THE UNIVERSITY OF ZAMBIA

SCHOOL OF MINES

ASSESSING THE IMPACT OF POLICY CHANGES ON SMALL-SCALE MINING IN TANZANIA

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NOVEMBER, 2000

DECLARATION

I, Oforo Ngowi, hereby declare that this dissertation represents my own work and that it has not been previously submitted for a degree at this University or any other University. Where other people's work has been referred to acknowledgement has been given.

Signed ....A Ngowi..........

Date ....21/01/2002..........

APPROVAL

This dissertation of Mr. Oforo Ngowi is approved as fulfilling part of the requirements for the award of the degree of Master of Mineral Sciences of the University of Zambia.

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ACKNOWLEDGEMENTS

The author would like to thank the following for their help and contributions rendered to him at one stage or another in the preparation of this work.

The supervisor at the University of Zambia (UNZA), Dr. Stephens M. Kambani for his valuable advice and guidance.

The Permanent Secretary, Ministry of Energy and Minerals, Dar-es-Salaam, for granting me a study leave to undertake this study and also for the assistance rendered during data collection.

The Government of the Kingdom of Belgium through the Regional Cooperation Section of the Belgium Embassy in Harare for funding my study at UNZA.

The owners of small-scale mines and friendly miners whom I met and interviewed during my field study in small-scale mining centres in Songea, Dar-es-Salaam and Arusha.

My family, particularly my wife, Scholastica, and my son, David for their patience and understanding during the time I was away from home.

The Coordinator, United Nations University, Institute of Natural Resources in Africa, Mineral Resources Unit (UNU/INRA – MRU), at the school of mines, UNZA for allowing me to use their facilities for scanning, typing and printing.

Finally, but not the least, the Dean and all the staff of the School of Mines, UNZA, my colleagues with whom I spent two years at UNZA, and all those who in one way or another contributed towards the production of this report.

ABSTRACT

The Small-Scale Mining (SSM) sub-sector makes a significant contribution to the economy of Tanzania. Major benefits include foreign exchange earnings, generation of income for rural population where alternative means of income are limited and also employs over 500,000 people. Minerals being mined are gold, gemstones, diamonds, construction materials and other minerals. SSM has also played a major role in the discovery of mineral deposits.

Because of the above positive factors, the Government of Tanzania has realized the importance of this sub-sector and hence instituted measures to develop it. These measure include: -

- The National Investment Policy (1997)
- Tanzania Investment Act (1997)
- The Financial Laws (Miscellaneous Amendments) Act (1997)
- The Mineral Policy of Tanzania (1997)
- The Mining Act (1998) and
- The Environmental, Health and Safety Mining Regulations (1999)

However, since the inception of these measures, no thorough investigations have been done to assess the impact of the measures. The main objectives of this study, therefore, are to analyse these measures and assess their impact on the SSM sub-sector. The major constraints hindering the development the sub-sector and the strategies for overcoming them are also analysed.

As part of the study, a field survey was carried out in major SSM centres in Dar-es-Salaam, Arusha and Songea. The survey was carried out by use of questionnaires and direct interviews with eighty-five people in the categories of small-scale miners (50), mineral traders (20) and Government officials (15).

Results from the study indicate that while some of the measures being persued by the Government are adequate and well understood by all the stakeholders in the mining sector, some are not. Some of the areas which need improvements were identified as human resource management, infrastructure, training and legal framework. In the final analysis it was concluded that the measures have produced more positive impacts than negative ones. Recommendations/suggestions to reduce or eliminate the negative impacts are also presented.

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CHAPTER ONE

Introduction

1.0 Introduction

Tanzania is a vast country covering an area of 945,090km^2. The population is estimated at over 30 million people, and is growing at a rate of 3% per annum. (Bureau of Statistics,1988). The country is heavily dependent on agriculture for food and generation of foreign exchange.

Historians argue that mining started long before the first foreigner came to the country. Gold mining activities are believed to have taken place during the slave trade period. However, organized mining started during the German rule beginning with gold discoveries in the Lake Victoria region in 1895. (Masuha, 2000). Despite this long history of mining, most of the country's geological environments, from which commercial mineral prospects can be established, remain under-explored. The under-explored geological formation with high potential for economic mineralization extends over 800,000km^2, that is, close to 84.7% of the total surface area.

1.1 Statement of the Problem

Development of the SSM sub-sector has been one the Government's goals since 1980s. However, recent studies (Tandiscovery, 1996) indicated that the past strategies for developing the sub-sector did not yield the expected results. For example, contribution of the sub-sector to Gross Domestic Product (GDP) was below 3% compared to10% in 1960s. The sub-sector is also beset by a number of constraints ranging from technical to socio-economic.

This is mainly due to lack of clear and well-publicized Government policy and legislation for its development. The development of the sub-sector, therefore, requires immediate action to address the following key constraints: -

- Legal;
- Financial;
- Technical;
- Commercial;
- Environmental; and
- Social.

An important pre-requisite to the solution of these problems is the need for well-formulated and implementable mineral policy and legislation for sustainable sub-sector development (Mining Coordinating Unit, Lusaka, 1994).

1.2 Objectives and Scope of the Study

1.2.1 Objectives

The Government has progressively been taking measures to transform and develop the SSM sub-sector as a principal way of exploiting the abundant mineral resources in the country.

The main objective of this study is therefore to critically analyse and evaluate the impact of these measures. Much emphasis is placed on their effects toward transforming and developing the SSM sub-sector.

1.2.2 The Structure of the Report

Although the mineral sector is composed of various classes ranging from small to large-scale, the study is limited to the SSM sub-sector only. The large-scale sub-sector will be discussed where necessary for comparison purposes.

Background information about the country, its location, geology and the structure of the mineral sector will be outlined briefly. The SSM sub-sector will be reviewed with the aim of assessing its significance to the national economy and examining various factors that have had influence on its development. This will form the basis of the study. The past and new mineral policies will also be assessed. Emphasis will be placed on the new mineral policies in relation to SSM, on which the transformation and development strategies are based. The expected outcome of the transformation process will also be discussed, which will be used later in the report as a yardstick when evaluating the impact of the new measures. It is not sufficient to have well formulated and written down policies. What measures are going to be implemented and the key players in the implementation process are important considerations. Under this, the implementation strategy would have been assessed. To investigate the impact of the new measures, a field study was carried out from 23rd March to May 25th, 2000. The findings of the study will be presented. Discussions, conclusions and recommendations towards the end of the report will follow.

1.3 Location and Geology

1.3.1 Location

Tanzania, (formerly known as Tanganyika) is located in East Africa lying between Latitude $1^{0}00'$ to $10^{0}45'$ South and Longitude $29^{0}36'$ to $40^{0}29'$ East. It has common borders with Kenya and Uganda on the North, Burundi, Rwanda, Democratic Republic of Congo (formerly Zaire) and Zambia in the West, Mozambique and Malawi in the South and the Indian Ocean covers the Eastern border. The Isles of Unguja and Pemba (collectively known as Zanzibar) lie in the Indian Ocean and are part of the United Republic of Tanzania. (Figure 1.1).

1.3.2 Geology

Tanzania is mainly underlain by Archean and Proterozoic rocks. The rock formations are classified into eight systems, namely: -

- Ubendian;
- Nyanzian;
- Dodoman;
- Karoo;
- Karagwe-Ankolean;
- Bukoban;
- Usagaran; and
- Mesozoic and Cenozoic systems.

The various geological formations are shown in figure 1.1.

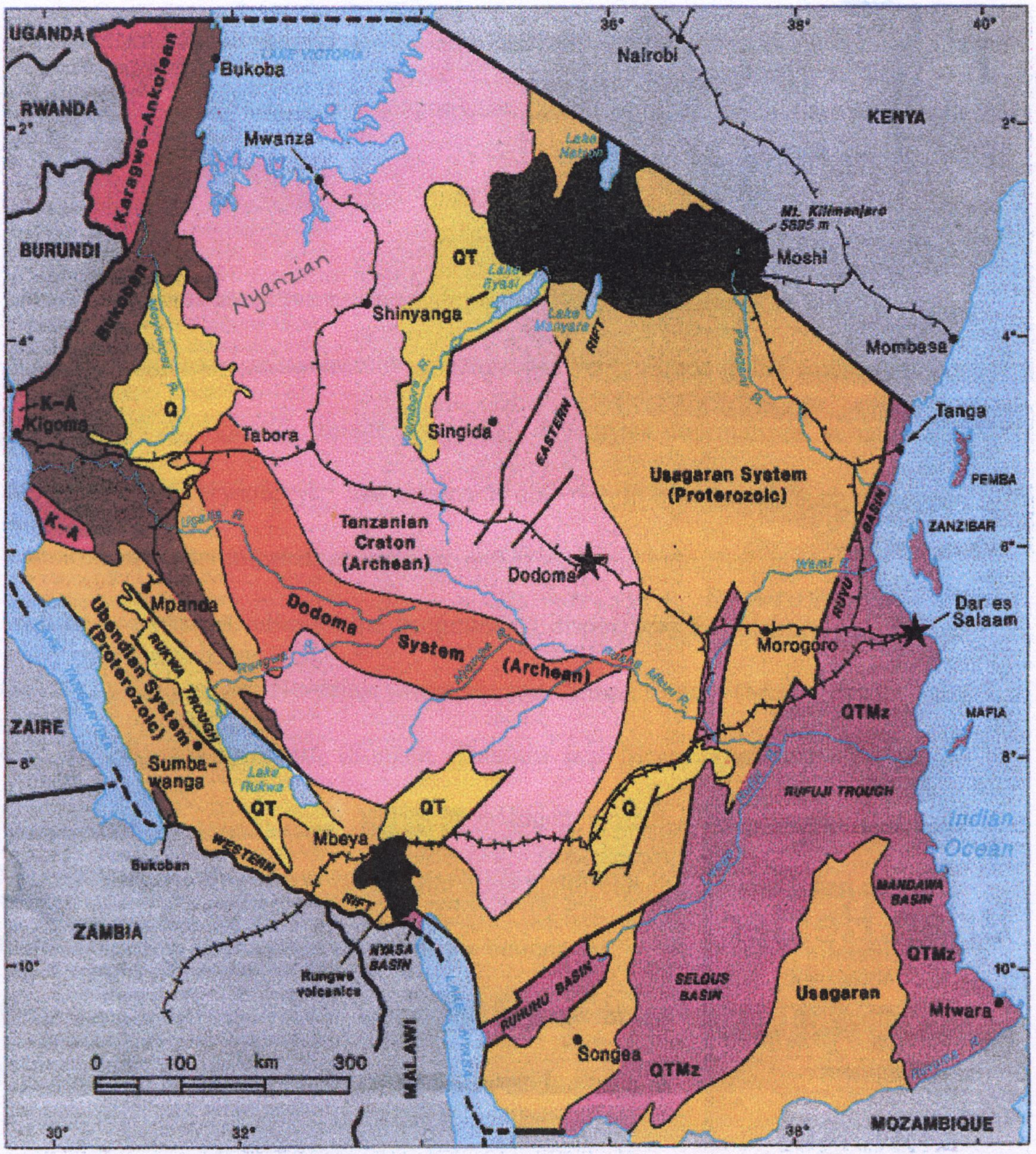

Fig 1.1 : Geological Map of Tanzania
Source: Ministry of Energy and Minerals, Dar-es-Salaam

The Tanzanian craton hosts most of the base and precious metals, and is comprised of granite-related lithologies (Nyanzian and Dodoman systems). It occupies over one third of the country's area and contains the "green stone belts" that are known for their potential gold prospects.

Tanzania presents attractive prospects for a number of minerals, more important ones being gold, diamond and gemstones. Gemstones being mined in the country include rubies, sapphires, garnets, zoisite (tanzanite), amethysts, tourmalines, aquamarines, alexandrite and chrysoberyl. The country is also rich in base metals such as copper, lead, iron and other minerals such as tin, nickel, coal and industrial minerals.
Mineral occurrences follow some geographical disposition. For example, gemstones are mainly found in the Northeast (Merelani and Umba), Central (Morogoro, Dodoma and Singida) and Southern (Songea, Tunduru and Mtwara) while diamonds are confined to the central north and gold is found around Lake Victoria (the Lake Victoria Goldfields) in the north and the Lupa Goldfields in the west. Most mining is therefore carried out close to the country's boundaries. A summary of mineralization found in different geological formations is given in Table 1.1. The numbers in brackets indicate various SSM centres as shown in Fig. 1.2.

Geological system	Rock types	Major mineralisation	Mining and Prospecting activities
Dodoman	Sedimentary and lesser igneous rocks	Possible gold and base metals	Relatively unexplored
Nyanzian and granite-gneiss terrain	Greenstone, granite-gneiss. Banded iron formation	Shear and vein gold Diamond (kimberlite pipes) Volcanogenic Massive sulphides	Most active for prospecting and mining at large- and small-scale since colonial era. Old mines include Buhemba(2), Geita(1), Buckreef(1), and Lupa(4).
Ubendian and Usagaran	Metamorphosed granulite and biotite gneisses with Quartzites	Semi-precious and precious stones in high grade gneisses Graphite Base metals	Active for small-scale mining Old mines include Mukwamba (Pb-Cu-Au)(3), Pare(9) and Lufusi (Cu), Lupa (Au)
Karagwe-Ankolean	Weakly metamorphosed rocks (argillites, phyllites and quartzites)	Nickel in ultrabasic lenses Tin, Tungsten in granite inclusions	Old tin workings at Kyerwa Current Large-scale exploration at Kabanga. Small-scale mining in progress
Bukoban	Weakly deformed sandstone, quartzites, shales, red ban dolomitic limestones and lavas	Copper and silver (syngenetic and chemical precipitated)	Recent exploratory work in Bukoba area indicated copper values of 1 to 3%
Karoo	Coarse sandstone, Shales and salt	Coal	Songwe-Kiwira (4) coal mine is still operating, though at a lower capacity. Other prospects at Ruhuhu (4) and Katewaka Mchuchuma (4)
Mesozoic and Cenozoic	Limestone, sandstone and shale	Gypsum, salt and Calc-alkaline Volcanics Diamond	Small- and medium-scale mining of salt and limestone still in progress Diamond mining active in Mwadui (1)

Table 1.1 Mineralisations found in different geological formations in Tanzania

Fig 1.2 Small-scale mining centres in Tanzania
Source: Ministry of Energy and Minerals, Dar-es-Salaam

CHAPTER TWO

Structure of the Mining Sector

2.0 Introduction

The mineral industry is structured by scale of operation and ownership. Scale of operation range from artisanal/SSM to large-scale. In terms of ownership, the industry is composed of both local and foreign investors. There are mainly three divisions of mineral rights, that is, large-scale mineral rights, (under division A and B) and artisanal/SSM mineral rights (under division D) of the Mining Act, 1998. Division C gives supplementary provisions affecting mineral rights under divisions A and B.

