and large-scale projects with prospects of positive employment features for the Kenyan economy. The Bank also supports the expansion, modernization and diversification of successful projects with a proven track record.
- Projects that qualify for IDB's funding should be economically sound, financial viable and technical feasible with a competent management.

- IDB only gives financial support to medium and large scale projects. The minimum loan size is Ksh. 3.5 million and a maximum of 180 million. Its finances cover between 50% and 70% of the total cost of the project.
- The Bank tries to diversify its investments as much as possible with regard to geographical locations as well as the industrial sectors.
- IDB gives preference to enterprises that exploit the locally available materials, labour, resources and those that are export oriented.

4.4.6 Financial Procedure

The loan applicant submits his business plan to the Bank showing clearly the rationale of the project to be undertaken. This will enable project preparation by the Bank's staff that will involve the collection of information/data to be used when appraising the project. The feasibility study reports will be examined by focusing more on the financial plan and cash flow indicators. Once the project meets the laid down criteria, the processing of the loan will start. This will go through three stages, i.e., the departmental meeting level for the verification of the criteria by project officers, top level management of the evaluation of the project and lastly, the Board of Directors for the final approval of the loan.

4.4.7 Financing of Training and Technical Learning

IDB does not finance the training and other forms of technical learning for its clients unless it happens to be a shareholder in the project. The Bank however trains its own staff so that it can provide both the professional and technical advice to its clients when the need arises. The Bank takes this training seriously and for example, sends some of its staff to foreign countries such as India every year to study the operations of the SMEs with a possibility of transferring that knowledge/technology to its projects in the country.

The Bank does not also involve itself directly in the training of its clients and neither does it advise its clients to learn from each other's activities. This is due to the confidential nature of its transactions with each of its clients that have to be well guarded at all costs. Apart from this, competition that is likely to ensue among some of the Bank's clients also forces it to desist from creating linkages among its clients.

4.4.8 Promotion of Technology

IDB is interested in the promotion of technology in the country. Towards this goal, the Bank gives preference to projects that aim at using modern technology so that its clients can engage in the production of superior goods that can compete favourably in the market. Apart from this, modern technology is advantageous because it helps to reduce production costs. The Bank, therefore, requires sponsors to furnish it fully with the technical details of their projects during the appraisal exercise. Some of the information should include:

- type and source of technology, process and production
- availability of spare parts, technical back up
- management or service agreement

In doing all this, the Bank does not, however, lose sight of the problems that are associated with the application of a given technology. The Bank is for instance always keen to know some of the environmental problems/hazards that are likely to occur as a result of its clients using particular technological innovations.

4.4.9 Financing of Technological Capabilities

(a) Production Capability

IDB finances the acquisition of this technological capability by its clients by providing machinery. The Bank has established various lines of credit with its partners in other countries that have enabled its clients to procure goods and services from different parts of the world. The Bank has also employed qualified engineers who can assist in the installation and initial operation of machinery.

(b) Investment Capability

The Bank finances market research from time to time and uses this information to advise its clients on some of the possible projects for investment. The Bank also assists directly in the acquisition of this capability by its clients by providing credit for the purchase of machinery as well as their installation. IDB also provides working capital for the establishment of new projects as well as expanding and refurbishing the old machines.

(c) Minor Change Capability

IDB does not engage fully in financing this capability but it is now supporting minor changes in the blending of tea by the local industries. This is being done purposely to enhance the competitiveness of their products and if it succeeds, the Bank will try to diversify to the other sectors of the economy.

4.4.10 Funding Relative to Project Life Cycle

IDB's project development starts from the basic project idea and progresses through definite phases to a commercially operative enterprise including:

(a) Idea Generation

Idea generation for a project is basically the responsibility of the sponsors. The Bank tries as much as possible to desist from imposing its ideas on the clients. However, the Bank can assist in refining such ideas by it does not fund this stage of the project.

(b) Feasibility Study

The Bank does not fund this stage of the project. Feasibility studies are the sole responsibility of project sponsors although the Bank expects the study to focus on the following items:

- the merits of the project
- potential and the justification for its establishment
- background of sponsors
- description of the project, the market and distribution of its products technology to be used
- inputs, cost and financing plan and financial analysis

(c) Project Design

This phase involves the collection of relevant information and data for evaluating the project. IDB does not fund this phase but still uses its own staff to undertake various aspects in the preparation of the project. The staff normally pays visits to the project's site to assess the infrastructural facilities, premises and security being provided.

(d) Project Appraisal

This is a very crucial stage in the project development cycle that is funded by the Bank. Its staff make a critical evaluation of the technical, economic, financial, institutional and managerial, market and competition aspects. Information elicited from these evaluations is then used to determine the viability of the project and taking of decisions about its funding.

(e) Implementation/Supervision

IDB funds this phase of the project and also uses its staff to supervise the implementation of the project. This includes installation, verification of machines acquired by the client and the commissioning of the project. The disbursement of the loan is also done in stages once the Bank is satisfied that previous funds have been utilised well.

(f) Evaluation/Follow-Up

IDB normally funds this phase and the bank always takes a very keen interest in the project during credit period by carrying out continuous assessments of the project's progress.

(g) Improvements in S/T and R&D and Linkage

The Bank has opened many lines of credit in different parts of the world to assist its clients in acquiring machines, equipment and raw materials. However, in an endeavour to promote economic development, the bank lays greater emphasis on promoting projects that use local raw materials. The bank hopes that by so doing, it assists in the creation of jobs as well as the expansion of the country's industrial base. IDB also encourages its clients to apply modern technology and is one aspect that it focuses on when appraising projects.

