STIMULATING SMALL AND MEDIUM ENTERPRISES DEVELOPMENT FOR POVERTY REDUCTION THROUGH BUSINESS AND TECHNOLOGY INCUBATION

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ABSTRACT

The present status of the Small and Medium Enterprise (SME) Sector in Tanzania is largely informal, under-performing and in need of considerable assistance to overcome barriers to its growth. There exist policies and programmes in Tanzania that have been developed to promote poverty reduction, economic growth, and SME development, including the Tanzania Development Vision 2025 and the National SME Development Policy. In this paper, the author has reviewed the key international and national policies and programmes that support the development of SMEs in Tanzania. In the attempt to remove some of the bottlenecks identified in the SME sector, the National Business/Technology Incubation Programme (NBIP) was established in the year 2003, as part of the implementation strategy of the National SME Development Policy that was launched in the same year. In this paper, the pilot project of the NBIP that is being implemented by the University of Dar es Salaam in Kibaha, Morogoro and Lushoto Districts is described. The paper gives a detailed review of incubator concepts and models. It also highlights achievements that have been obtained so far and the major challenges ahead. Based on this experience, the paper concludes that the business and technology incubation approach has a very high potential for contributing to attaininment of Vision 2025, in that it stimulates SME development that helps to achieve poverty reduction. A number of recommendations have been put forward in order to ensure that the implementation of the programme is on the right track and that a greater impact is obtained.

1. INTRODUCTION

1.1 The Global Perspective

The socio-economic situation in Tanzania, which is among the world's poorest nations and itself a developing country, can be viewed from the global, national and local contexts. Within the global context, the Tanzanian National Business/Technology Incubation Programme (NBIP), which is described in this paper could be seen as supporting the Millennium Development Goals (MDGs), which include commitments to reduce mass poverty, eliminated gender disparity and ensure protection of and respect for human dignity. The MDGs arose from the Millennium declaration that was endorsed by 147 Heads of States and Governments at the beginning of the new millennium. They represent the international community's collective commitment to see poverty reduced and social development advanced for the world's poorest people. They make poverty reduction the overriding priority in developing countries and prioritise basic social service provision to the world's poor.

The MDGs set the bottom-line targets that any country has to realise by the year 2015, if sustainable development is to be achieved. With regard to poverty and hunger, the goal is to eradicate extreme poverty and hunger. The MDG targets are to reduce by half the proportion of people whose incomes are less than 1 US$ a day by the year 2015, and to reduce by half the proportion of people who suffer from hunger by the year 2015. Only four years after the MDGs were set, it is already predicted that 23 out of the 33 sub-Saharan African countries will not meet the MDGs by the year 2015. The comparison of poverty levels in Tanzania with other countries is not easy because the national criteria for measuring poverty is not based on the internationally accepted poverty line of US$ 1 per day. Poverty is defined to include income and non-income human development attributes.

1.2 A Review of the Socio-Economic Situation in Tanzania

The objective of the Tanzania Development Vision 2025 is to transform the country's predominantly low productivity agricultural economy to a semi-industrialised economy led by modernised and highly productive agricultural activities, which are reinforced by supportive industry and services. Tanzania's Sustainable Industrial Development Policy (SIDP) 1996-2020 places specific emphasis on the promotion of SMEs. As from the financial year 2000/01 to 2002/03, the Tanzanian Government implemented the National Poverty Reduction Strategy (PRS), (URT, 1998 and 2000) a medium-term strategy. The PRS was an integral part of the Highly Indebted Poor Countries (HIPC) initiative. It focused on a number of critical issues in poverty reduction including pro-poor growth. To this end, micro, small and medium-sized enterprises (SMEs) were envisaged to play a very important role. According to the Household Budget Survey of 2000/01 the proportion of the population below the national food poverty line (a measure of income poverty) is 18.7%, while that below the national basic needs poverty line (a measure of non-income poverty) is 35.7%.

Starting from the year 2005, the government is implementing a five year National Strategy for Growth and Reduction of Poverty – NSGRP (URT, 2004). This is a national organising framework for putting the focus on poverty reduction high on the country's development agenda. It also keeps in focus the aspirations of the Tanzania Development Vision 2025 for high and shared growth, high quality livelihood, peace, stability and unity, good governance, good education and international competitiveness. The NSGRP adopts an approach that counts on the contribution of all sectors towards growth and poverty reduction. In addition to the above policy frameworks, the Tanzania's economic reform programme is based on three premises namely commitment to a free market economy; the private sector to take the lead in creating income, wealth, employment and growth; and the state to be a producer of public goods. Micro, small and medium-sized enterprises (MSMEs) are the emerging private sector in Tanzania and a base for private sector lead growth. Though the sector possesses the highest employment potential, in Tanzania the sector is largely informal, under-performing and in need of considerable assistance to overcome entrenched disadvantages and barriers. The policy and regulatory environment for small businesses in Tanzania, however, is only now beginning to be implemented. Traditionally, policy makers have been concerned only with large businesses.

1.3 An Overview of the Industrial Sector in Tanzanian

In this section the national policies and the environment that support agro-processing for value addition and the general development of SMEs in the country have been reviewed. This aims at identifying the existing opportunities for growth of relevant SMEs and hence promotion of value addition, quality of outputs as well as minimization of post-harvest losses. There exist policies in Tanzania that have been developed to promote growth of Small and Medium Enterprises (SMEs) and stimulate innovation and value addition, particularly in agro-processing. All these policies are aimed at stimulating economic growth and poverty reduction. One of the major corrective measures required is therefore to develop/adapt and promote processing of agricultural products to cater for wastage in production, transportation and storage. This measure can be achieved through promotion of growth in relevant SMEs in order to enhance respective capacities to add value to products and achieve enterprise culture. Realisation of such aspirations requires significant structural changes in the society and industry, and hence innovation has to be promoted and implemented at all levels. The role of the University of Dar es Salaam and other higher learning and research institutions in the country in realising this, is very obvious.