The mining sector is one of the fastest expanding sectors of the economy. Its growth rate, and hence the contribution to the Gross Domestic Product (GDP) is immense. According to the 1998 economic review, the mining sector grew by 10% between 1997 and 1998. The agricultural sector, historically the largest, registered nil growth rate (0%) in the same period. (Also see appendix F). (Bureau of Statistics, 1999).
Growth in the minerals sector was largely attributed to the increase in foreign investments in exploration and mining.

2.1 Mineral Marketing

Prior to 1987, mineral marketing was carried out through Government agencies that operated under the State Mining Company (STAMICO). Gemstones were marketed through Tanzania Gemstones Industries (TGI) a subsidiary of STAMICO and gold was marketed by STAMICO itself.

There was liberalization of mineral marketing in 1987. Licenced private dealers were allowed to trade in minerals including their export in competition with STAMICO. Due to STAMICO's inability to reposition itself in a competitive environment, its marketing role has declined considerably.

At present there are three main classes of official dealers in mineral trade as follows:

(a) Holders of the Mineral Dealer License

These are allowed to buy from local producers and from mineral brokers. They are also allowed to export minerals and they must have a permanent office subject to inspection by mining officials and other public officers. Fees for the license is about US$ 300. This license is valid for fifteen months.

(b) Holders of Brokers Lincense

Their designated role is to buy from local producers and sell to the mineral dealers. They act as middlemen between miners and large mineral dealers. This license does not grant the bearer a permission to export minerals. Fees for this license is about US$ 120. It is valid for twelve months.

(c) Small and Large-Scale Producers

Miners and/or companies wishing to export minerals can obtain an export license, and hence act as mineral dealers.

Illegal dealers in mineral trade exist mainly in the gold and gemstone commodities. These dealers operate on the black market and are instrumental in the mineral smuggling.

2.2. The Role of NGOs

There are various non-governmental groups associated with mining in the country. They include: -

(i) Tanzania Chamber of Mines, (TCM)

It is essentially a lobby group representing large, medium and small-scale investors established in 1990s.

(ii) Tanzania Mineral Dealer's Association, (TAMIDA)

It was formed in 1989 as a link between the Government and miners for mineral marketing purposes. It also offers technical advice on mineral marketing to the Government.

(iii) Regional Miners' Associations (REMAs).

These were formed in 1980s with a role of coordinating the activities of the small-scale miners and assisting the zonal/resident and district mine offices in providing extension services to the miners.

(iv) Federation of Miners' Associations of Tanzania (FEMATA)

This is a national body for REMAs. It was formed in 1984.

(v) Tanzania Women Miners' Association (TAWOMA)

It was formed in 1996 with a role of encouraging women participation in mining activities especially SSM.

2.3 Medium and Large-Scale Mining

The different categories of mining are not well defined in Tanzania. Part IV of the 1998 Mining Act describes large-scale mining as prospecting and mining operations that require substantial expenditure (a minimum of US $100,000 per annum) or the use of specialist technology. For example, section 34 of the Act requires an application for retention licence be accompanied by studies and assessments by appropriate experts or consultants acceptable to the minister for mines. This is in relation to mining methods, percentage recovery, commercial significance of the deposit and the market conditions, trends, technical and economic factors. It also categorizes the level of operations based on the type of mineral right. Medium to large-scale operations falls under mineral rights in division A and B.

The large-scale mining sub-sector has been expanding very rapidly in the past five to six years. The reasons for this sudden expansion include:

- Tanzania offers investors about 84.7% of its total area with varied geological terrains which contains a sizeable inventory of unclaimed mineral ground;
- An easily accessible and systematically archived geological and mineral resource database;
- Political stability and social harmony conducive for business; and
- The Government shifted its economic policies from public-led-sector development to the private sector and market oriented economic management.

These changes coupled with the mineral trade liberalization impacted positively on the large-scale mining sub-sector leading to:

- Increased investment in mineral exploration from US $4.0 Million in 1989 to almost US $60 million in 1998.
- Major mining companies e.g. Ashanti Goldfields, Anglo-Gold, De Beers, BHP Mineral, Placer Dome, Pangea Goldfields, Resolute etc, have decided to have their operations in the country and are engaged in prospecting, exploration and exploitation of minerals.
- In the last five years there has been an estimated 2million ounces of gold discovered in the 'gold belt' around Lake Victoria.
- Large-scale mines e.g. Ashanti Goldfields, Golden Pride, Barrick Gold, East African Gold Kahama Mining etc will be operational by the end of this year producing 700,000 to 800,000 ounces of gold per annum. This will make Tanzania the third largest gold producer in Africa, after South Africa and Ghana
- Hundreds of prospecting and mining licenses have been issued to private sector enterprises between 1994 and 1999. Table 2.1 shows the mineral rights issued during this period.

TYPE OF MINERAL RIGHT	NUMBER
Prospecting	1305
Mining	51
TOTAL	1356

Table 2.1 Mineral rights issued
Source: Ministry of Energy and Minerals, Dar-es-Salaam

The mining sector has the potential of turning round the economy. Good policies, marketing, and better attractants are what is needed to attract the much wanted private sector funding.

2.4 Government Support for the Mineral Sector

The Government owns the right to mineral resources. Prospecting and mining operations are prohibited except under the authority of a mineral right granted under the Mining Act, 1998. The Ministry of Energy and Minerals (MEM) is responsible for administering all prospecting and mining activities in the country. The ministry has two departments namely Energy and Mineral Resources. The Mineral Resources Department (MRD), in turn, has four divisions namely Mines, Geology, Research and Laboratory and Mineral Trade. (Figure 2.1)

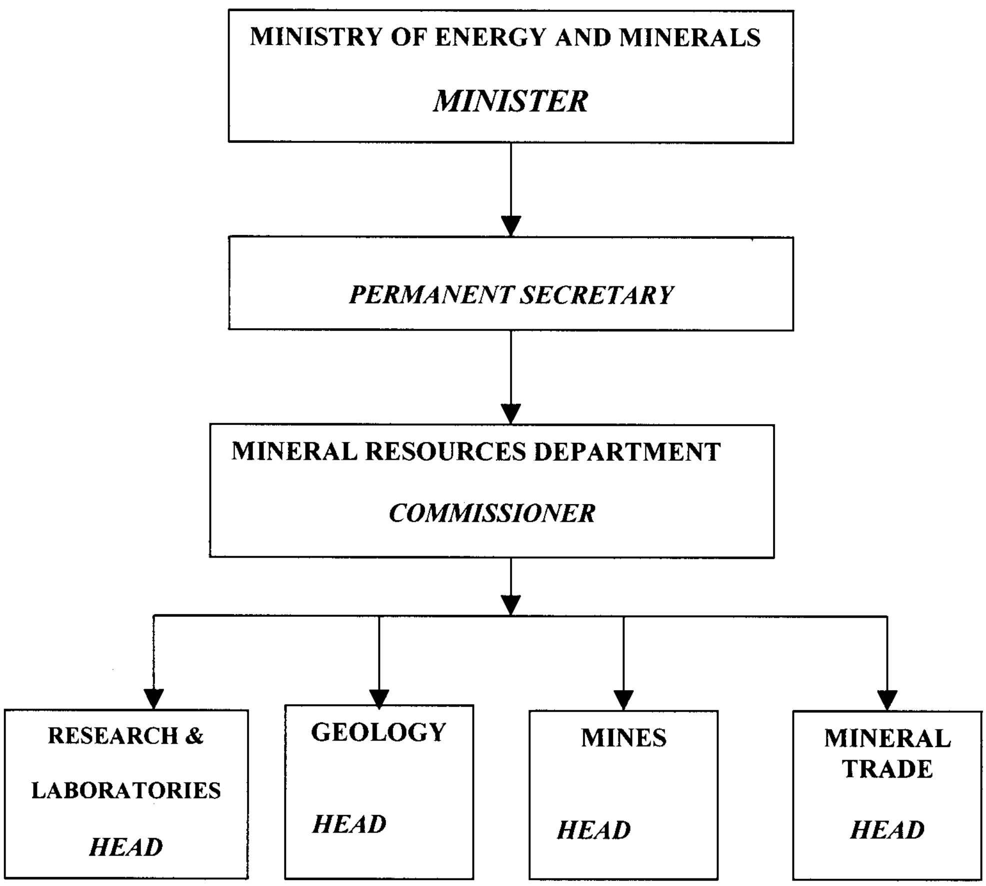

Fig. 2.1 Organisational Structure of MRD
Source: Ministry of Energy and Minerals, Dar-es-Salaam

Within the changed socio-economic environment, the functions of the MRD will focus on:

- Developing an enabling legal, regulatory, fiscal and institutional environment for private-driven mining sector;
- Strengthening the ability of the Government to effectively carry out its regulatory and promotional (investment and marketing) functions;
- Establishing environmental, health and safety guidelines and ensuring their compliance;
- Carry out basic geological mapping, maintaining up-to-date mineral resources database, and promoting the development of the country's mineral potential;
- Reinforcing the provision of extension services and assistance to artisanal/ small-scale miners in adopting safe and environmentally-sound mining and processing practices; and
- Facilitating the development of adequate industrial infrastructure for mining development.

Also, the MRD through the zonal and district offices, spread across the country, offers various technical and non-technical services to the mining industry.

STAMICO has been the main Government instrument for mining development in the country. However, this company is due for privatization as the Government is withdrawing from direct participation in mining investments.

The development of the mineral sector, as with other sectors of the economy, was hampered by many problems including poor infrastructure, technical and financial constraints, lack of information on mineable deposits and lack of enabling investment climate. However, between the late 1980s and early 1990s, the Government introduced economic policy reforms, which were aimed at disengaging the

Government from direct involvement in the productive sectors and transforming its role to that of administrator, regulator, promoter, service provider and facilitator. These policy changes have created an enabling environment and attracted foreign and local private mining companies, which have the capital and expertise to carry out mining and prospecting operations. This has led to restructuring in the mineral industry. The formal SSM has declined while the informal artisanal mining activities have expanded. The latter is largely responsible for breach of mining laws, serious environmental problems and mineral smuggling resulting in loss of Government revenues.

On the other hand, the Government has been promoting investment by foreign large-scale mining companies. Therefore, there exists a danger of confining mining activities in the country between these two extremes, i.e. informal artisanal and formal large-scale while neglecting the formal SSM sub-sector.

The Government recognized this danger and hence instituted measures to transform and develop the activities of the informal artisanal mining into formal SSM on a sustainable basis. These measures are referred to as the "Development Strategy for Small-Scale/Artisanal Mining". The measures were introduced in 1996 with credit support from the World Bank.

CHAPTER THREE

Small-Scale Mining Sub-sector

3.0 Introduction

Small-scale mining operations are carried out in many parts of the country.

The minerals, which fall under this mining category, include: -

- Gold;
- Gemstones; such as, rubies, sapphires, tanzanite, garnets, amethyst, alexandrites, chrysoberyl, aquamarines and zircon;
- Industrial minerals; which includes, phosphates, kaolin, limestone, lime, dolomite, graphite, salt, gypsum and soda ash;
- Diamonds; and
- Building minerals such as sand, gravel aggregates and clay.

3.1 Prospecting, Exploration, Mining and Mineral Processing

3.1.1 Prospecting and Exploration

At present, most of the country's mineral output is from SSM, yet most of the mining activities start without proper prospecting and exploration and in many cases, such as gemstones mining, exploration is non-existent. However, there are some miners who carry out limited prospecting/exploration prior to commencement of mining activities. Two prospecting/exploration methods are practiced: -

(a) Traditional Prospecting:

This method uses vegetation indicators (botanic signals) such as plant species, which grow on soils or rocks with particular type of mineralisation.

Herdsmen, hunters and farmers have also played a role in discovery of minerals especially in alluvial gold. Gold mines at Buziba, Nyakagwe in Geita and Bulyanhulu in Kahama districts were discovered by this method.

(b) Conventional Exploration

There are also a few small-scale miners who use the conventional exploration techniques such as tracing the outcrops, pitting and trenching, sampling and then followed by laboratory analysis.

3.1.2 Mining Methods

The small-scale miners normally use rudimentary mining equipment such as picks and shovels to negotiate the concealed mineralized veins by pitting and trenching. The pits and trenches are dug following the veins and often become as deep as 100m or more. The risks for mining such veins become high due to the mining methods used. There are also some organized small-scale mining activities. These are carried out either by underground or open pit mining methods depending on the shape and location of the mineralized area. Other factors include: -

- Geology of the area
- Topography of the area; and
- Geotechnical conditions.

About 68% of gemstone mining activities are carried out in open pits. (Tandiscovery, 1996). Mining operations are carried out in a single level of operation where ore and waste materials are excavated from the bench face.

Most of gold mining operations are carried out by underground methods. Small shafts are sunk with their collars starting from the bottom of a trench whose depth has reached about 3m from the surface. Their depths vary from few metres to over 150m.

However, most of the mining activities are still carried out with no proper work organisation coupled with a general lack of engineering planning and designing, which demonstrates lack of technical know-how.

In the case of underground mining, ore hoisting is manually done by buckets or sacks, which are pulled to the surface using ropes.

3.1.3 Mineral Processing

Ore processing is also done manually by hand picking (gemstones) or crushing (gold). In the case of gold processing, sludge hammers are used to reduce the size of ore to smaller pieces. The reduced size ore is then pounded in wooden mortars using car axles as pestles. The resulting powder is washed in stream waters by using pans (panning). The concentrate is then amalgamated using mercury and the amalgam burned in open air using pans to recover the gold.

3.2 Social and Economic Significance of SSM

The importance of the SSM sub-sector in the country cannot be over-emphasized. The Government has acknowledged its late recognition of the sub-sector's role in contributing to the national economy. Nevertheless the sub-sector has the potential of becoming an important sector in social and economic development in the country as discussed below.

3.2.1 Employment

The sub-sector has been a significant employer in the country. Being largely a labour intensive operation, it has a greater impact on employment than the large-scale mines. The most recent study conducted by Tandiscovery Ltd. in 1996 showed that more than 555,000 people are involved in SSM activities in the country. Some of these are full time miners while others engage in both mining and other economic activities, such as farming. In addition, a number of people are involved in the delivery of social services, e.g. food supply, health, personal services like recreation and entertainment. This group forms a significant percentage of the mining communities whose employment is actually created in response to the development of the small-scale/artisanal mining activities.

SSM can also be discussed in relation to the significant income it generates to certain population groups. (Kambani, 1997). Although it may not be realistic to establish a fixed amount of income for such activities, estimates on incomes indicate that some participants earn incomes that are more than the current Government minimum wage of Tshs. 35,000 (about US $50) per month.