4.4.11 Future Plans*(a) Increased Funding*

The Bank does not hope to increase funding in the near future as it carries out its operations within the confines of rules set up by the Central Bank of Kenya. The Bank is, however, well prepared to support industrial development in the country. IDB, for example, has sourced many lines of credit from different parts of the world that can assist in boosting the funding levels for its clients. And in line with the process of liberalization, the bank has started trade finance facilities and also engages in commercial banking services that can be exploited by its clients.

(b) Supporting Application of Technology to the SMEs

The bank is prepared to support the technological development of medium entrepreneurs as long as this will help the industrial development of the country. It is hoped that by so doing, the Bank will be assisting the country to realize its dream of becoming a new industrialized country by 2010.

(c) Relaxing the Lending Conditionalities

IDB does not intend to relax lending conditionalities in the near future since certain conditions have to remain in place to facilitate its efficiency as a development finance institution. The Bank is satisfied with its current regulations that are enabling it to play its rightful role. It, therefore, expects its clients to meet their obligations as well.

(d) Continuous Improvements and Technology Learning

IDB is ready to support these aspects as long as they promise prosperity to the country in future.

4.4.12 Conclusion

As a DFI, the Industrial Development Bank (IDB) has given financial support to almost all sectors of industrial development. The bank's interest in supporting the acquisition of technological capabilities especially production, investment and marketing is highly commendable. It is hoped that its current trials in the acquisition of minor change capabilities will enhance technological development in the country. IDB's recent decision to liberalize its activities to include trade finance facilities and commercial banking services makes it prepared for future challenges.

The bank may, however, need to reconsider its policy so that small traders can also be financed in their operations. IDB should also have its clients benefit from its qualified team of professionals in terms of training, feasibility studies and designing of projects among others.

4.5 PRODUCT CYCLE AND CAPABILITIES

This part of the study is concerned with interviews with target beneficiaries. The following table summarises the respondents' views concerning project financing.

Table 4.5.1: Product Cycle and Capabilities

	KIE No Initiative	KIE Initiative & Other Source	Total
Idea Generation	98%	2%	100
Project Feasibility	90%	10%	100
Project Design	98%	2%	100
Project Appraisal	7%	93%	100
Project Implementation	97%	3%	100
Evaluation	7%	93%	100

Each project financed by a DFI is expected to go through the cycle of idea generation, feasibility study, design, appraisal, implementation and evaluation. However, the above results show that the target beneficiary undertook idea generation, feasibility, design and implementation. KIE undertook project appraisal and evaluation. Usually, the DFI or the donor is expected to initiate the project, which is not the case here.

4.5.1 Sources of Equipment and Materials

In this current study, it was found out that sourcing of equipment and materials were partly undertaken by both the DFI and target beneficiary. Both the beneficiary and the DFI accounted for 97% and the 3% was initiated by the beneficiary alone.

4.5.2 Technical Expertise

In the current study, 87% of the respondents acquired technical expertise on their own. Thirteen percent was shared between the beneficiary and the DFI. Some entrepreneurs obtained technical expertise through friends, Ministry of Science and Technology or manager assisting his own staff.

4.5.3 Promotion of Technological Capabilities

With regard to promotion of technological capabilities and learning, 22% promote capabilities on their own, 16% by KIE while 63% from the rest of the sources. Some respondents showed that they diversified their enterprises and there is a continuous learning mechanism in the enterprise.

4.5.4 Improvements in S&T and R&D Linkage Considerations

Eighty-four percent of the respondents carried out R&D on their own while the DFI promoted 16%. The respondents felt that there is adaptation of machines to suit the market. Some of the entrepreneurs modified the product to suit the market.

4.6 ACQUISITION OF TECHNOLOGICAL CAPABILITIES

4.6.1 Production Capability

In this study, 84% of the entrepreneurs acquired production capability through financing from the DFI while 16% responded that the DFIs funding did not help them acquire production capability.

4.6.2 Investment Capability

The DFI made 74% of the entrepreneurs acquire investment capabilities while 26% of the entrepreneurs acquire investment capabilities. One entrepreneur responded that the machine got spoilt before using it. The majority felt that loans given by the DFI helped them acquire investment capabilities.

4.6.3 Minor Change Capability

In this study, the DFI did not assist 79% of the entrepreneurs in acquiring minor change capability. The DFI assisted only 21% of the entrepreneurs. Some argued that no technical support was facilitated by the DFI. However, it was highlighted that many changes had been made due to own efforts by the entrepreneurs.