In the Sustainable Industrial Development Policy-SIDP (1996-2020), the Tanzanian Government recognizes the role of the private sector as the principle vehicle in carrying out direct investment in industry. The policy document accords specific emphasis to the promotion of SMEs, encouraging informal sector businesses to grow and formalize, and indigenous entrepreneurs – including women, youth and other disadvantaged groups – to take part in economic activities. There has been a modest growth (8.0 – 8.6%) in the industrial sector in Tanzania in recent years. However, the increase has not been uniform across industrial establishments. The main constraints of the sector have been domestic supply – constraints

related to infrastructure, such as cost of power, low technological capacity and intense competition from imports. However, there exists an opportunity for the industrial sector to contribute to poverty reduction by creating employment through agro processing and value addition to agricultural produce.

The Small and Medium Scale Enterprises (SMEs in Tanzania are constrained by finances as well as lack of managerial and technical skills. Other constraints are high costs of doing business, inadequate availability of support infrastructure services, inadequate entrepreneurial skills, and labour market barriers to mention a few. The food processing industry in Tanzania is characterised by dominance of SMEs. The sector is largely informal, under performing and in need of considerable assistance to overcome the entrenched disadvantages and barriers. In a survey conducted by the University of Dar es Salaam (UDSM, 2002), in the Eastern Zone of Tanzania on the status and needs of SMEs, it was found that the majority of them were not satisfied with the performance of their enterprises. The main reasons for dissatisfaction were underperformance of equipment and machines, lack of market for their products, limited finances, and obsolete technology.

1.4 Small and Medium Enterprises Development Policy

There is no one single definition of Small and Medium Enterprises (SME) that is used internationally. Different countries use different criteria to classify their enterprises, depending on the level of development of enterprises in those countries. The criteria that is being used includes the number of employees, the scale if investment and income generated from the sale of goods. SMEs as defined in the Tanzania's Small and Medium Entreprise Development Policy [URT, 2003] encompases all non-agriculture economic activities, especially industrial production, small scale mining, commerce and service provision. Also the policity has categirised the Tanzanian industry and trade sector as shown in Table 1. If an enterprise falls in more than one category based on the number of employees and capital investment in machinery criteria, the investment criteria dictates in making a decision on the category of the enterprise concerned.

Table 1: Categories of Industry and Trade

Category of Enterprise	Number of Employees	Capital Investment in Machinery [TSh.]
Micro entreprise	1-4	Up to 5 million
Small enterprise	5-49	Above 5 million to 200 million
Medium enterprise	50-99	Above 200 million to 800 million
Large enterprise	100 plus	Above 800 million

The significance of SMEs is recognized all over the world. SMEs have a big potential to bring about social and economic development, by contributing significantly in employment generation, income generation and catalyzing development in urban and rural areas. Statistics that is available at present in Tanzania on the SME sector are estaimate. However, these statistics indicate indicate that the sector contributes nearly one third of the Gross domestic Product (GDP) and a big percentage of emeployment. In the year 1991, it was estimated that 20% of all manpower in Tanzania was employed in the informal sector. The most recent estimate is that there are about 1.7 million enterprises operating in the country, employing more than 3 million people.

The potential of the SME sector in Tanzania has not been fully exploited due to a number of barriers that hinder the development of the sector. These barriers include weaknesses in the legal structure, poor infrastructure, weak business and project development services, low access to finance, non-supportive institutional framework, etc. This undersirable situation has persisted for a long time, despite the existence of various programmes aimed at developing the SME sector. The reasons mentioned above prompted the Government of the United Republic of Tanzania, through its Ministry of Industry and Trade to develop the small and Medium Enterprise Development Policy in the year 2003 [URT, 2003]. Through the policy, the government has set strategies for development of the SME sector, which aim at removing the barriers that hinder the development of the sector, and which have been mentioned earlier in

this paper. The government through it Ministry of Industry and Trade (URT, 2003), in consultation with various stakeholders, has developed a Small and Medium Enterprise Development Policy. The Policy is an integral part of the government's Private Sector Development Strategy, and aims to create an enabling business environment as well as to strengthen and network institutions that can address the constraints and at the same time seize the opportunities that determine the growth and the standard of performance of the SME sector.

The general objective of the Government's SME Development Policy is to foster job creation and income generation through the promotion of the creation of new SMEs and improving the performance and competitiveness of existing ones to increase their participation and contribution to the Tanzanian economy. The overall purpose of this National Business Incubation Programme is to have a positive impact on economic development in Tanzania by facilitating the achievement of objectives in the Government SME Development Policy 2002 – 2012, having particular regard for incubator facilities for emerging companies This is in accordance with the Government Policy for SME Development, which states at Paragraph 5.3.4 [Technology]: "Technology advancement and transfer are important aspects for SMEs development. SMEs have limited access to technology development partly because they lack the relevant information. The problem is further compounded by the existence of industrial support institutions, which are weak and operate in isolation without focusing on the actual requirements of the SME sector. Furthermore, technologies available are not disseminated to the potential clients. In addition, SMEs cannot afford the services provided by the relevant institutions. As a result of the above, SMEs continue to mainly use poor and obsolete technologies."

The resultant policy statement is that: "The government will facilitate acquisition and adaptation of technologies as well as enhance networking between R&D institutions and SMEs in a bid to upgrade technologies so as to raise the productivity and competitiveness of the sector." Paragraph 52 of the policy gives four strategic directions for the achievement of this policy. Strategy No. (iv) is to "facilitate the establishment of incubators".