3.2.2 Mineral Production

The economic reforms introduced in early 1990s was aimed at increasing the private sector participation in production. Parallel to this, the Government recognized the importance of the small-scale/artisanal mining activities. The impact of these reforms is reflected in the sub-sector's increase in mineral production, export and its contribution to the national economy as shown in Fig. 3.1.

Figure 3.1 indicates a rising trend in diamond production and export. There was a sharp increase from 1997 as a result of privatization of the Williamson diamond mines in Shinyanga region. The De Beers Mining Co. of South Africa acquired 75% shareholding in 1995 and started production in late 1996.

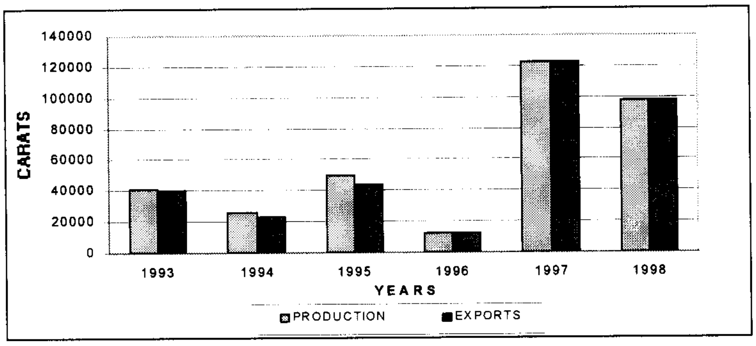

Fig 3.1 Diamond production and export trends between 1993-1998
Source: Ministry of energy and Minerals, Dar-es-Salaam

Figure 3.2 shows gold production and export trend. The slump in production and export from 1995 can be attributed to lack of proper marketing arrangements. This is when the Bank of Tanzania (BOT) stopped buying gold from the small-scale producers, due to administrational problems. These problems will be discussed in Chapter Four. However, the trend has showed some signs of picking up from 1998 as a result of the changes in Government policies towards mineral marketing.

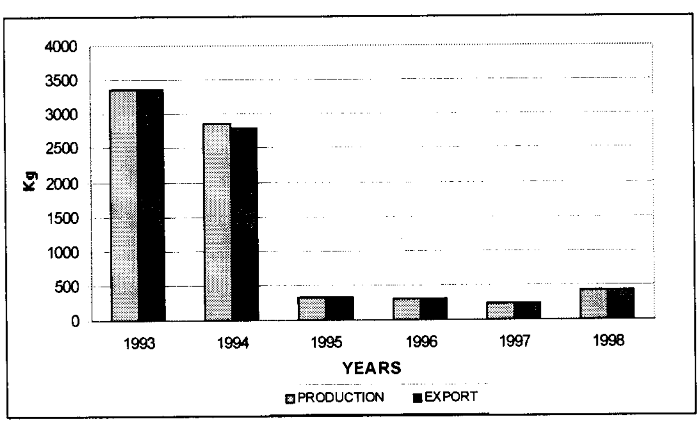

Fig. 3.2 Gold production and export trends between 1993-1998
Source: Ministry of Energy and Minerals, Dar-es-Salaam

Gemstone production and exports trend has been on the increase (Fig.3.3). Production increased sharply in 1997 as a result the new gemstone deposits, which were discovered in the southern parts of the country (Tunduru, Lindi and Mtwara). However, exports trend still remained low due to lack of marketing arrangements resulting to low production and most of the gemstones being smuggled out of the country through the black market.

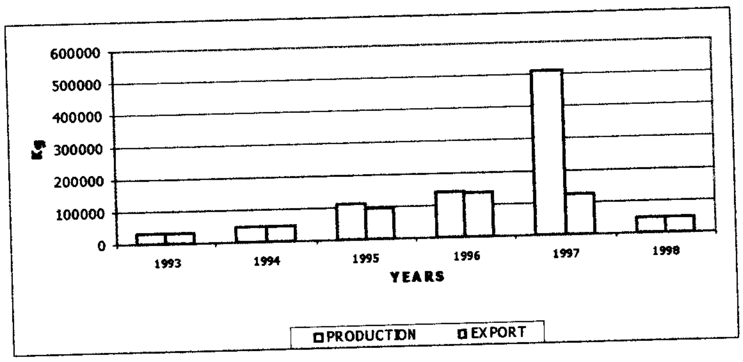

Fig.3.3 Gemstones production and export trends between 1993-1998
Source: Ministry of Energy and minerals, Dar-es-Salaam

3.2.3 Mineral Export Earnings

The export figures for diamond, gold and gemstones which are mostly mined by the SSM sub-sector are shown in Fig. 3.4. The mineral exports and earnings trend has been erratic due to lack of well established marketing channels.

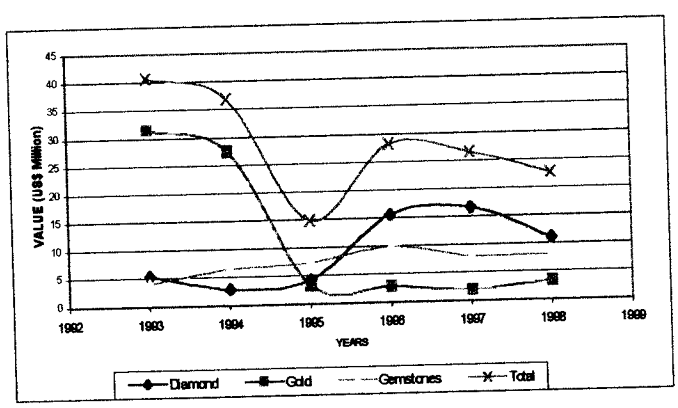

Fig. 3.4: Export trends for Diamond, Gemstone and Gold between 1993-1998
Source: Ministry of Energy and Minerals, Dar-es-Salaam

3.2.4 Contribution of SSM to Gross Domestic Product (GDP)

The sub-sector's growth rate and consequently its contribution to the GDP have been significant. Its growth rate, at 1992 constant prices, increased from 1.08% in 1993 to 1.27% in 1998 and its contribution to the GDP rose from 1.14% to 2.04% in the same period. This represents a steady increase of 16% and 8% per annum respectively. (Also see appendix F). (Bureau of Statistics, 1999).

Figure 3.5 compares the growth rate of agriculture, which is the backbone of the economy and the mining sector. It is evident from the graph that the mining sector has a much higher growth rate than agriculture.

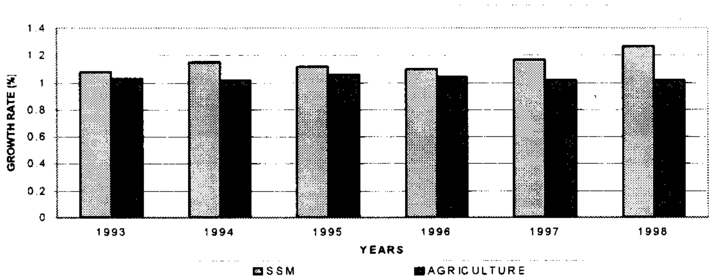

Fig.3.5: Growth rate of agriculture and mining sectors
Source: Bureau of Statistics, 1999

All of the above achievements can be attributed to the small-scale mining activities since the foreign and local large-scale mining companies are either in the exploration stages or are about to start production.

3.3 Constraints Facing SSM Sub-Sector

Apart from the few achievements cited above which signifies the importance of the sub-sector to the national economy, it generally remains underdeveloped. Small-scale/artisanal mining activities are still carried out by people with the following attributes: -

- An informal operational organisation, crude prospecting mining and mineral processing techniques resulting in low incomes and productivity.
- Poor marketing knowledge resulting in mineral smuggling thereby denying the Government revenue.
- Little knowledge in environmental conservation and management which have a negative impact on the surrounding communities and;
- Lack of safety and health knowledge thereby causing mining accidents and outbreak of epidemics.

There is also a problem of child labour in small-scale/artisanal mining. The main causes for this are the worsening economic hardships whereby poor families are forced to send their children to income generating activities and increased costs in education. Women participation in actual mining activities and owning mineral claims has been minimal. The survey by Tandiscovery Ltd in 1996 indicated that about 143,153 women were directly involved in mining, which represented 24% of the small-scale/artisanal mining population. Cultural and social barriers have been the cause of discrimination against women. Detailed analysis of these issues will be presented in Chapter Five.

CHAPTER FOUR

Small-Scale Mining Policies

4.0 Evolution of Policies

Small-scale mining sub-sector can be traced back to the colonial period and has gone through various transformations over time. Prior to independence in 1961, mining activities contributed about 10% of the GDP and indigenous Tanzanians were already participating in this activity on the small-scale basis.

The Government's policies and guidelines affected the development of the sub-sector and the mining industry as a whole. The socialist policies introduced in the wake of Arusha Declaration in 1967 emphasized state ownership, thereby retarding private investment. As the state enterprises entrusted to develop the sector could not achieve their objectives due to lack of investment and poor management, mining activities in the country and their contribution to the national economy was minimal.

Meanwhile, many individuals resorted to informal artisanal mining, winning the easily accessible and saleable minerals such as gold and gemstones. Since the Government did not recognize these operators, their operations and mineral marketing channels were unlicenced and hence encouraged uncontrolled mining and marketing activities.

4.1 Past Performance

Following the poor performance of the mining sector, the Government set out to restructure its mineral policy. As early as 1978, a draft mining policy was formulated leading to the enactment of the Mining Act in 1979. Under this Act, the mining sector activities were still monopolized by the Government and the overall public-led development policies did not encourage private investment. Consequently there was a drastic decline in formal mineral production while the informal small-scale/artisanal mining activities started to flourish. This resulted in: -

- The value of mineral production and sales declined by 48% from US$ 32.5 million in 1982 to US$ 17.1 million in 1989.
- The level of investment in mineral exploration and mine development also dropped sharply by 94% from US$ 11.3 million in 1980 to US$ 0.63 million in 1990.

At this point the Government turned its attention to SSM by formulating a SSM policy guidelines in 1983 as means of curbing the informal mining activities and illegal mineral trading. (Mutagwaba, 1997). However, the envisaged SSM sub-sector by the 1983 policy guidelines was not exactly what was in place (negative conceptualization) which resulted into the introduction of stringent mining and mineral trade laws. The policy also lacked the implementation strategy thereby failed to yield the expected results. The contribution of the mineral sector to the national economy continued to be dismal.

4.2 Economic Restructuring Programme (ERP)

The Government initiated another economic reform and restructuring programme (known as ERP) between 1985 and 1990. This was aimed at attracting foreign and local private mining companies, which have the capital and expertise to carry out modern mining operations. It also introduced a programme pertaining to procurement and sales of minerals titled, "The gold and gemstone rationalisation strategy of 1987". At the same time Tanzanians were allowed to demarcate and register small-scale mineral claims. Furthermore the Investment Promotion Centre (IPC) Act of 1990 was enacted. All these were aimed at creating an enabling environment for private investment. Private gold and gemstone dealers were also licensed to provide a wider market for small-scale and artisanal miners. The Government also directed the Bank of Tanzania (BOT) to buy gold from small-scale miners in early 1990.

4.2.1 The Impact of the Restructuring

The above changes impacted positively on the mineral sector and hence its contribution to the economy as reflected by the following indicators:-

- The mineral sector recorded the highest growth rate of 24% in 1992.
- Mineral production and exports rose by 68% from US$ 17.1 million in 1989 to US$ 53.2 million in 1992.
- Investment in mineral exploration rose from US$ 0.63 million in 1990 to US$ 33.5 million in 1993 representing a 98% increase.(Appendix A,Table 3).
- The number of licensed mineral dealers increased by 90% from 17 in 1990 to 180 in 1995. (Also see appendix C).

- The number of registered small-scale mineral claims increased by 71% from 357 in 1991 to 1,209 in 1994. (Also see Appendix B).

Much of these improvements can be attributed to the development of the SSM sub-sector because most of the large-scale mining companies, which decided to invest in the country, were still in the exploration phase. However, the changes were short-lived economic benefits since the SSM sub-sector, the major contributor to the positive impacts, was still carried out by people with only informal operational organisation, poor technology, inappropriate tools and limited marketing knowledge. Furthermore, illegal miners and mineral dealers continued to flourish. Mineral smuggling particularly gemstones and gold were on the increase.

The reasons for this failure can be attributed to the fact that the policies and reforms were formulated and implemented in a piecemeal manner. Efforts to solve one problem ended up creating other problems, which hindered the development of the sub-sector. A good example is the implementation of the Government's direction in 1990. It instructed the BOT to buy gold from the small-scale producers (both licenced and unlicenced) as a means of creating a reliable gold market for SSM and tapping much of the gold, which was being smuggled out of the country. The move produced short-lived economic benefits as gold exports increased sharply by 64% from 1650 kg in 1990 to 4525 kg in 1992. (Appendix A, Table 2). On the other hand, however, it created an administration problem for the MRD. A number of unlicenced miners increased tremendously, although their number was not quantified. This is because BOT officials were just buying gold from the miners irrespective of whether they have valid mining license or not. Consequently, BOT was compelled to suspend the exercise in 1994. As a result gold smuggling was on the increase more than before. Finally, the Government's aim of rationalizing the gold marketing failed.

There was therefore a need to develop a clear, coherent and well-publicized mineral policy and strategies to implement it.

4.3 New Strategies

4.3.1 Creation of an Enabling Environment for Mineral Investment

The Government recognized the need to put in place an internationally competitive investment climate for the mineral sector as whole. The need was necessitated by several factors such as: -

- The country's high mineral potential endowment.
- The poor performance of the mineral sector.
- Increased global competition for investment resources as a result of macro-economic policies restructuring worldwide.
- The globalization of finance and investments.
- Technological advances globally and cost competitiveness in various stages of mining.

In view of the above changes the Government formulated a coherent mineral policy which was released in 1997. Under the new mineral policy, the private sector was to take a lead in mineral exploration, mining, mineral beneficiation and marketing while the state focuses on administering, regulating, facilitating and promoting the growth of the mineral sector.

Together with the mineral policy, a set of other legislations was also put in place. These include: -

- The National Investment Promotion Policy, 1996
- The Tanzania Investment Act, 1997 which replaced the National Investment (Protection and Promotion) Act 1990.
- The Mining Act, 1998 which replaced that of 1979
- The Mining Regulations, 1999 which replaced those of 1980
- The Financial Laws (Miscellaneous Amendments) 1997
- Mineral Trade Regulations 1999 that replaced the diamond, gold and gemstones mineral trade Acts of 1937, 1945 and 1980 respectively.

4.3.2 Government Policies and Legislations

(i) The National Investment Policy

The Government reviewed its national investment policy in 1996 followed by enactment of the Tanzania Investment Act in 1997, which led to the creation of the Tanzania Investment Centre (TIC). The centre is more concerned with facilitation and promotion of investment rather than on regulations. The centre promotes both local and foreign investors wishing to invest in the country. For the first time mining projects were incorporated in the new Act. The objectives of the centre are:

(a) To act as a "one-stop-shop" for investors;

(b) To be the primary agency for Government in coordinating, encouraging, promoting and facilitating investment; and

(c) To advise the Government on investment policy and related matters.