4.7 CASE STUDY METHOD

4.7.1 WEDCO Steel Fabricators

1. Wedco Steel Fabricators is located in the Kakamega KIE sheds. The enterprise was established in 1986 and currently has four employees.
2. The enterprise falls in the engineering sub-sector and engaged mainly in metal fabrication.
3. KIE advanced the proprietor of the enterprise Kshs. 50,000/= in 1994. The money was used to purchase machines and materials. Apart from funding by KIE, the firm has also been funded by Wedco to the tune of Ksh. 100,000/=.
4. Project Financing
 - (a) *Idea Generation*

KIE never funded this stage of the project. The entrepreneur was already in business by the time he got in touch with KIE.
 - (b) *Feasibility Study*

KIE did not fund this stage.
 - (c) *Project Design*

This was not financed by KIE.
 - (d) *Project Appraisal*

This process was undertaken by KIE that assessed the project's viability before funding it.
 - (e) *Implementation*

This was done through the seminars that were given before and after the disbursement of the loan. They focused on business management and production by training them on how to operate the machines that they were later on given on mortgage.
 - (f) *Evaluation/Follow Up*

KIE staff did this initially to check on the machines that had been acquired by the client. Later visits however focused more on loan repayment.
5.
 - (a) *Sources of Equipment and Materials*

The client used personal funds during the initial stages of the business. Later on, KIE provided part of investment for the business.
 - (b) *Sources of Technical Expertise*

The client, who is a qualified technician, mainly provides technical expertise. KIE has also contributed towards this aspect especially when it trained them on how to operate the new machines before funding them. Apart from this, other techniques have been acquired through learning by doing process.
 - (c) *Promotion of Technological Capabilities and Learning*

In the course of the carrying out his business activities, the client has acquired new knowledge and skills in production e.g., the use and maintenance of machines. The client has also learned how to make some minor changes on his products so that they can become attractive to his buyers. Apart from this, knowledge about the expansion

of the business to strengthen his investment level as well as the establishment of good relations with his customers has been acquired.

6. Improvements in S/T and R&D Linkage Considerations

The seminars conducted by KIE for its clients focused a lot on the adaptation of the products to suit any new changes in the market. The appraisal of the project has also focused on new innovations.

7. Promotion of Technology

The client prefers projects which promote the use of technology but this is however not the case in practice. A major hindrance happens to be the local people who just go for any product without due regard to its quality. Enlightened people however prefer new designs which challenge him positively.

8. Acquisition of Technological Capabilities

(a) *Production Capability*

This was acquired by the client following KIE funding which enabled him to purchase new machines and materials.

(b) *Investment Capability*

The acquisition of new machines and more materials led to the expansion and modernisation of the business.

(c) *Minor Change Capability*

The KIE seminars on production gave them useful tips on how they could make their products to suit the ever changing needs of the market.

(d) *Strategic Marketing Capability*

This capability was acquired in a way when KIE sponsored seminars on business management for their clients. This gave useful tips on how to establish good relations with one's customers and ways of retaining them.

(e) *Major Change Capability*

The client has not acquired this capability and KIE also never funded it.

9. Expansion of the Business

The client has plans to expand the market of his items to other towns such as Mbale and Butere in Vihiga and Butere districts respectively. He would also like to utilise the profits from his business to invest in other business ventures.

4.7.2 Gakera Enterprises

- 1) Gakera Enterprises which is located in Bungoma Town was established in 1986. Right now, the enterprise has three employees.
- 2) This is a food processing business which mostly engages in flour milling. Apart from the milling of the common maize flour, the firm also processes the refined (No. 1) maize flour as the client uses the following raw materials: groundnuts, beans, millet *omena* among others to make it more nutritious.
- 3) The client has been funded twice by KIE. The first loan was used in the installation of electricity to the business premises and the second for the purchase of raw materials (maize).
- 4) Project Financing

a) Idea Generation

KIE did not fund this stage of the business. The idea had been developed by the client before seeking assistance from KIE.

b) Feasibility Study

This was carried out by KIE following the client's application for the purchase of the second machine for the processing of refined flour. The project was found to be economically viable.

c) Project Design

This aspect was not carried out by KIE as the owner had already designed his project.

d) Project Appraisal

This process was carried out by KIE when applications for the two loans were made. In both instances, the KIE staff assessed the business in terms of machines, materials as well as the market for his products among others.

e) Evaluation/Follow Up

This has been done by KIE staff. At first, they had to ascertain the machine which had been acquired by the client as well as an assessment of its productive capacity.

5)

a) Sources of Equipment and Materials

Most of what has gone into the business has been personal investment/funds but he has also been financed partly by KIE in the purchase of machine and raw materials.

b) Sources of Technical Expertise

The enterprise has benefited from the skills of the entrepreneur who happens to be a qualified technician. Accordingly, the client is able to carry out the maintenance of his machine. In terms of production however, the client has benefited a lot from a friend who has been in this kind of business for some time. This is where he got tips on how to mix different raw materials for quality flour.

c) Promotion of Technological Capabilities and Learning

Having been in the business for sometime now, the entrepreneur knows the "right" times (seasons) for regulating his production capacity. Apart from this, he has also acquired valuable knowledge and skills in marketing his products. For instance, he knows how to initiate and maintain good relationships with his customers.

6) Improvements in S/T and R&D Linkage Consideration

These aspects were not looked into by KIE. The previous project appraisals only focused on the viability of the project as well as the client's abilities in the repayment of the loan.

7) Promotion of Technology

The client gives preference to projects which promote the use of technology especially in the processing and packaging of refined flour for children. He feels that the production capacity of his machine has not been met fully due to lack of raw materials.

8) Acquisition of Technological Capabilities

a) Production Capability

This capability was made possible following the acquisition of the new machine with assistance from KIE. The client is now able to engage in mass production where necessary.

b) Investment Capability

Assistance from KIE has enabled the client to expand and modernise his business for efficiency which was lacking initially.

c) Minor Change Capability

KIE has not assisted the client towards the acquisition of this capability. The entrepreneur is however confident that this can be possible if funded.

d) Strategic Marketing Capability

The client benefited from KIE seminars on business management which also discussed issues in marketing such as the maintenance of customer relations. The effectiveness of this capability has however been affected by very stiff competition in the subsector.

e) Major Change Capability

This capability has not been acquired.