2 A REVIEW OF INCUBATOR CONCEPTS AND MODELS

2.1 Historical Background

The origin of incubators can be traced back to Western industrialised countries in the late 1970s and early 1980s. Faced with a rapid rise in unemployment resulting from the collapse of traditional industries, it was recognised in both the Europe and the USA that fresh strategies were needed to help regenerate crisis sectors, regions and communities. Strategies pursued in the 1980s were broadly characterised by a switch in emphasis from a 'top-down' approach relying on exogenous factors and involving public intervention to transfer surplus mobile capital and jobs from developed to underdeveloped or declining regions, to a 'bottom-up' approach focussing on maximising the indigenous potential for economic development. At the same time, business incubators began to be used as instruments to support innovation and technology transfer.

"The 'first generation' incubators in the 1980s were essentially offering affordable space and shared facilities to carefully selected entrepreneurial groups. In the 1990s the need was recognized for supplementing the workspace with counselling, skills enhancement and networking services to access professional support and seed capital, for tenants within the facility and affiliates outside. This led to the 'second generation' incubator, although many in the developing countries are still stuck in the original mode. Starting in 1998, a new incubation model emerged in parallel. This is intended to mobilize ICT and provide a convergence of support, towards creating growth-potential, tech-based ventures [Lalkaka, 2001]. By the beginning of this Century, there were thought to be around 3,000 business incubators of various types worldwide. Until this moment, the number would have increased significantly.

2.2 Incubator Definitions

The definition of incubators varies from country to country. The European Union [EU, 1998] defines a business incubator as "A place where newly created firms are concentrated in a limited space. Its aim is to improve the chance of growth and rate of survival of these firms by providing them with a modular building with common facilities (telefax, computing facilities, etc.) as well as with managerial support and back-up services. The main emphasis in the EU definition is on local development and job creation.

In the USA, the National Business Incubation Association (NBIA) [NBIA, 2001] defines business incubation as a dynamic process of business enterprise development. Incubators nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable. Incubators provide hands-on management assistance, access to financing and orchestrated exposure to critical business or technical support services. They also offer entrepreneurial firms shared office services, access to equipment, flexible leases and expandable space — all under one roof."

The definitions adopted by the UKBI and German ADT are similar. Whilst the provision of physical space for start-ups is again seen as a defining characteristic of incubators, equal emphasis is placed on other aspects including, in the case of the UKBI, entrepreneur training, mentoring and visibility which are not mentioned in the NBIA definition. According to the two above-mentioned definitions, business incubation is defined as a "dynamic business development process. It is a term, which covers a wide variety of processes, which help to reduce the failure rate of early stage companies and speed the growth of companies, which have the potential to become substantial generators of employment and wealth. A business incubator is usually a property with small work units, which provide an instructive and supportive environment to entrepreneurs at start-up and during the early stages of businesses. Incubators provide three main ingredients for growing successful businesses - an entrepreneurial and learning environment, ready access to mentors and investors, visibility in the marketplace."

In contrast, the definition used by ELAN in France does not mention the physical attributes of an incubator at all and instead puts the objectives of promoting new start-ups and helping existing firms to expand at the centre of its definition. There are two main conclusions to be drawn from this brief review of the various incubator definitions: firstly, there is a considerable degree of overlap with (in most cases) the focused approach to SME promotion, and combination of incubator units and business support services being seen as what makes the incubator concept unique; secondly, the differences, to the extent that they exist, lie in the varying emphasis placed on the importance of physical aspects as opposed to other business support services, and the business incubation process itself, as constituting the essence of the concept.

In simple terms, Armstrong (2002) defines the traditional business incubator as a micro-environment with a small management team that provides physical work-space, shared office facilities, counselling, information, training and access to finance and professional services in one affordable package. Incubators vary widely in their sponsors (state, economic development group, university, business, venture capital), objectives (from empowerment to technology commercialisation), location (urban, suburban, rural, and international), sectoral focus (technology and mixed, now including kitchen and arts incubators) and business model (not-for-profit or for-profit). While these can serve a variety of businesses, in the developing countries the main focus has been on technology incubators for commercialising innovations. Armstrong (2002) also argues that in its generic sense, the term `business incubation system' is often used to describe a wide range of organizations that, in one way or another, help entrepreneurs develop their ideas from inception through to commercialisation and the launching of a new enterprise. A broad definition of the term embraces, on the one hand, technopoles and science parks, which are essentially real estate operations and, on the other hand, organizations, which have no single physical location and concentrate instead on managing a network of enterprise support services (`incubators without walls'), so-called 'new economy' incubators, and a variety of other models.

2.3 Role of Business Incubators

Business incubators provide entrepreneurs with a supportive environment to help establish and develop their projects. By providing services on a 'one-stop' basis, and enabling overhead costs to be reduced by sharing facilities, business incubators can significantly improve the survival and growth prospects of start-ups and small firms at an early stage of development.

They reduce start-up fixed costs by providing access to affordable space and shared services, and offer valuable business assistance. In addition, the incubator setting provides the opportunity to discuss problems and share experiences, and to form the business networks and contacts necessary to entrepreneurial existence.