(ii) The Mineral Policy

The national mineral policy released in 1997 aimed at guiding and directing development and exploitation of minerals in the country. The direction taken is that of strongly encouraging private investment in mining. National goals, implementation strategy and key players are also identified in the policy. The new role of Government is to regulate, promote, facilitate, administer and provide services to the mining industry. Strategies to address key factors such as taxation, mining regulations, environment, investment promotion have been deployed. It also identifies target groups such as local and foreign investors, financial institutions both local and foreign, Government institutions and agencies, Non-Government Organisation (NGOs), small-scale/artisanal mining, local communities and women and children engaged in mining. These strategies are discussed in Chapters Five and Six.

(iii) The Mining Act (1998) and Mining Regulations (1999)

The new Mining Act (1998) and its accompanying Regulations (1999) are essentially a clarification and expansion of the legal and regulatory framework strategies contained in the mineral policy. The strategies for legal and regulatory framework include: -

- Streamlining the licensing procedures to harmonise small-scale and large-scale mining;
- Rationalizing the licensing system;
- Categorizing mineral licenses into groups for easy administration and management;

- Harmonising and consolidating all statutes under which the mineral sector operates into one Mining Act; and
- Ensuring environmental protection and land reclamation.

(iv) The Financial Laws (Miscellaneous Amendments) 1997

In order to ensure a comprehensive and competitive fiscal regime for the mineral sector, which is in line with the investment promotion policy, the Government amended its financial laws to accommodate various incentives provided for in the Investment Act (1997). The new fiscal regime will be discussed later in Chapter Six.

4.4 Comparison of Previous and Current Mining Policies and Legislation

4.4.1 Previous Mining Policies and Legislations

Prior to the 1998 Mining Act, the minerals industry was governed under the following laws:

(i) Mining Act (1979) and mining regulations (1980).

(ii) The explosives Act (1963).

(iii) Mineral Marketing Acts covering gold trade, diamond and gemstone separately.

Under the Mining Act (1979) mining licenses were divided into two categories, that is, those under large-scale mining (mineral rights) and those under SSM (mineral claims). Mineral rights conferred exclusive rights to the holder and they had priority over mineral claims. The licenses issued are summarized below: -

CATEGORY	LICENSE TYPE	DURATION	RENEWAL PERIOD
LARGE SCALE	Reconnaissance (RL)	1 year	1 year
	Prospecting (PL)	3 years	2 year, double renewal
	Mining (ML)	25 years (maximum)	15 years extension
SMALL SCALE	Prospecting Right(PR)	1 year	non-renewable
	Mining claim (CT)	1 year	Annually

Table 4.1 categories of licenses issued under the 1979 Mining Act.

Deficiencies of the past mining policies and legislations can be identified as follows: -

- There was no clear and well-publicized mineral sector policy.
- Provisions for environmental protection and management were lax.
- Much discretionary powers were given to the minister responsible for mines regarding issuing and cancellation of mineral rights hence acted as disincentive to investors.
- Potential conflicts with respect to other legislations (e.g. environment, tourism, and local Governments) due to lack of effective consultation.
- Operational problems resulting from existence of several laws governing the mining sector.
- The laws categorized mining into two groups, that is, large and small-scale resulting into operational differences within the groups.

4.4.2 Current Mining Policies and Legislations

The new mining code aimed at streamlining shortcomings of the previous system and to reflect legal strategies given in the new mineral policy. Among other things the new mining code consists of the following: -

- There are three principle divisions of mineral rights. These licenses fall into categories A, B and D. Division C contains supplementary provisions affecting mineral rights under divisions A and B.
- Establishment of the Mining Advisory Committee (MAC) with a purpose of advising the minister for minerals on matters relating to the Mining Act.
- Designation and reservation of areas for mining purposes by the minister. Applications of licenses in this area are invited by tender.
- Designation and reservation of exclusive areas for primary licenses. (Category D).
- Provision for mineral trade regulations.
- Establishment of zonal mining offices by law.
- Provision of environmental management and protection regulations.
- Provision of safe working and occupational health regulations.
- Introduction of code of conduct for mining officers and mining operators.
- Provision of insurance and indemnities cover to holders of mineral rights under divisions A or B with respect to loss or damage of assets, pollution and environmental damage, the holder's liability to employees, loss of property or bodily injury suffered by any third party and liability to indemnify Government.

- Establishment of mining development agreements between the minister and mining companies.

The licenses issued under the new Mining Act are summarized in Table 4.2

4.4.3 General Direction of the New Policies and Legislations

From this chapter, it has been shown that both the investment and the mineral sector policies express the Government's intention to promote private investments in the country. They also express Government's concern about local investors especially the small-scale category. The effect of the mineral policy in particular is to create competitive environment for investments and development of the minerals industry. The Mining Act and its accompanying regulations are essentially laying down procedures to implement the mineral sector policy strategies.

Comparing the past and current mining policies/legislation reveals that the Government has realized the priority requirements that are needed to create an enabling investment environment in the mineral sector i.e. encouraging private sector growth by private sector. The shortcomings identified in the previous policies/legislations have also been eliminated.

In the next chapter, the SSM sub-sector policy will be analysed in more detail since this is the focus of the study.

CATEGORY	LICENSE TYPE	APPLIED TO	TENURE (YEARS)	PROCESSING TIME	CONDITIONS
A	Prospecting license (PL)	Minister	2 to 3 renewable not more than three times	4 weeks	Max. area, amount of expenditure/km^2, requires EIA.
	Retention license (RL)	Minister	5 renewable once	MAC and Minister's discretion	Granted under unfavourable mineral market and economic conditions to holders of PL, development within 10 years, EIA required.
B	Special mining License (SML)	Minister	Max. 25 renewable for less than 25	MAC and Minister's discretion	Granted over any vacant area under PL or RL excludes gemstones, EIA required.
	Mining License (ML)	Minister	Max 10, renewable	4 weeks	Granted to holders of PL, excludes gemstones, EIA required.
	Gemstone Mining License (GML)	Minister	5, renewable	4 weeks	Issued irrespective of license applying to other category of minerals, development must start within 2 years, applies to gemstone mining, EIA required.
D	Primary Prospecting License (PPL)	Zonal Office	5, renewable	No processing time. They are issued promptly.	No exclusive right, or priority to the holder, EIA may not be required.
	Primary Mining License (PML)	Zonal Office		No processing time. They are issued promptly	Granted to holders PPL, exclusive primary mining areas may be established, EIA may not be required, applications for licenses in exclusive areas may be by tender, possible to convert licenses from category D to B.

Table 4.2 Licenses under the 1998 Mining Act

CHAPTER FIVE

Analysis of the New Policies on Small-scale Mining

5.0 The Mining Policy in Relation to SSM

The Government recognizes the positive contribution of the SSM sub-sector to the national economy. In view of this, the Government is committed to support the sub-sector by facilitating transformation of the present haphazard artisanal and SSM activities into more organized and modernized SSM units, and by promoting modalities of mineral marketing which encourage transparent business transactions and discourage smuggling. Accordingly the policy objectives in relation to SSM are:

- Stimulate exploration and mining development;
- Stimulate and improve the SSM sub-sector;
- Ensure the mining wealth supports sustainable economic and social development; and
- Minimize or eliminate the adverse social and environment impacts of mining.

In order to realize these objectives the Government has set a number of achievable goals by selecting a set of critical actions which fall under the mineral policy's directions and strategies. In this context, special emphasis has been placed on rationalizing the artisanal and SSM sub-sector. This will be discussed in more detail in this chapter.

5.1 Transforming Artisanal and SSM (Strategy for Development)

Artisanal and SSM activities represent a source of livehood for an estimated half a million people. They represent a useful guide for prospecting and exploration. They have a potential of stemming rural-urban migration, stimulate local processing and manufacturing industries and alleviate poverty. However, the practice of small-scale and artisanal mining is plagued by severe technical, financial social and environmental problems. The Government's development strategy is to address these problems.

To develop the sub-sector, the Government has initiated a rationalization process, which will transform the present informal activities of the sub-sector into formal ones. The Government initiated a programme of action, which included the following components: (Also see Fig.5.1).

- Establishing enabling conditions for the orderly and safe mining practice;
- Liberalizing mineral marketing arrangements;
- Assisting the sub-sector to adopt more productive and environmentally sound mining methods; and
- Setting appropriate mechanisms to alleviate financial constraints.

These issues are discussed below: -

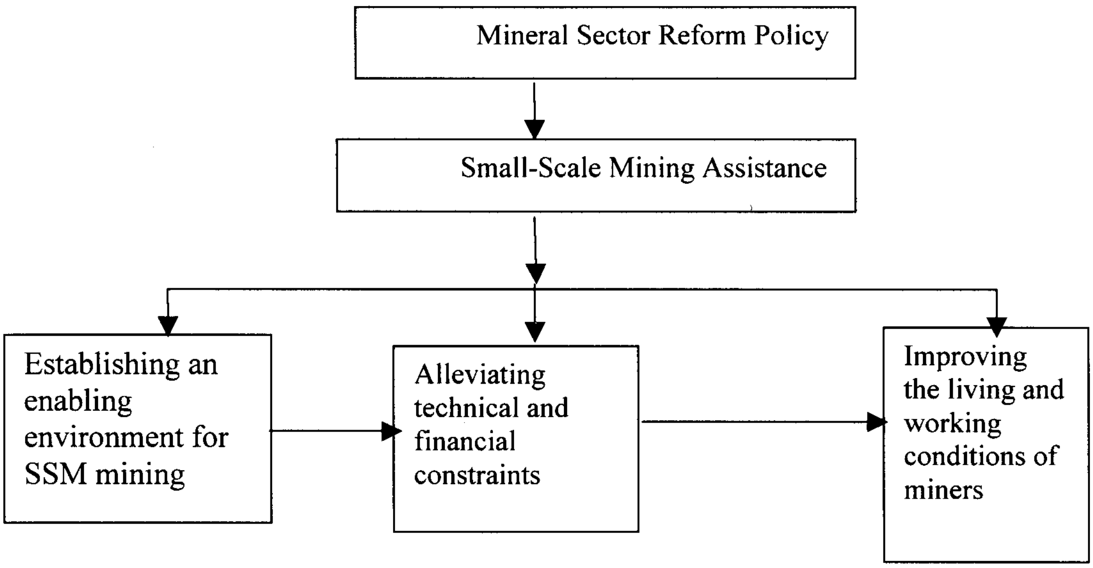

Fig 5.1 SSM transformation strategy.

5.1.1 Establishing Enabling Conditions for SSM

The approach used emphasizes the following actions: -

(a) Effective regularization

The aim of this process is to strengthen the legal rights of small-scale and artisanal miners as a way of reducing or eliminating illegal mining and smuggling. The approach puts more emphasis on incentives than on command and control although the final strategy will reflect a mix of incentives and some safeguards. Regularization will involve two steps. Firstly, miners in uncontrolled areas will be required to establish basic authority structures and meet fundamental requirements to remain in mining areas (formalisation). Secondly the legalization of mining operations by registering mining claims will follow. Law enforcement will act upon those ignoring campaigns for change. After formation of working groups and adhering to the mining regulations, it will be easier for the Government and other NGOs to offer them extension services. (See also Fig. 5.2).

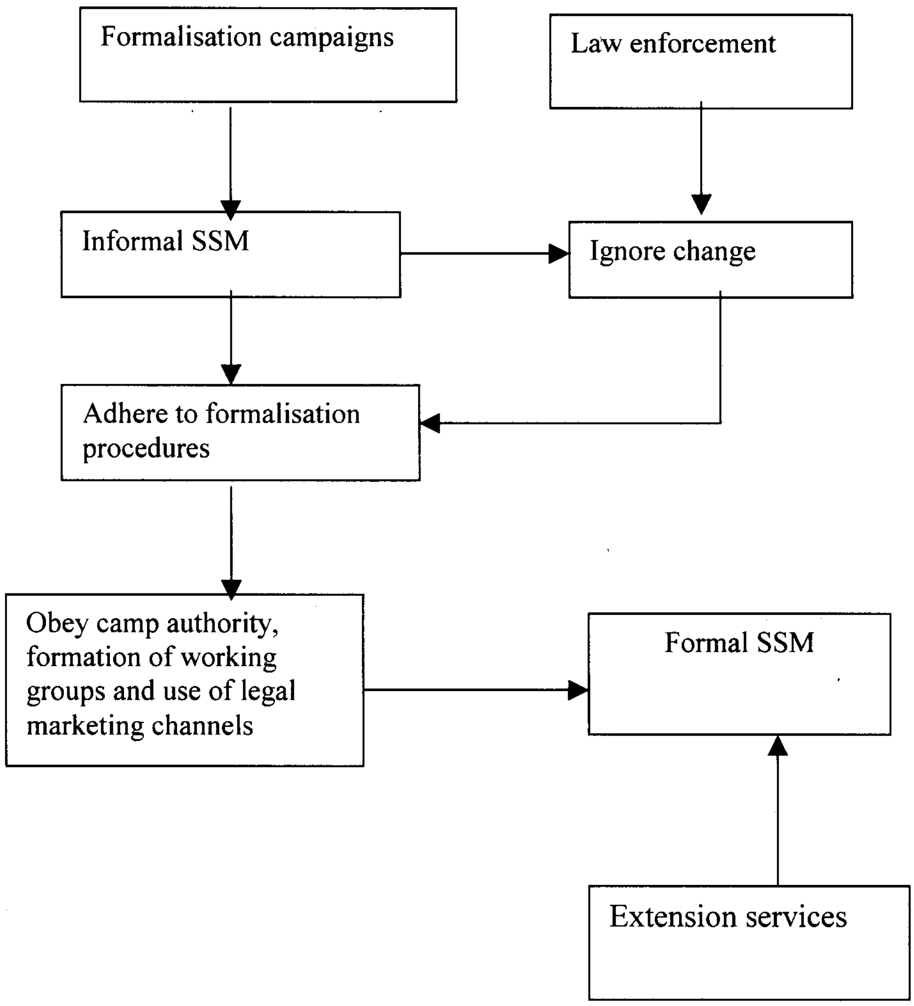

Fig. 5.2 Regularisation of SSM activities.

(i) Formalisation

The success of the regularization process requires the miners' commitment to formalize their activities. To stimulate the formalisation process, the Government actions will include: -

- Strengthening the co-operation between central mining authorities, zonal mining offices and local Government in a view of tracking and monitoring illegal mining.
- Frequent field inspection by zonal mining officers;
- Reinforcing the powers of mine inspectors;
- Requiring miners in mining areas to establish basic authority structures and meet certain requirements to be allowed to continue mining in the area;
- Conducting field visits, seminars and round-table discussions to enable miners realize the benefits of formalizing their activities;
- Demonstrating good prospecting, mining and mineral processing practices; and
- Establishing mechanisms for on-site registration of mineral claims.