9) Expansion of the Business

The client would like to expand his business by enhancing his marketing strategies. He hopes to achieve this through the acquisition of a pick-up for easy access to markets in other towns. Apart from this, the client is also seriously thinking about diversifying his business to other types of food processing such as animal feeds.

4.7.3 FREMCO Engineering

1. Fremco Engineering, located in Bungoma Town was established in 1995, apart from the proprietor, the enterprise has one employee.
2. The enterprise carried out engineering work and mainly deals in metal fabrication and motor rewinding.
3. Fremco has been funded twice by KIE ie. Ksh. 35,000/= in 1995 and Ksh. 100.000/= in 1998 worth of machines on mortgage and working capital.

4. Project Financing:

a) Idea Generation

This did not come from KIE because the client had already developed the idea for his business. He has however received further advise from KIE especially on the marketing strategies.

b) Feasibility Study

This was not done by KIE

c) Project Design

The client had already come up with his own and was therefore not done by KIE.

d) Project Appraisal

KIE undertook this process before disbursing funds. This entailed assessment of the business and its assets at the time when the loan applications were being made.

e) Implementation

This was not carried out by KIE.

f) Evaluation/Follow-Up

The KIE staff have been paying visits to the client from time to time. During such occasions, they have been holding business discussions with him. It is therefore likely that evaluations have been going on implicitly.

5. *a) Sources of Equipment and Materials*

These have been acquired through the client's own personal investments to the business as well as partly through funds provided by KIE for the purchase of machines and materials.

b) Source of Technical Expertise

The client has been providing this by himself since he was a trained technician by the time he started his business.

c) Promotion of Technological Capabilities and Learning

Having been in this business for sometime, the client has been able to Acquire knowledge and skills in the operation of his machines as well as general manner of running his business. Apart from this, he also knows the right seasons for engaging in mass production and he is also able to make some minor changes on the motor e.g. changing motor three phase to single phase.

6. Implementation in S/T and R&D Linkage Consideration

These aspects were considered during the appraisal process. KIE examined his production capabilities especially the technology which he applies to the motor and coils.

7. Promotion of Technology

The client prefers technologically oriented projects since they happen to be less competitive. Many people fear the difficulties involved in undertaking them. Apart from this, the client prefers these kind of projects because they are easily adaptable.

8. Acquisition of Technological Capabilities

(a) Production Capability

KIE funds have assisted in the acquisition of this capability. The provision of machines and more materials have made the production process possible. At the same time, KIE seminars provided useful skills in running business.

(b) Investment Capability

Working capital provided by KIE led to the expansion of the business and therefore partly contributed towards the achievement of this capability.

(c) Minor Change Capability

The client has acquired this capability on his own and not through fundings by KIE. The finance institution only aims at commercial and not technological development of the clients because it does not provide and promote technical learning.

(d) Marketing Capability

KIE has not participated actively in the helping its clients acquire this capability. The only efforts made towards this direction have been their seminars which have been focusing on some aspects marketing e.g. the handling of customers by the clients.

(e) Major Change

KIE has not financed the acquisition of this capability.

9. Expansion of the Business

The entrepreneur is planning to establish a posho mill as a way of diversifying his business. He would also like to increase his level of production but this is being hampered by limited capital, transport facilities and marketing problems.

4.7.4 Highway Engineering

1. Highway Engineering was established in 1992.

The enterprise is located in Webuye town and has one employee although casual workers are always hired whenever the volume activity increases.

2. The business deals in engineering activities with abias in metal fabrication.

3. KIE assisted the firm with a loan amounting to Ksh. 60,000/= in 1998 which was used by the client in the purchase of raw materials.

4. Project Financing

a) Idea Generation

KIE did not fund the client but he has been assisted in refining it especially in terms of business management.

b) Feasibility Study

This was not done by KIE

c) Project Design

The client was not financed since he had already come up with his own.

d) Project Appraisal

KIE undertook this process and made an assessment of the business tools, productivity and the general progress of the business.

e) Implementation

The client acquired raw materials on his own but attended seminars mounted by KIE which taught them on how to invest the money acquired from the institution and how to manage their business.

f) Evaluation/Follow-Up

The KIE personnel have visited him which to assess the business but he was not around on those two occasion.

5. *(a) Sources of Equipment and Materials*

The client has been the main source of these items but he has also been assisted partly by KIE in the provision of materials.

b) Sources of Technical Expertise

This has been provided by the client mainly. He uses his own knowledge and skill since he is a qualified plant technician and general engineer. This has given him a big advantage in the business since he knows the work very well.

c) Promotion of Technological Capabilities and Learning

Having carried out this business for sometime now, the client has acquired useful skills in terms of production. For example, he prefers to make personal investments

into the items without asking clients for deposits. This procedure enables him to guard against any unexpected fluctuations in the prices of materials since he ends up selling ready made items to his clients.

6. Improvements in S/T and R&D Linkage Consideration

These aspects were not looked into since the client had only applied for a working capital loan.

7. Promotion of Technology

The client prefers these type of projects. With his qualifications which are relevant to these projects, he is comfortable with operations which are involved such business.

8. Acquisition of Technological Capabilities

(a) Production Capability

KIE assisted the client in acquiring this capability. The provision of raw materials has increased the production capacity of the enterprise.