2.4 Classification of Business Incubators

The classification of different types of business incubation systems is somewhat confusing. Most, incubators have strict admission criteria and it is principally this that enables different types to be distinguished. It is also necessary to take the objectives of the incubator into account. As such, business incubators are divided into two groups, namely multi-purpose and specialised incubators. Multi-purpose incubators admit any type of business satisfying basic commercial criteria. Specialized incubators focus on particular activities, for example the development of specific types of technology or, a new type. The incubator supports small and medium-sized businesses in the establishment and growth. Incubators are also a `higher' form of managed workspace. embracing a range of facilities that provide entrepreneurs with business premises on a managed basis. Types of managed workspace can be categorized according to the extent to which the management team adopts a `hands-on' approach in their relationship with tenants and their businesses; and the type of businesses admitted to the facility, in particular the degree of technological sophistication. Business incubators vary considerably in terms of their physical characteristics, the range of services provided, operating procedures and target markets. They also share certain features in common that distinguish them from other organizations, including closely-related operations such as Science Parks, Innovation Centres and managed workshops.

In the US and EU the business incubator model evolved slowly, relatively advanced types such as technology centres only being established after around a decade's experimentation with more basic forms of managed workspace. It is argued [Armstrong, 2002] that it may well be that this process can be replicated in developing countries, given the opportunity to capitalise on experience in the US/EU. There is, however, much to be said in developing countries for adopting a staged approach to the development of business incubators. In effect, this means that the different models could be viewed not as separate and mutually exclusive alternatives but rather as stepping-stones in an evolutionary process. In other words, incubator models and/or their individual components should be considered as "modules" which should be selected according to the objectives, the particular needs of the target area and groups, and, of course, the resources available, to create a tailor-made set of services.

Armstrong argues that with the foresaid in mind an example of the modular approach is the establishment of an `Incubator without Walls' as a first step in the development of business incubators in newly industrialized countries, which might make sense as a means of keeping start-up costs to a minimum (provided, obviously, that the target group has a means of functioning without the extra provision of space). This approach is advocated, amongst others, by the European Commission, which has long favoured a pilot or trial phase, during which business incubator services (except incubator space) are provided to clients, prior to taking the final decision to commit the funding required to establish a fully operational business incubator complete with its own premises. In line with this overall approach, the multi-purpose business incubator model, linked to a medium-term strategy of gradually introducing more selective admission criteria and stricter exit rules, is a natural development after establishing an `Incubator without Walls'. This allows a process of up-grading the business incubator, perhaps resulting in the establishment of a technology centre, to be undertaken as and when justified by circumstances, and reduces the risk of creating expectations that cannot realistically be met.

Incubators can be described in terms of the level of infrastructure and the objectives to be reached, or through the relationship between the level of technology and management support involved. Figure 2 illustrates the relationship between different incubator modalities and between these and other SME promotion structures that include a physical space element. With regard to management/technology criteria, business incubators are positioned towards the bottom right-hand corner of the matrix since they provide a high degree of management support to tenants and usually, although not always, cater for technology-based enterprises.

2.5 Objectives of Business and Technology Incubators

There is no single model for a business or a technology incubator. The incubation of new firms is a highly flexible process with multiple stakeholders maintaining differing objectives. Nevertheless, these objectives can be broadly grouped under four categories, namely economic development, technology commercialisation, property venture/real estate development, and entrepreneurship. With regard to economic development, incubators are tools for promoting new businesses, especially technology based firms. Most universities have technology, which needs to be commercialised. This could be achieved with the collaboration of industry and incubation has a potential role to play.

Technology and business incubators are also lucrative property-based ventures. However, it is argued [Armstrong, 2002] that there is a potential for conflict between the profitability of a property-based venture and longer-terms goals of technology and economic development. In many cases, incubators have been forced to take on tenants among whom there are little synergies in order to maintain occupancy rates and generate sufficient operating revenue, if not profits. In the United Kingdom, for example, an estimated 35 per cent of space in science parks is occupied by accountants, insurance companies and financial services. Promoting entrepreneurship through incubators is another objective of public support, especially in countries, which seek to develop an entrepreneurial culture and create SMEs in economies long, dominated by large state-owned firms. Entrepreneurship is increasingly recognised as a critical element in the process of innovation and the creation of technology-based firms.

2.6 Incubation Facilities and Services

Business incubators seek to provide their clients with a comprehensive range of facilities and services. Business incubators embody a systematic approach to new enterprise development, which can be described as consisting, of five dimensions: enterprise development; a business consultancy network; entrepreneurial synergy; flexible affordable working space; and shared office services. These five dimensions describe the purpose, benefit, design and management of business incubators. Enterprise development services include hands-on assistance with regard to business planning, training in management skills, access to accounting, legal, marketing and financial expertise, and ad hoc advice. Business incubators established in developing economies are unlikely to be able to provide all facilities and services on an in-house basis given the limited resources available to them. Networking with external providers will therefore be necessary. An incubator consultancy network or business development network consists of individuals drawn from the ranks of professional business service providers, experienced business people and educators who are willing to provide advice and assistance to entrepreneurial enterprises. An incubator adds value by assembling a comprehensive array of skills and through experience, screening the participants in the network down to select individuals who can most successfully tailor their services to the needs of small growing firms.

Locating entrepreneurial firms together provides the prospect of generating a symbiotic environment where entrepreneurs share resources and experiences, learn from one another, exchange business contacts and establish collaborative business relationships. One other important contribution that this can make is to overcome the loneliness of the entrepreneurial work environment. It is quite common for subcontracting and other business relationships to develop among tenants. Similarly, there are many instances when a particular tenant acts on behalf of the business incubator management as the provider of certain common services (for example, computer support). A further aspect of the internal networking encouraged by business incubators is the informal cross-fertilization of ideas and advice among tenants.