(ii) Legalization

This is the second step taken by the Government to revise the Mining Act (1979). The salient features of the new Mining Act (1998) are as follows: -

- Recognition of SSM activities and their status clarified by introducing primary licences for the sub-sector only;
- Claim title life was increased from one year to five years, and is renewable;
- The right to transfer, sell or mortgage the mineral rights was guaranteed;
- Simplification of the registration and licensing procedures to make them understandable to the common small-scale miner;

- Created an intermediate tenure for SSM operation keeping in mind the need for assistance in the transition from the current informal operations to formal sub-sector.

(b) Fiscal Regime for SSM

In addition to the conducive environment for the orderly conduct of the SSM activities, the Government aims at ensuring that the fiscal regime applying to the sub-sector provides incentives for formalization. SSM fosters the development of related support activities, which can substantially widen the tax package that will capture the benefits of the sub-sector without encouraging the use of informal channels. Consequently the Government's aim to achieve these goals will include:

- Setting fees, annual rents, royalties and other tax rates at modest levels;
- Providing tax incentives for regularization;
- Reducing or eliminating certain taxes levied on primary licences;
- Simplifying and modernizing tax collection procedures;
- Expanding the tax collection base by legalizing operations of all informal operations e.g. traders in the mining areas; and
- Raising the cost of non-compliance by systematically prosecuting tax evaders.

(c) Institutional Framework for SSM.

In view of the importance of SSM, the Government recognized the need to create a unit under the Mines Division with a mandate to monitor and support the activities of the sub-sector. It will be responsible for reviewing and approving license applications, monitoring compliance with safety, health and environmental regulations and providing training and extension services to small-scale miners. The unit will open up branch offices in all the zonal/resident-mining areas. To improve its functions the Government, among other things, will do the following: -

- Ensure adequate operational budget ;
- Decentralize registration, licensing, monitoring and assistance to small-scale miners through the unit;
- Reinforce ability of the unit in all the zonal/resident offices to hold sub-registries; and
- Minimize the minister's discretionary powers in granting licenses by empowering the unit to directly issue primary licences.

(d) Environmental Management for SSM

The environmental problems associated with SSM tend to be severe and geographically dispensed. In raising environmental awareness and encouraging mining activities, which are environmentally friendly, the main emphasis will be placed on voluntary approach, that is, a collective initiative of individuals and the Government. However, some environmental problems cannot be resolved only with the cooperation of individuals and thus calls for Government action through the use of policies like taxation, fines and other persuasive means. To ensure sustainable environmental management for the sub-sector the Government's goals will include: -

- Specifying environmental control policies based on the "polluter pays" principle;
- Preparing and distributing information booklets and handbooks in both Swahili and English languages on acceptable mining practices and spell out the environmental obligation and legal consequences of non-compliance;
- Improving environmental awareness campaigns through the media and holding round table discussions between the polluters (miners) and those affected (local communities);
- Establishing stricter monitoring systems in densely mining areas;
- Empowering mining extension officers to conduct regular monitoring through adequate funding and other inputs;
- Building partnerships with NGOs, private companies and individuals to ensure better environmental awareness management;
- Demonstrating and encouraging the application of economically sound and relevant technologies; and
- Setting appropriate guidelines for allowing conduct of mining in restricted areas.

5.1.2 Liberalizing Mineral Marketing

The Government recognized that inadequate marketing arrangements and lack of credit facilities are the main cause of illegal trading and smuggling of minerals. Its efforts to liberalize markets therefore, focuses on the provision of private, incentive based marketing systems and the development of local and export markets. These are discussed below:

(a) Establishing Formal Marketing Systems

To increase the flow of minerals through the formal marketing channels, the Government actions will include:

- Simplifying licensing procedures of mineral brokers and mineral dealers;
- Empower zonal offices to directly issue mineral trade licenses;
- Improve the monitoring and simplifying sales records, through the mineral trade regulations;
- Introduce mineral marketing education, particularly in mineral grading and valuation by offering short-term training programs;
- Monitor periodically the formal and informal marketing channels and formulate incentives and regulations to improve the competitive position of the legal exporter over the smuggler;
- Strengthening the mineral marketing department within MEM to support and monitor marketing activities;
- Involve local authorities, village leaders and mineral operators in order to combat the smuggling of minerals.

(b) Developing Local Mineral Markets

To develop local mineral markets, the Government's actions will include:

- Establishing competitive mineral markets close and within mining areas to be operated by REMAS, TAMIDA, mining companies and financial institutions;

- Providing extension services aimed at educating miners on issues related to mineral marketing such as publishing information based on trends on world markets;
- Establishing mineral marketing standing committees in mining areas.

  The committees will be charged with the task of ensuring the smooth operation and growth of mineral markets, keeping production statistics, fixing open market days and making advertisements to attract more participants to the open market.

(c) Developing Export Markets

To stimulate the export of minerals through formal channels, the Government initiated measures such as: -

- Permitting mineral dealers to pay royalties and other taxes after sale of the minerals and simplifying export procedures;
- Introducing more gem exchanges and improving the existing ones in terms of volume and by placing emphasis on the quality of the products;
- Encouraging export promotion activities by facilitating mineral dealers to attend mineral exhibitions organized by mining associations, NGOs and other institutions and also by advertising through the media;
- Facilitating access to published information such as trade journals by the mineral dealers/brokers;
- Encouraging the Mineral Marketing Department, TAMIDA and REMAs to provide miners and mineral dealers with information on potential buyers in the country and abroad;

- Establishing formal financing schemes for mineral trade through the commercial banks; and
- Liase with Tanzania High Commissions and Missions abroad to identify new export markets.

5.1.3 Improving the Productivity of SSM

Lack of mining technology hinders the economic exploitation of mineral resources and is the main cause of low productivity. Lack of appropriate equipment is often the cause of low recovery rates and is the reason why small-scale miners simply abandon mining pits when still at shallow depths. This situation traps the miners with low productivity operations, which translates into low income and hence inability to raise enough funds to invest in new equipment. However, the improvement of technology alone is not always the only solution to the problems facing small-scale miners. Technical assistance must be supported by good administration and efficient maintenance for sustainable improvement in the productivity of the sub-sector. Accordingly, the Government will implement technical assistance to the sub-sector in four stages as described below: (Also see Fig 5.3)

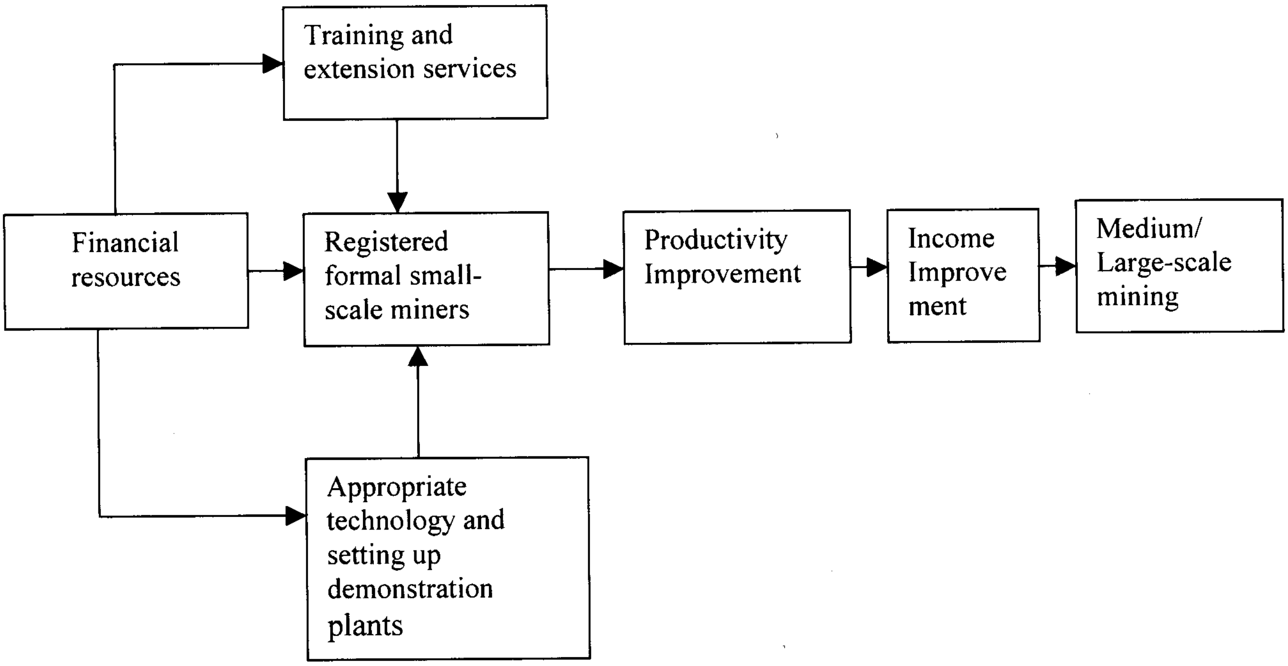

Fig.5.3. Production Improvement

(a) Training and Extension Services

This is the first stage and will involve training miners in basic exploration and mining techniques with a particular emphasis on efficient and safe extraction and recovery, environmental protection, record keeping and basic business management. Successful operators would then be selected for further technology improvement programs emphasizing on introduction of new technology and demonstration sessions. During this stage the Government will conduct technical audits of SSM activities to establish the technical requirements of the sub-sector, initiate awareness campaigns in order to enhance the miners' understanding on the benefits of using the appropriate technology, provide extension services, conduct on-site training on prospecting, mining and mineral processing methods, environmentally sound mining techniques and acceptable health and safety procedures.

(b) Adaptation of Appropriate Technology

This is the second stage and will focus on the provision of technical assistance emphasizing on the adaptation of appropriate technology in order to improve productivity. The ultimate aim of this process is to enable miners adopt proper mining methods, use appropriate technologies in mining and processing activities, acquire basic business management skills and maximize their incomes through improved productivity.

The Government's effort at this stage will aim at:

- To develop and strengthen local capacity to conduct, develop, test and constantly improve mining and beneficiation methods that are adopted to Tanzanian conditions;
- Establish institutional alliances which are active in technological innovation;
- Facilitate the establishment of hire-purchase schemes through agents;
- Promote better relationships between large-scale mining companies or potential investors and small-scale miners so as to facilitate the transfer of technology; and
- Encouraging equipment manufacturers, both local and foreign to organize demonstrations of particular mining and processing equipment in order to allow the miners to assess their performance before purchasing.

(c) Demonstration Plants

In the long run, the Government will consider undertaking a third stage of setting up demonstration plants if the previous stages clearly demonstrate a reasonable chance for success. Demonstration of equipment and technology should aim at improving access to technology and familiarizing miners with proper installation, maintenance programs and schedules, ordering and maintenance of spare parts. This step involves a significant financial commitment, consequently demonstration plants would be set up only if it can be established that there is sufficient demand for the service they provide. The plants should be established in stages so that successes and failures can be used as lessons for establishing further facilities. Furthermore these plants would be set up in claims where mineable reserves have been properly appraised and after feasibility studies have been conducted. The operation for demonstration plants should also take into consideration the need to offer some specialization services at a fee. It is envisaged that these plants will be set up and run as business enterprises, which could be used as models to show miners how to run a mining business.

(d) Transition to Medium-scale Mining

This is the fourth and last stage, which will emphasize the transition from SSM to medium-scale mining. A successful transition requires sufficient proven ore reserves for economic exploitation and the existence of favourable market conditions. It can be seen in Fig.5.4 that organized SSM can be developed into medium/large-scale operations depending on the presence of sufficient proven ore reserves, availability of capital and appropriate technology. Technical assistance will be given to the small-scale miners in evaluating the mineral property and preparation of bankable feasibility studies.

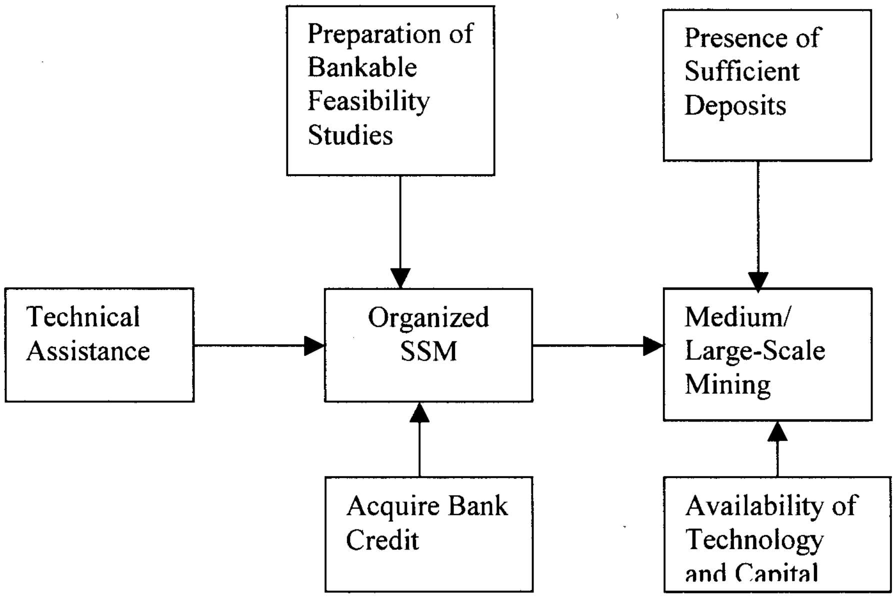

Fig. 5.4 Transition to medium/large-scale mining

At this stage, miners will be in a position to seek loans, enter into joint ventures with other investors or float their shares on the stock exchange in order to raise capital for developing their mineral properties. The Government will encourage the establishment of private consulting companies, which would provide assistance in property valuation and preparation of bankable feasibility studies. Such companies could also provide marketing advice and help to identify potential joint venture/partnership.