(b) Investment Capability

KIE's assistance in the provision of raw materials has led to the expansion of the business in terms of its investments.

(c) Minor Change Capability

The client has not acquired this capability which has also not been funded by KIE. The clients products are Jua dictated by the demand of the market. Apart from this modifications on his products have been hundred by the local people who in most cases are not enthusiastic about them. They are always hesitant to pick on new things.

(d) Strategic Marketing Capability

The KIE seminars proved very useful in the acquisition of better marketing strategies as well as tips on the general business management.

(e) Minor Change Capability

The client has not acquired this capability and was also not financed by KIE.

9. Expansion of the Business

The entrepreneur would like to increase his production capacity after he finishes the repayment of the loan. He also hopes to expand his market to other towns in the region apart from Webuye. This will however require a transport facility to make the work easy.

4.7.5 Micah Omolo Engineers

1. Micah Omolo Engineers is located in Kimilili Town. The enterprise was established in 1992/92 and new employs three people.

2. The firm deals in engineering activities and mainly engages in Mechanical engineering and welding.

3. The client was funded by KIE in 1995.

4. Project Financing

a) Idea generation

KIE did not finance this stage of the project

- b) Feasibility Study*
This was not financed by KIE
 - c) Project Design*
KIE did not carry out this
 - d) Project Appraisal*
KIE carried out this process where an assessment of the business assets such as tools, materials, number of customers as well the visibility of the project was done.
 - e) Implementation*
KIE assisted the client in the acquisition of machines and materials for the business.
 - f) Evaluation/Follow Up*
KIE has been undertaking this where routine assessment of the business has been done in the past.
- 5. *a) Sources of Equipment and Materials*
These have been provided from personal funds of the client but KIE also partly provided them when it advanced a loan to the client.
- b) Sources of Technical Expertise*
The client has been the main provider for this from his wealth qualification and experience as a mechanical technician/engineer.
 - c) Promotion of Technological Capabilities and Learning*
The enterprise has assisted the client in the acquisition of marketing capability. His daily dealings with clients have enabled him acquire the relevant knowledge and skills with regard to the establishment of good relations and how to handle them well.
- 6. Improvement in S/T and R&D linkage consideration.
These aspects were not considered in project appraisal.
- 7. Promotion of Technology
The client has preference for technologically oriented projects because he has the necessary technical knowledge which can run them.
- 8. Acquisition of Technological Capabilities
 - a) Production Capability*
The client was assisted in the acquisition on this capability by KIE following the provision of machines and materials needed in production activities.
 - b) Investment Capability*
This was not acquired because the machine bought with KIE funding got spoilt and the client has not been able to repair it.
 - c) Minor Change Capability*
The client has not acquired this.
 - d) Strategic Marketing Capability*
The client has not acquired this.
 - e) Major Change Capability*
The client has not been financed in its acquisition.

9. Expansion of the Business

The client plans to have his business expand by getting more customers and he has already working towards this goal by engaging in quality work which can attract many people to his products.

4.7.6 Pewa Posho Millers

1. Pewa Posho Millers is located in Langas Estate, Eldoret Town. The enterprise was established in 1997 and has one employee.

2. The firm deals in food processing where it is heavily engaged in maize milling both for ordinary and refined flour. At the same time, it engages in the processing of refined flour specifically meant for children.

3. The client was funded by KIE in 1999 to the tune of Ksh. 120,000/= which was used to purchase raw materials, apart from KIE, she has also been funded by K-REP.

4. Project Financing:-

a) Idea Generation

This stage of the project was not financed by KIE.

b) Feasibility Study

This stage was not funded by KIE since the client was already in business

c) Project Design

KIE did not fund this stage

d) Project Appraisal

KIE carried out this process which involved an assessment of the business in terms of machinery, materials as well as its requirements.

e) Implementation

KIE gave the client money that was used to purchase the raw materials (maize).

f) Evaluation/Follow-Up

From the time the client got the loan, KIE staff have visited her twice. The client however feels that they are not making a proper evaluation of the project since their interest is mostly geared towards the mode of loan repayment.

5.

a) Sources of Equipment and Materials

The client has provided her own machinery (posho mill) but KIE has partly financed her in the acquisition of raw materials.

b) Technical Expertise

The client has benefited from her friends who are currently running similar business. A seminar conducted by K-Rep did not focus on technical knowledge but only emphasized the business management skills.

c) Promotion of Technological Capabilities and Learning

The business has enabled the client gain skills that have enhanced her production capability, including machine operation and maintenance. Apart from this, investment capability has been possible in that the client knows the right seasons (periods) for expanding the business in terms of ploughing back part of her earnings.

6. Improvements in S/T and R&D linkage
 These aspects were not considered in the appraisal.
7. Promotion of Technology
 She prefers these types of projects. For instance, the client is seriously thinking about diversifying her business to include the processing of oil and chicken feed from maize that at the moment is wasted. This plan has, however, been affected by lack of the necessary technological know how by the client.
8. Acquisition of Technological Capabilities
 - (a) *Production Capability*
 KIE aided the client with raw materials that made production possible but was not assisted in the acquisition of the necessary technology expertise for production.
 - (b) *Investment Capability*
 KIE has assisted her in the acquisition of this technological capability when she used the money advanced by KIE to produce raw materials that made her business expand.
 - (c) *Minor Change Capability*
 This was not funded by KIE and the client has not acquired it.
 - (d) *Strategic Marketing Capability*
 The client has not been assisted in the acquisition of this capability. She just struggled on her own to sell her products.
 - (e) *Major Change Capability*
 This has not acquired by the client.
9. Expansion of the Business
 The client is planning to market her products vigorously so that she can expand the market for her products outside Eldoret Town. This will lead to an increase in customers so that she can fully use her machines especially the one for refined flour.