Flexible affordable working space may be either in the form of offices or workshops. Business incubators particularly those that are located on or near industrial estates or science parks may also be in a position to help tenants find premises after they graduate. Common services include secretarial support, telephone answering and common reception and mailing facilities, access to computers and other office equipment, meeting rooms and (in some cases) canteen facilities. If the business incubator is oriented towards manufacturing activities, it may also offer tenants the use of machinery that has been procured for common use e.g. quality control/laboratory facility, fork lift trucks, wood working, metal working, welding and spraying equipment. One of the most popular features of many business incubators in the West is the provision of equipment (ranging from machinery for wood and metal work to computers) for common use by tenants, which would be too expensive for them to purchase on their own. A new trend is to provide all tenant firms with access to a common IT infrastructure, where not only Internet access but services such as accounting, payroll, etc., are provided centrally to all tenant firms. A business incubator will seek to provide continuing assistance to its tenants after they graduate, and may also offer advisory services to small business generally in the region. The availability of suitable and sufficient move-on accommodation is crucial for the principles behind the workspaces to be followed through.

Technology Level →

Management Support ↓	Low	Medium	High
Low	INDUSTRIAL ESTATE	BUSINESS PARK	SCIENCE PARK
Medium	MANAGED WORKSHOP	ENTERPRISE CENTRE	INNOVATION CENTRE
High	MULTI PURPOSE BUSINESS INCUBATORS	BUSINESS INNOVATION CENTRE	TECHNOLOGY CENTRE

Figure 1: Typology of Business Incubators

3: INTERPRETATION OF THE INCUBATION CONCEPT IN THE TANZANIAN CONTEXT

There are different ways that have been used to support SMEs to start and grow in various parts of the world. Different countries in the world, including developed and industrialised nations have had different national programmes to assist and support their small and large industries. In Tanzania, since the 1960s and 1970s there have been two large government organisations that were charged with the responsibility of developing the industrial sector. These organisations are the National Development Organisation (NDC) and the small Industries development Organisation (SIDO). It is not the intention of this paper to assess the successes and weaknesses of these organisations and the programmes that they have implemented. Neither is it the intention of this paper to assess the the successes and weaknesses of other government and non governmental organisations and institutions that have attempted to contribute in developing the industry and trade sector in Tanzania and the SME sector in particular. However, one thing is obvious that despite all these efferts, the SME sector has continued to stagnate.

Business and technology incubation in the Tanzanian context is defined as provision of services that give entrepreneurs skills, supportive business networks and tools that they need in order to make their businesses successive ventures, thus catalising the process of starting and/or growing enterprises. The major difference between the concept of incubation and other services that have been offered to entrepreneurs in the past, like those of SIDO, the former Institute of Production Innovation (IPI) of the University of Dar es Salaam, and other organisation, in the SME sector is that unlike for the case of incubation, the services that have been offered in the past were offered peacemeal i.e. only on a few of the services require to make the enterprises concerned successful in starting and growing. In the incubation approach, entrepreneurs are provided with all the services that they require and there is af follow up on the entrepreneurs concerned in order to ensure that their businesses achieve their business objectives within the planned duration. Based on those objectives and expectations, incubation programme normally has very high standard and strict criteria for screening entrepreneurs who deserve to be admitted into the incubation programme. The type and level of service provided by incubation programme makes it very costly. Therefore, it is only those entrepreneurs who have demonstrated a high potential for success, who will be selected to join the programme. From this perspective, incubation can be understood to be discriminatory.

The above notwithstanding, incubation has the advantage of having expectation for high success rate, if conducted properly. This situation has been proved in most of the countries

where the incubation concept has been implemented using best practice. Experience from Nigeria has shown low success rate due to among other things, not adhering to strict selection criteria. There exist different incubator models, which can be used in implementing the incubation concept. Available models to choose from include:
Full service business incubation: All business support services are assembled in one location.
Sheltered estate services: Managed workspace with estate services only (water, power, drainage, waste disposal, etc.).
Incubator without walls: Business support services provided for enterprises occupying their own premises in a common locality (e.g. cluster).
Virtual incubator: Business support services provided to clients irrespective of their location.

There are differences in different countries on the way the countries interpret the incubation concept and the way in which it is being utilised and implemented. These differences arise mainly as a result of the difference that exists in levels of development of the industry and trade sectors in those countries. For example, in most of the developed countries and some of the developing countries, incubation is used for businesses that are either new or existing, only to introduce a new product to the market. In some case, inevitably, such businesses involve new and high technology. In such countries businesses and industries that use ordinary technologies that are already available in the market do not qualify for incubation. However, in those countries, there are infrastructures and other programmes, which exist and are being used to to assist in establishment SME. In developing countries where the level of development of the industriak sector is still at very low level, like that of Tanzania, it is enevitable that almost every SME qualify to be considered for incubation. In those countries, the success and growth of SMEs tha use modern technology and management systems has been slow than it was anticipated. Business and technology incubation can contribute significantly in correcting this situation.

4: INTERNATIONAL EXPERIENCES IN BUSINESS/TECHNOLOGY INCUBATION

There is a considerable accumulation of knowledge and experience on business/technology incubation worldwide. The incubation concept started gain popularity in different countries of the world, especiall the developed countries in the late 1990s, as a means of developing the industry and trade sector. Different countries including USA, European Union Nations, Australia, India, China, Brazil, Colombia, Iran, Jordan, Malaysia, Ghana, Nigeria, Africa ya Kusini, Boswana, Mozambique, Ukraine, Thailand, Srilanka, Senegal, Philippine, Namibia are implementing business and technology incubation programmes and projects, that aim at developing their industry and trade sector. Some of the above mentioned countries have national level programme and organisations, which oversee the implementation of the incubation concept. This has led to what is now regarded as best practice in incubation.