5.1.4 Dealing with Financial Constraints

The financing of SSM is important because the destination of mineral products is sometimes influenced by the source of finance. When mining activities are largely financed by informal source, be it local or foreign, then a large portion of the product tend to end up in the same informal channels. Lack of formal financing sources for SSM operations has largely contributed to the development of informal financing and production sharing agreements, which are prone to illegal trading and smuggling. Moreover, informal funding of exploration, particularly drilling or geophysical surveys and long term mining development are very rare. On the other hand formal financial mechanisms have been slow to meet the increasing financial needs of the SSM sub-sector due to the inability of the miners to meet loan conditions of financial institutions. At the same time, financial institutions do not fully realize the sub-sector's economic potential and are therefore reluctant to formulate appropriate financial schemes to support its development. For these reasons, the Government's efforts to improve the financial services to the sub-sector will use a two-prong approach of emphasizing the improvement of the small-scale miner's access to credit and the mainstreaming of SSM loans by the formal financial institutions. These are discussed below:

(a) Access to Credit

One way of dealing with the financial constraints of SSM is to help miners establish self-sustaining financially intermediation systems which are more responsive to their needs. This requires the creation of self-selected, self-help savings groups, which can pool savings, re-lend to members on a revolving fund basis and enforce loan repayment. Members of a group can also apply for formal bank loans since they are in groups and liable for loan repayment. NGOs and REMAs are well suited to initiate grass root actions to achieve these goals. The Government aims at encouraging such initiatives by: -

- Conducting awareness programs to promote savings culture among small-scale miners;
- Encouraging the acceptance of mineral rights as collateral and facilitate procedures for transferability of titles;
- Promoting the use of third party guarantees to enable other institutions to assist miners to get loans;
- Enabling discoverers of mineral deposits who are not in a position to develop them to sell their mineral properties at competitive prices;
- Working in conjunction with NGOs, toward the establishment of miners' cooperative banks, and other institutions such as revolving savings and credit associations on the solidarity group model;
- Supporting the formation of formal enterprise groups;
- Supporting efforts by miners and other stake holders to increase miners' incomes through value added activities; and
- Formalizing traditional funding systems by promoting hire-purchase systems, third party collateral arrangements, forward sales and mutual group saving schemes.

(b) Mainstreaming Formal Loans for SSM

Mining is a relatively risky business and banks require considerable amount of information and assurances before committing loans to mining projects. Small-scale miners are not well prepared to meet the requirements of the commercial banks. For instance, they lack a formal structure and the ability to prepare feasibility reports. On the other hand, most commercial banks lack the expertise and experience in appraising, monitoring and supervising loans to mining projects. To overcome these shortcomings, the Government aims to do the following: -

- At macro-economic level, to implement the monetary and fiscal policies which are conducive to the efficient mobilization of domestic savings and their channeling into productive investment.
- Improving the ability of the financial sector to efficiently offer a wide range of financial services.
- Encouraging banks to develop mine finance expertise and to establish mobile banking systems as well as commercial banks in the mining areas.
- Encouraging the Government mining trust fund to finance simple mining equipment and other inputs.
- Encouraging financial institutions to support SSM by formulating affordable credit schemes for the sub-sector and adjusting start-up capital requirements and broadening the scope of the financial sector by promoting new financial intermediation mechanisms for small-scale enterprises, especially in the SSM sub-sector.

- Encouraging the establishment of merchant banks, venture capital companies, lease companies and insurance companies to foster competition in the provision of financial services.

5.1.5 Enhancing the Socio-economic Benefit of SSM

The exploration and exploitation of minerals do contribute to economic growth and wealth of a nation. However literature survey shows a negative relationship between mineral dependancy and economic growth for many least developed and developing countries. For example, in relation to global production, the Sub-Saharan Africa produces about 40% of diamonds, 20% of bauxite, and 20% of rutile. However, most of the least developed countries in the world are found in this region. (Johnson,1990). This observation indicates that mining development can do little for a country unless the host nation develops its own capabilities to provide necessary inputs in the form of materials, skills and capital. Also, the opportunity to use mining to stimulate the development of other economic sectors such as by vertical integration into further processing of minerals and diversification into other industrial sectors could be lost if appropriate strategies are not established. To avoid this situation and maximize the development of mining particularly SSM, the Government will follow a long-term strategy as discussed below: -

(a) Improving Basic Inputs

This can be achieved through: -

- Creating and maintaining viable infrastructure;
- Developing capital markets; and

- Strengthening human resources.

(b) Promoting Downward Processing

This can be achieved by promoting forward linkages through the development of downstream industries such as lapidary and mineral beneficiation. The Government's goals in this regard will include: -

- Encouraging local and foreign investors to establish lapidary, jewelry and other downstream mineral processing industries;
- Encouraging joint ventures with the aim of accelerating technology and skills transfer;
- Provide tax incentives for high capital mineral beneficiation projects;
- Promote domestic use of industrial minerals; and
- Facilitate establishment of small-scale mineral-based industries particularly in rural areas.

(c) Managing Mineral Revenues.

Mining is based on the extraction of a non-renewable resource. Every tonne of ore mined out today has an opportunity cost in the sense that it will not be available tomorrow. Thus, sound management of mineral revenues is needed to ensure that the benefits of mineral resources development, particularly SSM outlasts the life of the mine. In addition mining is a cyclical industry i.e. mineral booms are always followed by bust cycles, meaning that revenues from SSM will equally be volatile. To reduce the adverse impact of the changes, the Government will place emphasis on stable public spending by undertaking the following measures: -

- Set up mineral revenue stabilization schemes, which will allow accumulation of saving in good years which can be drawn down in bad years;
- Invest surplus mining revenues to stimulate the development of other sectors of the economy and create non-mining employment; and
- Use a portion of mineral revenues to improve the knowledge of the country's mineral potential and promote development of new mines.

5.1.6 Sustainability of SSM Development

To ensure the sustainability of SSM, there is a need to integrate social concerns into mineral development programs. The enforcement of health and safety regulations in SSM is hindered by lack of coordination, insufficient operational funds and inadequate expertise. As a result, Tanzania has witnessed an increase in uncontrolled mining of minerals and the use of unsafe mining methods. To address these problems the Government's strategy is to initiate programmes to improve health and safety conditions in mining areas and address social issues affecting women, children and the local community.

(a) Improving Health and Safety Conditions

Increased automation and the use of warning devices as well as constant employee drills have dramatically improved safety performance in large-scale operations. The same is not true for the SSM sub-sector, which continues to be plagued by avoidable accidents often arising from unsafe mining and processing practices and lax safety procedures. (Also see appendix D). Government's efforts to address these issues will include:

- Strengthen and enforce health and safety regulations;
- Empower Government health and safety inspectors to carry out random health inspections in mining sites;
- Improve health education and encourage investment in health care facilities such as dispensaries, clinics and anti-HIV/AIDS campaigns;
- Encourage mining communities to take initiatives for the private provision of essential social infrastructure and services;
- Incorporate the provision of social infrastructure and hygiene enhancing facilities such as water supply and sewage systems in the community development plans;
- Seek NGOs, miners associations and local Government's involvement in enforcing health and safety standards; and
- Establish proper authority structures especially miners security units in mining camps to uphold law and order.

(b) Addressing Women, Children and Community Issues

Mining development gives rise to social problems affecting women, children and communities. Women face economic and socio-cultural barriers, which restrict their effective involvement in mining. Children, whether helping parents or working on their own, get a premature introduction to the harsh conditions of mining and lose an opportunity to get education and improve their prospects in life. The local community bears a disproportionate share of the negative effects of mining but receives little of its benefits. To remedy this, the Government's efforts will be oriented toward enhancing woman involvement in mining, eradicating child labour and strengthening community consultation and participation in mining projects. These are discussed below: -

(i) Enhancing Women Involvement in Mining

Women represent about 24% of the population involved in mining and related activities. (Tandiscovery, 1996). They participate in mining as workers, traders, owners and investors. They are mostly active in the processing of ore, particularly grinding of ore on contractual basis, recovery of gold, reworking tailings, washing and panning gold concentrates and sometimes digging for ores in shallow pits. However, women tend to limit their involvement to surface works only. Very few participate in underground mining activities due to physical, cultural and social restrictions. In some parts of the country, traditional and social barriers prevent women from actively participating in mining activities. For example in Makongolosi (Chunya, Mbeya region), Morogoro, Mpanda, Singida, Tabora and Shinyanga it is believed that women might bring misfortune if they visit active mining sites or cross active pits. In addition lack of education, information, and other gender related problems such as sexual harassment impair the ability of women to participate in mining to the fullest of their potential. To enhance effective participation of women in mining the Government's efforts will include: -

- Conducting awareness programs to eradicate from the society ideas, conduct, norms, values, customs and traditions that hinder full participation of women in mining;

- Training women to provide laboratory, gemological and market data analysis services to the mining sector; and
- Alleviate technical, financial and cultural barriers to the involvement of women as potential investors and owner of mineral claims.

(ii) Eradicating Child Labour

Laws in Tanzania strictly prohibit child labour. However, in practice children as young as 10 years are found involved in SSM activities. Among the causes for the practice of child labour in mining includes economic hardships which force children from poor families to engage in the activities, high cost of education, perceived decline in educational quality and lack of employment particularly in rural areas. They work mainly in mineral processing such as gem sorting and grading, mercury amalgamation in gold mining and stone aggregates. Children are also used in manning kiosks and restaurants. At Merelani, for example, children are used to extract minerals in narrow underground cavities and hence known as "Nyoka" (snake boys). In other mining areas, for example, Tunduru gemstone mining area, children were seen selling marijuana and illicit alcohol openly. With an educational background that hardly goes beyond primary education (standard seven), most of them are unaware of the health hazards associated with their work. In order to discourage the use of child labour, the Government has initiated the following measures: -

- Support productivity enhancing assistance programs to eliminate the need for child labour;

- Conduct regular inspection of mining areas to ensure compliance with child labour laws;
- Strengthen and strictly enforce regulations against child labour and impose penalties, which include termination of operating licenses;
- Address the underlying poverty problem in mining areas; and
- Increase expenditures in social services especially primary education and widen opportunities for secondary and vocational training.

(iii) Community Consultation and Participation

Mining projects are often negotiated between the Government and the mining individuals or companies. Local communities are left out even though they bear the brunt of the social and environmental costs associated with the mining operations. The lack of direct linkages with the local economy makes it difficulty for mining benefits to trickle down to the local economy hence the community. To ensure greater community participation and involvement in the mining projects, the Government intends to: -

- Enhance transparency of mining agreements between the Government and mining companies to eliminate any suspicion and mistrust from the local community;
- Encourage mining companies to contribute to local economic development by using local inputs whenever this is economically feasible;
- Fostering arrangement that will enable large-scale mining companies to provide assistance to small-scale miners and act as a venue for buying their outputs; and

- Facilitate the establishment of partnerships between mining companies and the local community.

The summary of the transformation process for the SSM sub-sector is demonstrated in Figure 5.5. The policy incentives undertaken by the Government will lead to creation of enabling environment, which will address major problems affecting the present informal SSM sub-sector. The expected outcomes are to achieve legal and structured mining, improved productivity, environmentally sound and sustainable sub-sector with little dependency on Government for answers to the problems which can be solved by the sub-sector itself.

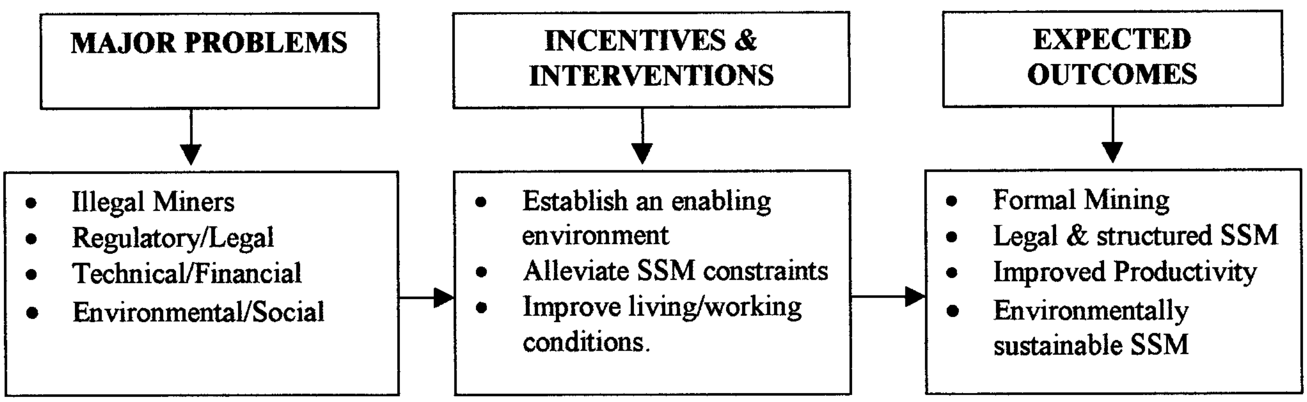

Fig 5.5 An integrated Approach Toward SSM Transformation

CHAPTER SIX

Assessment of the Implementation Strategy

6.0 Introduction

The development strategy outlined in the preceding chapter show a package of activities requiring implementation. It is not envisaged that all these will be implemented at once. The implementation will rather focus on a set of critical activities that may have greater impact on alleviating major constraints. Over time, the Government, in collaboration with the donor organisations and the private sector will continually address the elements of the development strategy. The Government has therefore, set up a logical sequence with four implementation phases as described below.

6.1 Phase I: Immediate Priorities

This phase deals with the immediate objectives of stimulating local and foreign investment in mining by removing the constraints to the private-sector driven growth. Within a time frame of three years beginning in late 1996, the following have been implemented:

- The Government recognised the role of private sector as the driving force behind exploration and mining development. Consequently it has divest itself from direct management of production operations and concentrated its efforts on regulating, facilitating, promoting, and providing services to the mineral sector.

and concentrated its efforts on regulating, facilitating, promoting, and providing services to the mineral sector.

- Revised the legal and regulatory framework to make them simple, transparent and in line with international standards. A new Mining Act was passed by the parliament in August 1998 and the Mining Regulations in July 1999. This legislation introduced new measures aimed at complementing and facilitating the implementation of the overall Government's new role in the mineral sector and the transformation process of the haphazard SSM activities into organised ones.
- Established a stable and competitive taxation regime, which encourages the long-term development strategy for the mineral resources. The revised fiscal regime is summarised in Table 6.1. It can be seen from Table 6.1 that sales tax and import duties on all capital goods including fuel imported by the mining sector have been waived. Goods destined for the mining companies, excluding consumables are also exempted from pre-shipment inspection (PSI). The imported goods must be used only for the intended purpose. Importation of goods for temporary use is also allowed provided that the importer provides a cash deposit or furnishes a bond security to secure taxes on the goods which must be re-exported at the end of the intended mining operations. In order to accelerate the recovery of the capital investment, depreciation has been set at

100% and withholding tax on interest at 0%. There is no concessional State participation in mining projects.

Corporate tax	30%
Custom on capital goods	0% (Nil)
Sales tax on capital goods	0% (Nil)
Capital allowance in deductions in years of income	100%
Withholding tax on dividends	10%
Withholding tax on interest	0% (Nil)

Table 6.1 The Mining Industry Fiscal Regime
Source: Financial Laws (Miscellaneous Amendments) Act 1997

The Mining Act of 1998 requires miners to pay a royalty of 5% for diamonds and 3% for all other minerals based on export value. There is no royalty (0%) for cut and polished gemstones. However, if a miner elects to sell his/her product to licenced dealer or broker, the buyer then pays the royalty. Royalty may also be deferred if there is proof that its payment would make the cash-operating margin of the mining operations fall below zero. Royalty is calculated on the netback value of minerals produced. *Netback value is defined as the market value of minerals FOB at the point of export from Tanzania or point of delivery in case of local consumption, less costs of transport, smelting and refining.*

Given the volatility of mineral prices, provisions are also given to adjust the market values after sales. (Mining Act 1998).