4.7.7 Classic Furniture Mart

1. Classic Furniture Mart is located in Huruma Estate, Eldoret Town. The enterprise was established in 1992 and currently has seven employees.
2. The entrepreneur deals in wood processing and engages in the selling of timber as well as the manufacture of wood products mostly furniture.
3. KIE has funded this enterprise twice i.e 1995 and 1997 in both cases, the funds were used to purchase machines for the business.
4. Project Financing
 - a) *Idea Generation*
 This stage was not financed by KIE because the client had already come up with his own.
 - b) *Feasibility Study*
 KIE did not finance this stage
 - c) *Project Design*
 KIE did not finance the design

d) Project Appraisal

This was undertaken by KIE. It assessed the business in terms of its visibility and also examined its equipment as well.

e) Implementation

KIE did not supervise the installation of the machines. The client however attended the business management courses sponsored by KIE on these occasions before the loan was disbursed to him.

f) Evaluation/Follow-Up

KIE staff are still carrying out this activity. They visit the client from the time to time to acquire about the progress of the business.

5. *a) Sources of Equipment and Materials*

Part of the business equipment has been acquired through funding by KIE. The client has, however, been acquiring the business raw materials his own funds.

b) Sources of Technical Expertise

The client is a trained artisan and therefore provides most of the expertise needed in the business. The same also applies to his employees who come into the employment with some skills while others have gained the necessary skills through apprenticeships conducted by the firm.

c) Promotion of Technological Capabilities and Learning

The client has good machines, which when in good condition can carry out massive production. At the same time, having been in this business for sometime now, the client has acquired skills necessary for the proper marketing of his goods.

6. Improvements in S/T and R&D Linkage Consideration

The appraisal of the project considered his ability in running a technologically oriented business. He proved to KIE this capability from the quality of his products.

7. Promotion of Technology

The client prefers to engage in projects that promote the use of technology especially when the owner has the necessary knowledge. This will make the person aware of what goes on in the business. The entrepreneur will also be in a position to put his skills (acquired) in productive work.

8. Acquisition of Technological Capabilities

a) Production Capability

The client acquired this capability since he was able to engage in business/production, an avenue to continue learning new processes.

b) Investment Capability

With the provision of machines following KIE's funding acquisition after capability was made possible.

c) Minor Change Capability

The client acquired this through his participation in the KIE sponsored seminars.

d) Strategic Marketing Capability

The KIE seminars on business management proved useful to the client in acquiring new marketing skills for his products.

e) Major Change Capability

This capability was not acquired.

9. The client plans to acquire a loan so that he can expand the business.

4.7.8 Max Welders

1. Max Welders is located in Kitale Town. It was established in 1990 and currently has five employees.
2. The enterprise deals in engineering activities where it engages heavily in metal fabrication and body building.
3. The client received a loan by KIE amounting to Ksh. 100,000/= in 1999 to purchase materials.
4. Project Financing
 - a) *Idea Generation*
This aspect of the business was not financed by KIE
 - b) *Feasibility Study*
KIE did not finance the client in this stage of the business.
 - c) *Project Design*
The KIE did not finance the client in this stage.
 - d) *Project Appraisal*
The KIE staff carried out this process for the client where an assessment was made on machines, the number of employees and the prospects of the business in general.
 - e) *Implementation*
KIE did not supervise the purchase of materials by the client. He was however invited to its seminars that gave tips on how to run business.
 - f) *Evaluation/Follow-Up*
The KIE staffs have done this to ascertain how the money that was given to the client was spent. They have also assessed the general progress of the business.
5.
 - a) *Sources of Equipment and Materials*
The business equipment were provided by the client himself which KIE partly assisted in the acquisition of materials.
 - b) *Sources of Technical Expertise*
The client himself has been providing this since apart from being a qualified technician, he has also engaged in this work for sometime and therefore has acquire the necessary experience.
 - c) *Promotion of Technological Capabilities and Learning*
The client has learned some marketing skills from interacting with customers. The client has also acquired skills in production especially in the maintenance of his machines. He is able to service and repair them. The client is also able to modify his products to meet the needs of his customers or attracting them.
6. Improvement in S/T and R&D Linkage consideration
In appraising the project, KIE was only interested in finding out the quality of his products as well as his qualifications in running the business.

7. Promotion of Technology

The client prefers to engage in technologically oriented business because they give personal fulfilment to the owner. A person come up with his an idea, manufactures items and sells them.

8. Acquisition of Technological Capabilities

a) *Production Capability*

KIE has assisted the client in this aspect because the acquisition of materials made it possible for him to put his machines to maximum use.

b) *Investment Capability*

Following funding by KIE, the client has become able to diversify his production where many different items are manufactured. This has also increased his means, part of which is being ploughed back thus expanding the business.

c) *Minor Change Capability*

This capability has not been acquired.

d) *Strategic Marketing Capability*

The KIE seminars have assisted the client in the acquisition of this capability. The client got new marketing strategies especially in handling his customers as well as the importance of exhibitions of products during agricultural shows. These have proved helpful in the marketing of his products.

e) *Major Change Capability*

The client has not acquired this.