One of the critical issues regarding the operation of incubators is how the incubator manager and management teams use their time. For example there have been cases [Armstrong, 2002] where on average, nearly 75% of incubator managers' time was being spent on non-incubator responsibilities and incubator real estate issues such as rent collection, maintenance and the management of refit or refurbishment of tenant spaces; and only 10% of incubator managers' time was spent working with tenants. Armstrong argues that there is firm evidence to indicate that incubators, which are most enterprising and sustainable, in business terms, are also most effective in value adding to their clients.

International experience has also revealed that not all incubators have been successful. Measures of success and failure vary depending on context and objectives. Incubators fail to perform according to expectations for a variety of reasons, starting in the planning stage and including the following:
Lack of feasibility study and business plan resulting in inadequate demand;
Poor governance due to inactive boards;
Location with poor infrastructure and weak entrepreneurial culture;
Inappropriate building layout and limited space;
Manager without business experience and skills;

High investment and operating costs;
Insufficient professional and university linkages;
Inadequate government policies, support, taxes; and
Inappropriate selection of clients due to lack of proper screening criteria and corruption.

In order to make sure that the incubator is a feasible proposition, it is recommended [Armstrong, 2002] to undertake the preparation of a feasibility study for a technology/business incubator. Firm guidelines on how to undertake the preparation of a feasibility study for a technology/business incubator in Tanzania were provided. This is followed by undertaking business plan preparation for the incubator and its clients/tenants, before physical establishment of the incubator.

Another important and critical aspect, of best practice in incubation is with regard to the incubator life cycle. The components of best practice business incubator management rest on how incubators are designed and operated to rapidly move through the initial, real estate focused phase of their development, to concentrate their time and effort on enterprise development, by providing value-adding management services to their clients.

Financial sustainability is another crucial aspect of business incubator. Admittedly this issue is very controversial. There are those in developed world who argue that incubators should seek financial independence by attain self-sufficiency, that is, to generate enough income to pay the programme's operational expenses. On the other side, there are those in developing countries who insist that since incubators provide services at subsidised cost, they should be funded either by government and/or other bodies that are stakeholder in the whole process of developing the SME sector and the local economy.

5: THE NATIONAL BUSINESS/TECHNOLOGY INCUBATION PROGRAMME

Incubation, in its broder context as it has been described in the preceeding is a new concept to Tanzania. The origin of this concept in Tanzania can be trace back to the development of the National Small and Medium Enterprise Development Policy, and also the establishment of the Technology Development and Transfer Centre (TDTC) of the University of Dar es Salaam in the year 2001, with one of its core functions being technology incubation. On the basis of the two developments mentioned above, and in collaboration with the non-governmental organisation called Tanzania Gatsby Trust (TGT), the National Business Incubator Programme (NBIP) was established in the year 2003.

The structure of the programme and also its implementation takes into consideration experience that has already been gained in other countries. The Consultative Document on the National Business/Technology Incubator Programme [Armstrong, 2002] reflecting lessons learned and experiences from other countries, mainly the European Union (EU) and the United States of America (USA) was prepared in the year 2002, by the prospective College of Engineering and Technology of the University of Dar es Salaam with financial support from TGT. The document was discussed by stakeholders at two workshops in November 2002 and March 2003, which were organised by the pCET, under the umbrella of the Ministry of Industry and Trade (MIT). The document was adopted as the guideline for development of a National Business Incubator Programme (NBIP), which eventually would become one of the key implementation mechanisms of the SME Development Policy. Prerequisite to this is a successful testing of alternative incubator models in a pilot phase.

The Implementing Authority of the NBIP is the SME Section of MIT. In order to assist the Implementing Authority to perform its task properly, the National Working Group (NWG) of the NBIP was formed, which comprises members from MIT - SME Section, SIDO, TDTC, and UDEC. The Group is chaired by MIT and TDTC is the Secretariat. Also the National Incubation Stakeholders Forum (NISF) was formed. The NWG is responsible for coordinating and overseeing all business and technology incubation activities in the Tanzania, following the advise and guidance of the NISF. In particular the NWG ensures best practice in incubation.

The objective of the NBIP are divided into three main categories, which are overall objective developmental objective and institutional objective. The overall objective of the NBIP is to have a positive impact on economic development in Tanzania by contributing to the achievement of objectives as stated in the Government's SME Development Policy, having particular regard for the improvement of SME's access to new and adapted technology and business support services.. The developmental objective NBIP is to enable SMEs to grow quantitatively and qualitatively under the umbrella of a nationwide business incubator programme, yet to be designed and approved based on the conclusions and ex post evaluation of the Pilot Phase. The institutional objective of the NBIP is to pilot a replicable case studies of demand-driven technology/ business incubators that are suitable, demonstrably technically feasible, economically viable, and relevant to national policy objectives.

6: THE PILOT PHASE OF NATIONAL BUSINESS/TECHNOLOGY INCUBATION PROGRAME

Following the establishment of the NBIP in the year 2003 different organisations that deal with the development of SME were allowed to start implementing the pilot phase of the programme, under the guidance of the NWG and NISF. Since that time, there have been various initiatives to start incubation projects in Tanzania. The projects include those being implemented by the following institutions:
Prospective college of Engineering and Technology (pCET) of the University of Dar es salaam;
Small Industries Development Organisation (SIDO);
University of Dar es Salaam Entrepreneurship centre (UDEC) in collaboration with the University Computing Centre (UCC), both of the university of Dar es salaam;
The Revolutionary Government of Zanzibar; and
Ministry of Community Development, Gender and Children.

The pCET pilot incubation project, which covers the period 2003-2007 and which is being supported financially by the Tanzania Gatsby Trust (TGT) and the Carnegie Corporation of New York, is being implemented in three districts namely Kibaha in coast region, Morogoro in Morogoro region and Lushoto in Tanga region. The target group for this project are entrepreneurs who are operating or intending to start small and medium enterprises especially those that involve technology and which have high potential to bring about positive impact on more people and faster in social and economic development in the areas concerned.