- Restructuring of MEM to adopt the new role of the Government. This restructuring was still going on during the study. (Also see Table 6.2). However, the Government has provided resources such as four wheel drive vehicles to each zone/district office across the country. This is to enhance monitoring and regulating the activities of the SSM sub-sector. Apart from this, it has also updated its MRD database in Dodoma, enhanced the capacity of the mineral laboratory by providing it with modern equipment and adequate funds. The geology division within MEM is being transformed into an independent agency (Government Executive Agency) which will offer its geological services at a fee. There was also an introduction of revenue retention scheme for MRD. Under this scheme, the Department retains 51% of the revenue from licenses, royalties and other mining taxes, collected in a particular period for smooth running of its operations. All these efforts are aimed at improving the functions of the ministry in relation to provision of extension services to the SSM sub-sector.
- Liberalising mineral marketing arrangements. Both individuals and private companies have been licensed to deal in minerals particularly gold, diamond and gemstones. The introduction of broker license was aimed to bridge the gap between the miners (mostly in remote areas) and the mineral dealers (mostly in major

towns and cities). Brokers are allowed to go directly to mining areas to buy minerals and sell them to holders of mineral dealer's license. Unlike mineral dealers, brokers are not allowed to export minerals. Most mineral dealers do not prefer going to remote mining areas to buy minerals, particularly gemstones, due to lack of security and other basic facilities such as hotels and lodges.

6.2 Phase II: Short Term Priorities

This phase focuses on translating key factors in the mineral policy into actions on the ground. The Government implemented the following within a time frame of one year from 1997: -

- Initiated and carried out awareness campaigns aimed at improving the safety, health and environmental protection in the SSM mining areas. TV programmes were introduced, books and pamphlets (both in English and Swahili) were printed and circulated, and field inspections were reinforced by the provision of the fourwheel drive vehicles and funds.
- Strengthened the ability of the SSM unit to carry out its duties by providing it with operational funds, staff and equipment. All these are in line with the unit's main objectives, which are oriented towards legalising and formalising the activities of the SSM sub-sector.
- Initiated the process of diverting state owned mining companies through the privatisation of viable ones such as STAMICO, Nyanza

Salt Mines, Williamson Diamond Mines Ltd (already privatised), Kiwira Coal Mines, TGI and Pugu Kaolin. The privatisation of the other companies is still underway. The non-viable ones such as Tanzania Diamond Cutting Industry (TANCUT) and Tanganyika Meerschaum have been liquidated.

- Forged partnership with all stakeholders to leverage efforts and facilitate the implementation of the components of the SSM development strategy. For example the Government through MEM has instituted a research group consisting of officials from the Ministries of Legal Affairs and Finance, TCM and Tanzania Revenue Authority (TRA) to evaluate how best to implement the legal and fiscal regimes accorded to mining industry. At the same time, a joint research by the Government, Economic and Social Research Foundation (ESRF) and United States Agency for International Development (USAID) has revealed various reasons for continued mineral smuggling from the country. (MEM budget speech, 1999/2000). These include:-

  (i) Many mineral dealers do not reveal their actual income in order to evade taxes.

  (ii) Lack of funds to purchase mining and processing equipment and low level of income by the SSM sub-sector have led to informal pre-financing arrangements whereby the miners pledge to sell their minerals to the prefinanciers. Apart from buying the minerals at a give away price, they also smuggle the same out of the country.

(iii) In case of gems & gold, the business community uses illegal mineral exports as a source of foreign exchange, which is generally in short supply. The acquired forex is used to import goods into the country that are sold at high price hence making super profits.

The Government is in the process of evaluating the loss (in terms of revenues) due to this smuggling and ways of combating it.

- Strengthening the human resource base at the Ministry of Energy and Minerals to effectively administer, promote and provide services to the SSM sub-sector. The change in the Government's role within the mineral sector necessitated reduction in manpower at the Ministry as indicated in Table 6.2.

Before Restructuring		After Restructuring		% reduction
Professionals	Technicians	Professionals	Technicians	- 23
121	187	93	157	- 16

Table 6.2 Proposed Manpower Changes During Restructuring
Source: Ministry of Energy and Minerals, Dar-es-Salaam

Tables 6.3 and 6.4 show the numbers of staff (professionals and technicians) employed by MEM in 1997 and 2000 respectively.

Profession	Dodoma Office	Dar-es-salaam office	Zonal offices	Total
Geologists	54	20	15	89
Mining Engineers	7	3	16	26
Mineral Processing Engineers	2	-	-	2
Chemists	4	-	-	4
Technicians	106	4	77	187
Total	173	27	108	308

Table 6.3: Staff Posting Levels in 1997
Source: Ministry of Energy and minerals, Dar-es-Salaam

Profession	Dodoma office	Dar-es-salaam office	Zonal offices	Total	% change
Geologists	37	11	10	58	-34.8
Mining Engineers	5	6	16	17	+ 3.8
Mineral Processing Engineers	1	1	-	2	0
Chemists	3	-	-	3	-25
Technicians	58	8	70	136	-27.3
Total	104	26	96	226	-26.6

Table 6.4: Staff Posting (as at April 2000)
Data Source: Ministry of Energy and Minerals, Dar-es-Salaam.

Comparing Tables 6.2 and 6.4 shows that the effected changes (as at April 2000) of - 25% and - 27% for professionals and technicians respectively, is higher than that recommended in Table 6.1. This indicates that there is a shortage of qualified manpower at the ministry.

However, even before the restructuring, the Ministry has been losing much of its qualified and experienced manpower to the fast growing private sector, which offers more attractive working conditions of service than the Government. (Mutagwaba, 2000).

Apparently, there has been no recruitment to fill in the vacancies. The only mining technicians training institute, the Madini Institute remained closed for the last five years due to lack of funds from Government.

6.3 Phase III: Medium Term Priorities

This phase will be implemented within 2-5 years from 1997 and it deals with alleviating organisational, environmental, financial and technical constraints facing the small -scale miners. The following activities have been initiated: -

- Conducting on-site training on prospecting, mining and mineral processing techniques that are efficient and environmentally sound. This activity has started in collaboration with the Small-Scale Industries Development Organisation (SIDO), Vocational Education Training Authority (VETA) and REMAs. The trainers training course was conducted in the Lake Victoria Gold belt in Mwanza at the VETA centre in 1998.
- The Government is in the process of setting up demonstration plants in most promising SSM areas. The feasibility study has been carried out and the process of evaluating the outcomes is in progress.
- Mainstreaming formal loans to small-scale miners by encouraging commercial banks to consider mining loans and to develop an adequate expertise in mine risk assessment. Negotiation between

the Government and the First Adili and Micro-finance Banks for this purpose are underway. The Government has stressed that these loans will be advanced to formal and organised small -scale miners through their mining associations. It has also initiated a programme to strengthen the REMAs through workshop seminars and round table discussions. Also there are plans to assist REMAs financially so that they can hold elections in all levels, from the branches through their national body, FEMATA.

- The Government, through the Meremeta Company Ltd has facilitated the procurement of mining and processing equipment such as jackhammers, water pumps, compressors, crushers, retorts and grinders from South Africa on hire-cum-purchase schemes. This is to assist small-scale miners have access to appropriate technology. It is also encouraging the private sector to import the equipment by waving custom duty and sales tax. In addition, it organised mining and processing equipment show in Dar-es-salaam in May 1999, which attracted mining and mineral processing equipment suppliers from Zimbabwe, India, South Africa, Sweden and England. This enabled small-scale miners to buy or place orders for these equipment.
- To alleviate financial constraints facing small-scale miners, the Government has increased the primary licence tenure from one year to five years. This period is considered long enough to enable miners to produce the required bankable feasibility study reports. It

is also encouraging mutual savings and credit schemes through the mining associations, formalizing traditional funding and creating incentives for miners such as reducing the surface rentals so that they can pool resources as co-operatives or formal business units.

6.4 Phase IV: Long Term Priorities

This is the last phase in the implementation strategy (10 years or more) and it deals with ensuring economic, social and environmental sustainability of mining development. This involves the following:

(i) Ensuring the availability of adequate and competent human resource base through investment in training and capacity building. This is an area, which the Government has done very little. For example whereas the Government employed engineers have been left without adequate mining experience, the private sector has already given indication that they intend to train their engineers to acquire high professional competence. In administering the Mining Act and the Mining Regulations, Government engineers are expected to perform duties that require high professional competence.

(ii) Setting up a mineral revenue stabilisation fund to protect the economy from swings in the mineral markets.

(iii) Increasing employment and involvement of women in mining activities.

(iv) Put in place effective environment management systems with capability to monitor and enforce health, safety and environmental standard.

(v) Establishing a plan for using mineral revenues to promote the development of new mines and other economic sectors.

(vi) Ensuring the availability of reliable transport, water, power and communication infrastructure.

(vii) Encouraging the development of down-stream activities as such lapidary, jewellery and gold-refining industries. Under the World Bank supported project, the Government is setting up activities for training small-scale cutting and polishing of gemstone. It was also noted that already a few private gemstone-cutting industries, which provide lapidary services at a fee, have been established in Arusha. However, the bulk of gemstones are still sold in raw form especially by the artisanal and small-scale miners who are scattered across the country.

6.5 Options for Strategic Partnership

The implementation of the SSM sub-sector development strategies calls for partnership between the key stakeholders. The mineral policy identifies various target groups, their roles and strategies to be implemented as outlined in Table 6.5. In addition, concerted actions of Government departments, international organisations, business and technical support institutions, NGOs and other training institutions are required. The roles of each of these institutions are outlined below: -

Target Group	Identified Role and Strategy
Medium-and large-scale (local and foreign) investors	Key partners with Government in mineral development. Main instrument for technology transfer through favourable interactions with local investors. Environmental, fiscal, regulatory and institutional framework strategies are being implemented.
Small-scale local investors	Present major player in mineral production, but underdeveloped. Government pledges to support SSM and transforming artisanal mining. Legal, regulatory and institutional framework strategies have been instituted.
Mineral traders and dealers	Key players in the local minerals market. Fair play is expected from traders in order to realise higher mineral exports and promotion of formal local markets, especially for small producers. Fiscal, legal and regulatory framework strategies have been identified.
Mineral beneficiators	Key partners in enhancing integration of mining into the national economy. Promoted through local processing incentives. (Not clearly stated in the policy).
Financial services and (local and foreign) capital markets	Key players in promoting investments, especially local small-scale investors. Called to reform and accommodate requirements of the minerals sector.
Mineral sector support services	Key partners in promoting growth of local minerals industry. Key to technology transfer and improvement of SSM sub-sector. Investments will be encouraged in this sub-sector.
National and local leadership and politicians.	Key to shaping and supporting conducive investment climate. These are key building blocks in legal, institutional, social and political framework and infrastructure.
Communities in mining areas, children and women	Identified as vulnerable (and marginalized) group. Legal and regulatory strategies set to tackle child labour. Investors may be required to undertake Social Impact Studies and strategies prior to commencing projects.
Non-Governmental Organisations and agencies both national and international	Key partners in organising local (artisanal and small-scale) miners. Main role player in the small-scale sub-sector by facilitating marketing, environmental and socio-economic awareness.

Table 6.5 Target groups addressed by the Minerals policy

6.5.1 The Role of Government-related Institutions

Government related institutions that could have an impact on the successful implementation of the SSM sub-sector development might be cited as follows:

- **The Parastatal Sector Reform Commission (PSRC)**

  Its activity in the mineral sector involves reducing the state monopoly in mineral exploration and production thereby reducing the drain on the Government's budget. It is responsible for privatising state mining companies and its subsidiaries. The PSRC divestiture

  programme for the mining sector is expected to be completed by the end of the year 2000.

- **The Tanzania Revenue Authority (TRA)**

  It was established in 1996 as part of Government's efforts to strengthen revenue collection. TRA will be instrumental in ensuring that the fiscal incentives provided for mining investors in the investment code are duly implemented.

- **The Tanzania Investment Centre (TIC)**

  The TIC was established in 1997 as a "one-stop-shop" for investors. Its main functions are to promote and co-ordinate investments in Tanzania and to advise the Government on investment policy and other related matters. Investors wishing to invest in the mining industry are well covered by the TIC Act and hence subjected to investment incentives and guarantees provided for in the Act.

- **The Bank of Tanzania (BOT)**

  This is expected to play a major role in encouraging the establishment of small banks, savings and credit facilities and other financial intermediaries to finance mining and mineral trade operations. It can also lower the required start-up capital and encourage commercial banks to establish loans for micro-enterprise development, particularly the SSM sub-sector.

- **The Board of External Trade (BET)**

  This organisation is one of the institutions designed to promote investment and provides exporters with information regarding the quality and type of the products in demand in foreign markets. Although the Board has not been involved in mining activities, its restructuring to include mining activities in its functions can make a substantial contribution to the development of local and foreign mineral markets in the country.

- **The State Mining Corporation (STAMICO)**

  It was established in 1971 with a mandate to carry out exploration and mining activities on behalf of the state. However, with the ongoing reforms, STAMICO is in the process of being transformed into a private mining and consulting company. STAMICO's future activities will focus on providing technical services to private SSM enterprises.

6.5.2 The Role of International Organisations

International donor organisations are expected to play a catalytic role in the sustainable development of the SSM sub-sector. Notable among others are: -

- **The World Bank (WB)**

  The bank has been active in providing assistance to the mining sector by supporting policy, legal, regulatory and institutional reforms. The reform package also included rationalizing of the SSM sub-sector. The International Development Association (IDA), an affiliate of World Bank group which provides soft loans to poor nations is currently financing the Mineral Sector Development-Technical Assisted Project (MSD-TA) in partnership with the Government. The IDA credit support is used among other things for capacity building such as training of both MEM staff and small-scale miners, technical assistance on the legal and regulatory framework, taxation, environmental regulation, mineral database management, management of socio-economic and cultural impacts of mining, and regularization of the small-scale/artisanal mining activities. (Priority Work Programme 1994).

- **The Multilateral Investment Guarantee Agency (MIGA)**

  MIGA is also an affiliate of World Bank whose purpose is to guarantee eligible investments against losses resulting from noncommercial risks. Tanzania being a member of MIGA is eligible for the facilities offered by this organisation.