9. Expansion of the Business

The client is still repaying his loan and he would like to finish this burden before he can start engaging in plans for the expansion of his business.

4.8 APPROPRIATE APPROACHES TO FINANCING

This part deals with alternative approaches to financing technological innovations in Kenya's manufacturing sector.

There are a number of ways in which SMEs can acquire alternative sources of funding. Some of the ways include: -

4.8.1 Local Company's Support

Parastatal organisations and other state corporations are charged with responsibility of development and management of national resources in a number of ways. More often than not, these bodies relying on national scientific and technological institutions for data and relevant advice to their development responsibilities. These relationships could be improved vide subventions by other state corporations to the national research systems.

4.8.2 Private Sector Support

Various opportunities arise for entrepreneurs in the private sector to fund collaborative research institutes and both public and private universities. Opportunities could also arise where entrepreneurs could invest a certain percentage of their profits as tax-deductible grants for R and D activities.

4.8.3 Funds from Levies

Opportunities exist for tapping research funds from import or export levies on certain inputs, items and products. Levies of this nature could be used to support R & D projects whose main objective is developing new technologies locally. For instance, industrial research could benefit from such.

4.8.4 Contributions by research beneficiaries

Research in the subsector of tea and coffee has been successfully undertaken by producers through marketing boards. A portion of the success is attributable to the producers' direct involvement in the management of their own research establishment and benefiting directly from research findings.

4.8.5 Contract Mechanisms

There are a number of contract systems that can be used as alternative sources of financing. Some of these contracts adopted are outlined below: -

4.8.5.1 Foreign Director Investment (FDI)

This is the establishment by a transnational corporation of an affiliate in a foreign country over which the parent firm is then assumed to exercise effective control. Normally, such control is realised through whole or majority ownership, but it is possible for arrangements to be made which give the transnational corporation control even with a minority equity participation. An FDI may involve either the acquisition of an existing enterprise or the organisation of an entirely new enterprise.

The technology is provided as part of a complete package. It may include any or all of the following: capital goods, industrial property rights in the form of patents, trade marks, and brand names; secret unpatented process know-how that is specific to investing firm; and the investing firm's accumulated experience and skills in organisation, management and marketing.

Payments for technology in the context of FDI may be both explicit and implicit. Royalties and other fees may be paid for the use of industrial property rights and technical services provided.

4.8.5.2 Joint Ventures

A joint venture is a business association between two or more parties who agree to share the provision of equity capital, the investment risk, the control and decision-making authority, and the profits or other benefits of the operation. For present purposes, only joint ventures formed between transnational corporations and local enterprises - private or state owned - in the host developing countries are considered.

4.8.5.3 Licensing

A licensing agreement is a legal contract under which the licensor confers certain rights upon the licensee for a specified duration in return for certain payments. The rights may consist of permission

to use industrial property rights, such as trade marks, patents, brand names, and copyrights; and it can include secret unpatented know-how, such as methods of production, scheduling and quality control, which are usually combined with a provision of technical services.

Payments under licensing agreements can take a wide variety of forms: lumpsum fees, running royalties, a share of profits, issue of equity representing the capitalisation of technology, payments as an "as used" basis, among others. Payments usually depend not only on the nature and the value of the technology supplied but also on the relative bargaining power of the two parties.

4.8.5.4 Franchising

This is a particular form of licensing agreement implying a continuing relationship in which the franchisor provides rights, usually including the use of a trade mark, or brand name, plus the services of technical assistance, training, merchandising and management, in return for certain payments.

4.8.5.5 Management Contracts

This is an arrangement under which operational control of an enterprise, or over one phase of its activities, which would normally be exercised by the board of directors or the managers elected or appointed by its owners, is vested by contract in a separate enterprise which performs the necessary managerial functions in return for a fee. The functions that may be provided for are production management, including responsibility for technical and engineering aspects of production; personal management, which includes the recruitment and procurement of foreign personnel and the training of local personnel; purchase and procurement of capital goods and raw materials; marketing and financial management, including arrangements for loan financing. Fees normally take the form of percentage of sales or profits, purchases; lump sum payments, and payments of a "services rendered" basis.

4.8.5.6 Marketing Contract

A marketing contract is almost similar to management contract in that the contractee firm assigns to the contractor the responsibility of marketing its production, or part of it, and all the activities associated with it, in return for a fee, normally a percentage of sales revenue.

4.8.5.7 Turnkey Contracts

A turnkey contract is one where the contractor firm undertakes the responsibility for carrying out all (or most of) the activities required for the planning, construction and commissioning of a discrete project. Whereas the contractor may sub-contract specific activities and tasks to other firms, he alone is responsible to the contractee for completion of the project as a whole and delivery of a fully operational production system.

4.8.5.8 Technical Service Contracts

Under this contract, the contracting firm agrees to provide technical services associated with a particular aspect of the contractee's operations. Examples include maintenance and repair of machinery, advise on process know-how, trouble shooting and quality control. Services may be

provided on a going, continuous basis, or on as needed consultancy basis. In this regard, payments are structured accordingly.