The implementation of the pilot phase involve nine major steps as follows:
Promotion of the incubation concept and information campaign
Performing background analysis
Undertaking feasibility study
Preparing business plans for the incubators and clients/tenants
Establishing the incubators physically
Operating the incubators.
Establishing and operationalising a monitoring and evaluation system for the incubators
Disseminating the results of the pilot phase
Providing care to incubator tenants/clients after graduation

Until the time of writing this paper, the implementation of the pilot phase is progressing well in all the three districts concerned. Promotion of the incubation concept and information campaign, the Consultative document on NBIP was prepared in the year 2002; adopted in 2003 and proposed to be annexed to the National SME Development Policy. The National Working Group, which steers NBIP was also formed. National Business Incubator Forum which meets half yearly and consisting of the various national stakeholders on business incubation was formed. Promotion of NBIP was carried out in 2003 through preparation of posters, brochures, exhibitions, workshops, seminars and visits to various places. The promotion process is still ongoing in the localities of the pilot project, nationally and internationally.

In performing background analysis, potential incubator locations were identified, and the infrastructure surveyed. Local economies were analysed, prevailing technology levels were assessed and available local business support was assessed. Socio - cultural analyses of the

target areas were performed and goals for the incubators in potential locations were defined. Also the broad incubator design features were specified and local promoters ("local champions") were identified.
Feasibility study involved characterising in detail the target groups, defined specific services required by the target groups and the likely level of local support. The overall incubator strategy options we conceived and the costs to establish and run the incubator options were specified. The process also involved defining operational cost gaps, specifying attributes and qualities of the incubator management team(s), and evaluated various design options. A consultative document was drafted and validated by stakeholder workshop. The stakeholders also recommended / confirmed follow-up measures (work plan).

Preparation of business plans for the incubators and clients/tenants incorporated the establishment of promotional partnerships for tenants/clients of three incubators. Business Plans for the incubators and the tenants/clients of the incubators have been prepared and approved by stakeholders. Mobilisation of resources for establishment and operation is ongoing. Job Descriptions for incubator management team(s) have been prepared and the recruitment process is under way.

Preparations for the physical establishment of the three incubators are ongoing. These include recruitment incubator management staff, securing physical facilities, final screening and selection of clients/tenants, preparing contracting arrangements, fund raising, development of monitoring and evaluation system, identifying and making agreements with service providers for the incubators, procurement of equipments and machines, development of training curricula and manuals, and development of clients/tenants support mechanism

7. THE PROFILE OF THE PILOT INCUBATOR PROJECTS

7.1 Kibaha Incubator

The Kibaha incubator covers the whole of Kibaha district, which is one of the six districts of Coast region. About 90% of Kibaha residents depend on agriculture. The productive sectors include agriculture, livestock, forestry, beekeeping, fisheries, and wildlife. Cassava is main food crop while cashew is main cash crop. Agriculture is small scale- average farm size 1 to 3 hectares. Livestock include cattle, goats, poultry, pigs and rabbits. The industrial sector has been affected by lack of investments into new and/or already existing industries, which led to closure of large industries including cashew nut processing factory. There are very few small and medium-scale industries in the district and poverty levels are high. The average income per capita in the district was approximately US$ 40 in 2000. There has been a decline in cashew nut production national wide and in Kibaha district. The reasons for the decline are cashew fungus disease, which reduced the production for every tree by 5-10% of the normal production; price drop for cashew crop in the world market; villagelisation operation, which forced smallholder farmers to leave their traditional villages to live in communal villages, thus abandoning their crops; lack of finance to purchase agricultural inputs on the part of the farmers and cashew nuts on the part of the cooperative unions; poor performance and finally close down of large cashew nut processing factories (a total of 12 factories with total annual processing capacity of 112,000 mt of raw cashew nut). India is Tanzania's major foreigner buyer of raw cashew nut, and most of the cashew nut that is produced in Tanzania is exported in the raw form.

The purchase price of raw cashew nut from farmers is US$ 0.60 to US$ 0.70 per kg (US$ 600 to US$ 700 per mt) for standard grade (Grade I). The export price for same grade of raw cashew nut is US$ 915 to US$ 950 per mt (FOB). Local price of processed cashew nut is US$ 9.00 per kg (US$ 9,000 per mt) for the highest quality grade and US$ 4.00 per kg (US$ 4,000 per mt) on average average. Export price of processed cashew nut: US$ 5.60 - US$ 8.10 per kg (US$ 5,600 and US$ 8,100 per mt) depending on grade. The above data shows that the price of processes cashew kernels is up to almost ten times higher than that of raw cashew nut. The current processing capacity in Tanzania can hardly meet the local demand.

The cassava crop withstands drought conditions and grows in almost all areas of Coast region. More than 50% of cassava produced in Coast region is sold in Dar es Salaam City, (40 km

away). The market for cassava is more favourable during wholly month of Ramadhan. There is very little commercial postharvest processing for cassava in Tanzania. Recently technologies for small - scale commercial postharvest processing of cassava has been introduced in Tanzania

Considering the local economic situation in Kibaha district, the Business/Technology incubator being established in Kibaha district is specialised in food processing and has SME operating in the following areas as its prospective tenants/clients:
Fruit and vegetable processing (five SMEs)
Cashew nuts processing (nine farmers groups)
Cassava processing (ten farmers groups)
Processing of livestock feeds (four SMEs)
Diary processing (One Cooperative society with 55 members)

The expected production output per day of the Kibaha incubator is 10 metric tonnes of processed cashew nut and 5 metric tonnes of processed cassava. The incubator is expected stimulate growth in cashew nut and cassava production in the district. It is also expected, if successful, to have a spin off effect/replication in other parts of Coast region and Tanzania in general. Also the project would have a tremendous advantage due to value addition in agricultural produce.