4.8.5.9 International Sub-contracting

In this agreement, a transitional corporation places orders with a foreign enterprise, often in a developing country, to produce components or assemble finished products using inputs and technology supplied by the transnational corporation, which absorbs the final products for its own production or marketing needs. The technology provided comprises specifications, production know-how, and sometimes machinery and equipment as well. Under this arrangement, no explicit payments for the technology are involved, since it is the transnational corporation that pays the sub-contracted firm for the work carried out. Sub-contracting in developing countries is concentrated in clothing, electronic equipment and components, and semi-conductor assembly.

4.9 IMPLICATION FOR POLICY

Project financing cycle is very important in the growth and success of SMEs. The analysis shows that some of the stages of the cycle were not undertaken by the DFI nor the government. These steps are idea generation, feasibility study, project design and project implementation. There is a need therefore for the government or the DFI to come up strongly and support these areas which are undertaken by entrepreneurs themselves.

From the study, it has been noted that not all enterprises acquired technological capabilities. For instance, 84% acquired production capabilities, 74% acquired investment capabilities while 21% acquired minor change capabilities. In this regard, some enterprises did not acquire minor change capabilities. So, there is need for the DFI or the government to come up with programmes to support these enterprises.

4.10 CONCLUSION

An empirical study by Teitel, et. al. (1993) found out that investment and production capabilities exist in SMEs in Kenya. Another study by Mwamadzingo (1996) revealed existence of minor change and production capabilities in all firms. It also revealed non-existence of investment capability. This current study also shows existence in production, investment and minor change capabilities. However, there is some in existence in some firms.

Table 1: Summary of R&D Expenditures in Kenya, 1988-1992 (Kshs. million)

Name of Institute	1988/89	1989/90	1990/91	1991/92
Kenya Agriculture Research Institute (KARI)	19.965	25.064	37.823	44.179
Kenya Medical Research Institute (KEMRI)	4.437	5.246	6.712	5.700
KEMFRI	2.179	2.556	2.684	2.814
Kenya Forestry Research Institute (KEFRI)	3.274	4.084	6.198	7.730
Kenya Trypanosomiasis Research Institute	1.533	1.436	1.574	1.731
KIRDI	1.685	1.522	3.046	2.788
National Museums of Kenya	1.648	1.725	1.902	1.997
IMRT	0.498	0.514	0.597	0.627
DRSRS	1.260	1.588	3.162	3.321
Agricultural Research Development	0.047	0.039	0.046	0.041
Coffee Research Foundation	3.470	3.833	4.025	4.226
Tea Research Foundation	0.751	0.940	0.987	1.037
Total University Research	0.400	0.445	0.425	0.540
NCST Research Grant	0.150	0.090	0.066	0.050
Other GoK Research Grant	0.116	0.150	0.016	0.100
Total GoK Research Expenditure	41.408	49.232	69.264	76.881
The Private Sector (10% of GoK total)	4.141	4.923	6.926	7.688
Total R&D Expenditure in Kenya	45.549	54.155	76.190	84.569
R&D Expenditure as % of GDP	0.60%	0.63%	0.77%	0.75%

KEMFRI - Kenya Marine and Fisheries Research Institute; KIRDI - Kenya Industrial Research and Development Institute; IMRT - Institute of Meteorological Research and Training; DRSRS - Department of Resource Surveys and Remote Sensing; MOA - Ministry of Agriculture; NCST - National Council for Science and Technology; and GoK - Government of Kenya.

Source:

1. Republic of Kenya (various issues). The Appropriation Accounts, Other Public Accounts and the Accounts of the Funds, Nairobi, Office of the Controller and Auditor General.
2. Republic of Kenya (various issues), Economic Survey; Nairobi: Government printers.

Table 2: Level of Exported Industrial Technology

Types of Exports	1990	1991	1992	1993	1994	Annual % change (1990-94)
Food and beverages for industry						
Primary	18.36	14.93	12.32	15.44	15.73	38.0
Processed	0.36	0.60	0.59	0.60	1.91	340.4
Industrial supplies (non-food)						
Primary	9.62	7.92	7.49	6.20	5.96	22.0
Processed	10.31	12.98	14.26	18.01	20.39	113.9
Machinery and capital equipment						
Parts & accessories	0.09	0.08	0.10	0.13	0.14	431.5
Total	0.56	0.69	0.81	0.65	0.89	88.1
Transport equipment						
Part & accessories	0.17	0.24	0.38	0.27	0.40	141.6
Total industrial	0.03	0.01	0.08	0.23	0.25	560.0
TOTAL EXPORTS						47.7

*Provisional

Source: Republic of Kenya (1995). Economic Survey 1995. Nairobi: Government printers

Table 3: Level of Imported Industrial Technology (As percentage of total imports)

Types of Imports	1990	1991	1992	1993	1994	Annual % Change (1990-94)
Food and beverages for industry						
Primary	2.68	2.02	1.59	3.24	2.40	20.05
Processed	3.06	0.93	3.64	1.68	5.28	45.2
Industrial supplies (non-food)						
Primary	1.33	1.66	5.88	1.98	6.64	205.9
Processed	30.59	35.95	31.69	36.04	32.73	28.4
Machinery and capital equipment						
Parts and accessories	6.21	5.59	4.96	4.07	4.53	13.0
Total	24.91	23.00	20.29	14.62	15.35	7.9
Transport equipment						
Parts and accessories	4.05	3.55	2.24	2.81	3.21	15.9
Total industrial	5.34	4.10	2.78	3.50	4.65	19.3
TOTAL IMPORTS						25.2

* Provisional

Source: Republic of Kenya (1995). Economic Surveys 1995: Government Printers.

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