7.2 Morogoro Incubator

In Morogoro district the incubator that is being established will be specialized in fruits and vegetable processing. This is a very appropriate proposition due the high production capacity for fruits and vegetable in the Morogoro region and the neighbouring region of Iringa. Several studies that have been conducted in the region have shown that there are quite large postharvest losses for the produce that could be reduced through processing. A total of about twenty processing SMEs will be accommodated in the incubator at a time.

7.3 Lushoto Incubator

Lushoto is another district with very high potential for production of fruits and vegetables. It also has a high potential for diary farming. The screening of potential tenants/clients for Lushoto district indicates that the type of incubator to be established there is also food processing. High potential areas are fruit and vegetable processors producing jams, tomato paste, juice, fruit wines, and pickles; milk and dairy processors producing raw milk, cheese, yoghurt, and butter; vegetable & fruit farmers (cabbages, tomato, carrots, plums, pears, passion); and sugarcane products (sugar, gur).

8: CHALLENGES AHEAD

8.1 Understanding the Incubation Concept

The most critical challenge facing the NBIP is the understanding and interpretation of the incubation concept and its implementation. Two year after the approval of the incubation concept, based on the Concept Document for NBIP [Armstrong, 2002] there seems not to be a concesus on the concept of business incubation, also among the key implementers of the programme. This raises very serious concerns on the success of the programme and need very urgent attention. It is the hope of the author that this paper has attempted to resolve some of the issues and therefore making the concept clearer to the implementers of the programme and the general public.

8.2 Sectoral Coverage

The NBIP is being implemented along the lines of the SME Development Policy, which defines SMEs to encompases all non-agriculture economic activities, especially industrial production, small scale mining, commerce and service provision. In the above definition some of the key sectors of the national economy such as agriculture and construction are left out. It is understood that there are quite a lot of economic activities being implemented in these sectors

that are organised along the lines of SMEs and meet the criteria as shown in Table 1. Most of these activities also need to be incubated. The challenge that needs to be resolving in this regard is how best to get these sectors and the government ministries responsible on board the programme.

8.3 Financial Sustainability

The issue of financial sustainability of business and technology incubation has been discussed in Chapter 4. For country like Tanzania and the type of SMEs that exist, the self-sustaining model for business and technology incubators is not feasible. There is a need to ensure that adequate financial resources are available for implementation of the programme. Indeed this is the key challenge the pilot project is trying to resolve.

8.4 Best Practice

Good practice in incubation includes being very clear about the objectives of the incubation project or programme, having clear and transparent selection criteria and mechanism, having the right calibre of incubator managers, good governance and financial sustainability. As it has been mentioned earlier, the responsibility of ensuring good practice in the incubation process and activities in Tanzania lies on the NWG and the guidance of NISF. The main challenge faced here is to ensure that these two important ogans function properly. This included holding regular meetings to exchange experiences of those organisations that are already implementing incubation programmes in the country.

8.5 Government's Role

Active participation and financial support from the government are key ingredients to the success of the NBIP. The MIT is the government Ministry that is responsible for the SME sector. So far its role in the programme has been very supportive, although this is yeat to be translated into monetary terms. Recent information is that some funds are now available for implementation of the NIBP as part of the implementation of the NSGRP, through the MIT.

9: CONCLUSIONS

The national Business/Technology Incubation Programme (NBIP) is a special programme and of its kind to be implemented in Tanzania in order to assist in developing the SME sector .The programme has been designed and is being implemented with due consideration of the actual situation regarding the level of development of the industry and trade sector in Tanzania and the experience that exists in other countries, where similar programmes have been implemented.

The stage that has been reached so far with respect to the implementation of the pilot phase is satisfactory and encouraging. There are all signs that the pilot phase being implemented by pCET would become successful. The target group and shareholders, in all the three localities the pilot project, have shown a great deal of enthusiasm, support and cooperation. They also have accepted the programme as a means of solving their problems facing entrepreneurs in starting up businesses and making them to grow. A call is being made to all other organisations, government or non governmental that deal with development of SMEs in Tanzania to join and support this programme.

Although the focus of the business and technology incubation programme is mainly on the industrial sector as defined in the National Small and Medium Enterprise Development Policy, the programme has backward linkages to the agriculture sector in that it stimulates and supports agriculture prosuction for crops that are used as raw materials in the enterprises being incubated. The business and technology incubation approach has a very high potential for contributing to attaininment of Vision 2025, in that it stimulates SME development that helps to achieve poverty reduction.

10: RECOMMENDATIONS

In order to ensure that the implementation of the NBIP is on the right course, and that it has the potential to achieve its objectives and those of other National Policies incuding Vision 2025, the following recommendations are made:
Holding a National Business and Technology Incubation Forum that will involve all key stakeholders, not only in the trade and industry sector, but also other sectors of the economy such as agriculture, construction, and the service sector; to review the implementation of the programme and agree on the way forward.
Reviewing the incubation concept based on the experiences gained in through the implementation of the pilot project a National Incubator Framework that will cover all sectors of the economy and have highest impact on the economy and the society.
MIT and the other relevant government Ministries – the Ministry of Agricucture and Food Security, Ministry of Works, Ministry of Health and Ministry of Education should have to work out modalities on how to involve Ministries in the NBIP.
The government should set aside sufficient financial resources for implementation of the NBIP.

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