- **The International Finance Corporation (IFC)**

  Established in 1956, IFC's purpose is to promote private sector investment in developing countries. IFC recognises the importance of the small-scale enterprises in the growth of the African economy and the scarcity of small-scale project financing in the continent. It therefore launched the African Enterprise Fund (AEF) in 1989 as a means of boosting small-scale enterprises. Through this arrangement, the SSM sub-sector can benefit from it after being well organised. (MSD-TA Draft II, 1997).

- **The United Nations Economic Commission for Africa (UNECA)**

  UNECA was established in 1985. The commission has taken an active role in the mining sector and most recently in the promotion of mineral resources development and utilization in Africa. It has also conducted a number of studies on the development of SSM in Africa. The SSM sub-sector can equally benefit from this organisation through its technical assistance. (MSD-TA Draft II, 1997).

- **Southern Africa Development Community (SADC)**

  This organisation has already incorporated the mining sector in its programme of action. It aims to develop a joint approach to the development of the mining sector and in particular the SSM within SADC. The SSM in Tanzania equally will benefit from SADC through its technical support programmes.

- **Southern and Eastern Africa Mineral Centre (SEAMIC)**

  This is an independent regional centre of knowledge, services, research and development, training and data dissemination. It was established in 1977 under the umbrella of UNECA. The SSM will benefit from its mineral processing, laboratory, and gemstone identification and valuation services. The Centre can also be used as a source of geological data for various investors in the country and the SADC sub-region as a whole. (SEAMIC Profile, 1999)

6.5.3 The Role of Private Sector Organisation

The presence of private sector and technical support institutions is of fundamental importance for the successful implementation of the small-scale sub-sector development strategy. The recent increase in the number of private companies and organisations that provide services to the mineral sector is a positive step forward in developing the capacities needed to effectively integrate mining into the economy.

The existence of organisations such as the REMAs, FEMATA, TAMIDA and TCM promises to make an invaluable contribution in the sub-sector's transformation process. Their contribution to the sub-sector includes: -

- Mobilisation and organisation of the miners;
- Offering technical and financial support to specific mining groups;
- Assisting authorities to curb illegal mineral marketing activities;
- Offering advice to the Government on policy matters;
- Fostering mineral sector development issues such as advocating environmentally sound mining practices; and
- Adherence to health and safety standards.

6.5.4 The Role of International NGOs

Recent developments in the mining industry have started drawing attention of various private associations, communities, institutions and organisations. NGOs normally have a strong attachment at grass root level and can therefore be useful in spearheading changes within the SSM sub-sector. The following are examples undertaken by the International NGOs in the SSM sub-sector: -

- **Poverty Africa (Tanzania)** is helping to organise the artisanal miners to form working groups, that can have access to technical assistance in Mtwara, Ruvuma and Tanga regions.

- **Pride Africa (Tanzania)** has already started setting up informal voluntary savings and credit schemes fore example at tanzanite mines in Merelani, Arusha.
- **World Vision International (Tanzania)** has started to provide social services and improving environmental and health standards under the anti-AIDS campaigns in SSM areas in Dodoma, Singida, and Shinyanga regions.
- **The Economic and Social Research Foundation (ESRF)** has started promoting policy dialogue among the stakeholders and other interested parties such as the Government, the private sector and the international community. The overall aim is to foster constructive relationship among the local business community, the international community and the small-scale miners in their areas of operation.

6.5.5 Role of Technical Training Institutions

The Government has recognised the need to establish institutions, which will upgrade professionalism within the mining industry. There are plans to encourage universities and other mining institutions to incorporate mining sector skills in their programmes.

The University of Dar-es-salaam will start offering first degree programmes in mining and mineral processing starting in July 2000. Other institutions such as the Vocational Educational Training Authorities (VETA) and the Mining Technician Training Institute, (Madini Institute) etc are revising their syllabuses to incorporate mining related programs.

CHAPTER SEVEN

Impact of New Polices and Legislations

7.0 Introduction

A field study of SSM areas was undertaken in Ruvuma (Lukarasi gold mine), Dar-es-Salaam (Kunduchi building minerals mine) and Arusha (Merelani gemstone (tanzanite) mine) regions. These areas are shown in Fig. 7.1. The main objectives of the field study were to evaluate the impact and applicability of the new policies and legislations introduced by the Government to transform the SSM sub-sector.

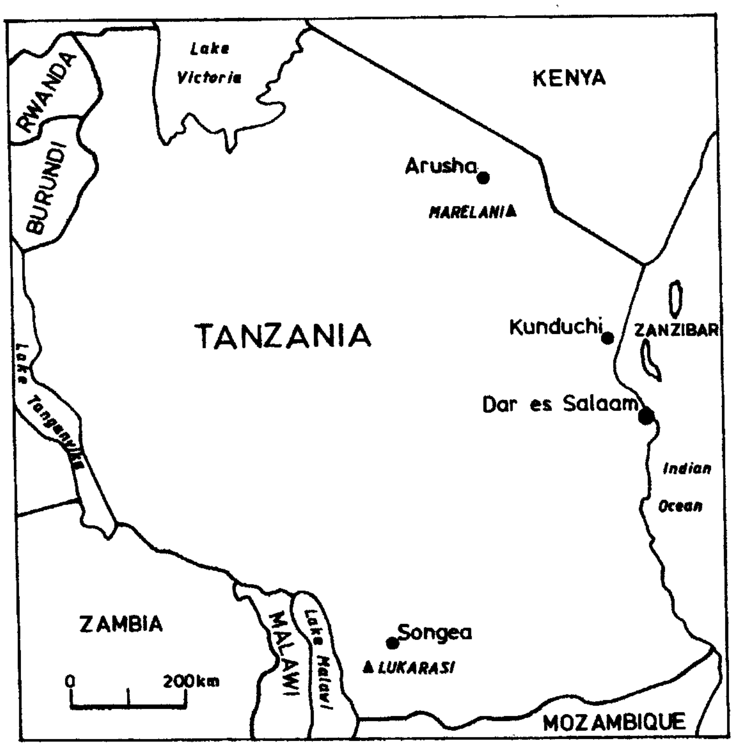

Fig. 7.1 Field study areas.

N.B. Map not drawn to scale.

7.1 Methodology

In order to achieve the objectives, three questionnaires were drawn and administered to:

- Small-scale miners (questionnaires were written both in English and Swahili).
- Mineral traders both large-scale (mineral dealers) and small-scale (brokers).
- Government officials at the Ministry of Energy and Mineral (limited to Geologists, mining engineers, mineral economists and mining technicians). (Also see appendix E).

In most cases direct interviews with the miners and mineral traders were carried out (see plate 1).

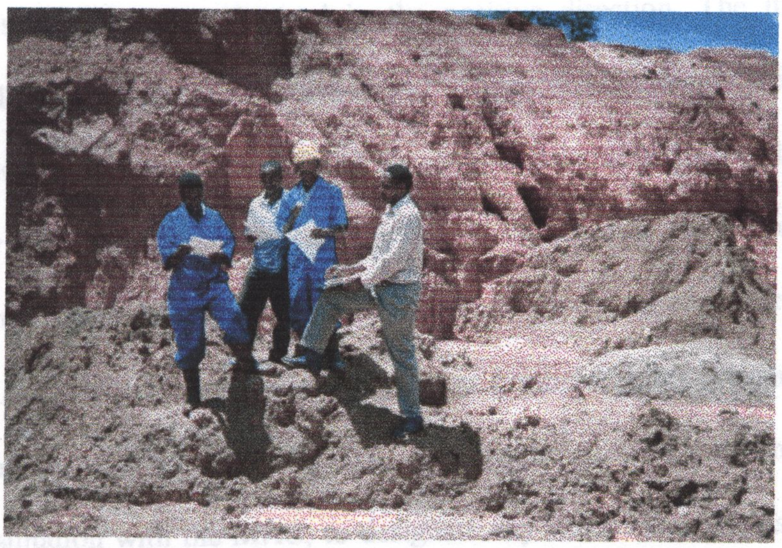

Plate 1: Interview with small-scale miners at Lukarasi gold mine in Mbinga district, Ruvuma, Region

7.2 Field Study Results

7.2.1 The Applicability of New Policies and Legislations

- Most miners expressed knowledge of the new Mining Act (1998) and the Mining Regulations (1999), particularly on the newly introduced mineral right category D for SSM only.
- Few miners (particularly at Merelani in Arusha) acknowledged to have read the new version of the mineral policy, which was translated into Swahili language by the Government in 1997. This has made it easily understandable by the ordinary small-scale miner. The new Mining Act has not yet been translated into Swahili language. However, the few miners who were interviewed expressed satisfaction with the efforts made by the ministry of mines officials to disseminate it to them.
- It was found that the formulation and release of the mineral policy specifically for the SSM sub-sector is a step forward in the positive direction. The initial negative conceptualization of the SSM as a wasteful sub-sector is gradually being moderated by the Government's efforts to alleviate poverty and improve the productivity of the sub-sector. This is also reflected by the Government's acknowledgement and recognizing the sub-sector as a potential contributor to the national economy.
- The new Act (1998) introduced a category D of mineral rights (Primary prospecting and mining licenses) for SSM only. The Act also provides for the Minister of Mines, after consultation with the MAC, to designate any vacant area exclusively for SSM operations only. Furthermore the primary prospecting and mining licenses are limited to Tanzanians only, (Mining Act (1998) sections 8, 14 and 70). There were different views regarding these guidelines. Prominent among these were:

- Most small-scale miners interviewed expressed satisfaction with the guidelines since they view large-scale miners (both local and foreign) with suspicious, that is, the large-scale miners want to get rid of them.
- Others expressed different opinions that the categorization and designation of SSM areas will lead to zoning of mining areas in the country. The criteria for such zoning will be based on the technical assessment of the potentials of the area, that is, to determine the reserves that are suitable for SSM technology. This exercise is expected to be undertaken by the Government. Given the Government's budget constraints, the successful implementation of such an exercise is doubtful.
- The designated areas will be limited to indigenous Tanzanians only who will be licence holders. Foreigners can participate by forming joint ventures with Tanzanians. This is in line with one of the mineral policy strategies, which calls for joint venture/partnership between local small-scale miners and foreign largel-scale miners as a means of accelerating technology transfer, gain access to capital resources and harmonizing relations between the two groups. While there is no question about the significance of the intentions of the above policy strategy, some attempts which have been made to implement it, leave a lot to be desired. Some of the different interpretations of the guideline, which are bound to have negative consequences, are outlined below.

The issue of joint venture (JV), although not covered in the new Act, cannot be ignored because local small-scale miners are collaborating with foreigners. The forms of JVs are in three categories as follows:

(a) The first category is a JV to develop a small-scale licensed area. The foreign investors do not favour this because they do not want to invest in an area where Tanzanians own the mineral rights. This impacts negatively on one of the mineral policy strategies, which advocates for creation of conducive investment environment in SSM that will ensure easy access to capital and technology.

(b) The second category is where small-scale miners merge their claims and apply for a medium-scale-prospecting license and hence negotiate for JV with a local or foreign company. The Government is encouraging this. Most small-scale miners will be disadvantaged in this form of JV because they can neither afford expenses of engaging expertise in deposit evaluations and negotiations nor can they interpret the reports of the exploration results from their claims and hence the risk of being easily swindled. Making deliberate efforts to provide advisory services, covering both technical and legal implications during these negations can enhance this relationship.

(c) The third category is where a small-scale miner transfers his/her shares/mineral rights to large-scale operators. Most miners prefer this since they want to cash in quickly and leave. For the same reasons given above in (b), the small-scale miner is disadvantaged in that he/she will sell the mineral property at a give away price.

However if these forms of JV (b and c above) are promoted there is a danger of eliminating the very same people from the mining industry whom the Government is set out to help. The question, which needs further research, is how to balance this in a free market economy.

7.2.2 The Impact of the New Polices and Legislation

(a) Increase in large-scale mineral exploration expenditure

The most visible effect has been the unprecedented influx of foreign large-scale mining companies into the country. This is reflected by the increase in the level of budgeted exploration expenditure as shown in Fig.7.2.

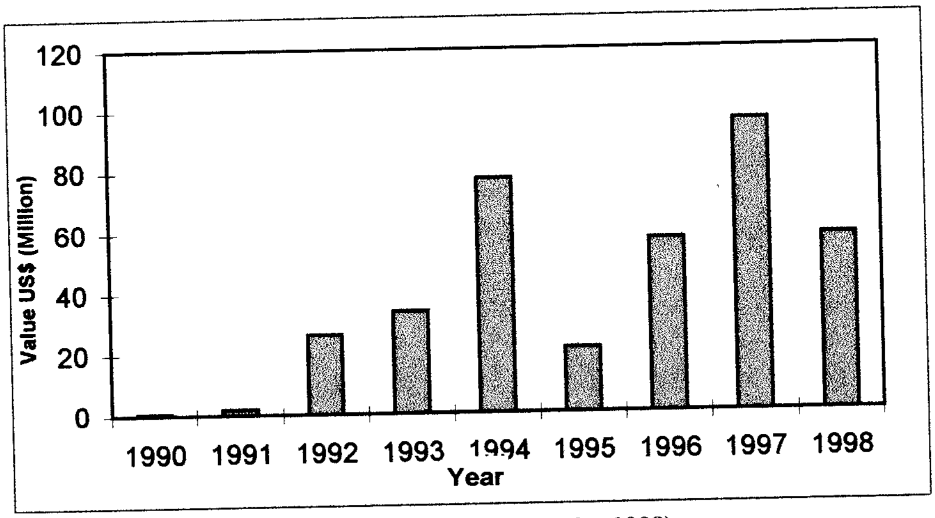

Fig.7.2 Budgeted exploration expenditure (1990 – 1998)
Source: Ministry of Energy and Minerals, Dar-es-salaam.

(b) Licensing Procedures

There was a general satisfaction by the small-scale miners with the Government's efforts to decentralize and streamline the licensing procedures for both mineral dealers (brokers) and primary prospecting and mining licenses (small-scale miners). These are now issued by zonal/district mining offices. The decentralization of primary licence procedures resulted into an increase of mineral production and sales, by 35% from US$ 15.0 million in 1995 to US$ 23.0 million in 1998. The highest export value of US$ 40.2 million in 1996 was due to temporary export of iodized salt to neighbouring countries. (See also appendix A, Table 2).

(c) Mineral marketing

Most miners and mineral dealers expressed satisfaction concerning the Government's efforts to liberalize mineral marketing by licensing individuals and companies to deal in minerals. The Government has also facilitated the establishment of mineral buying offices in each district where mining activities are significant. The licensing of the Meremeta Company Ltd. in partnership with Trienex from South Africa to buy gold from small-scale miners was also appreciated. However the miners felt that the mineral dealers were cheating them because they have no idea about the international market price for their minerals and how to value them. They also expressed desire for the gem exchange/shows, which are currently being held in Dar-es-Salaam and Arusha to be extended to all other towns where mining is taking place to create competitive mineral markets.

(d) Environmental Protection Awareness

While some of the interviewed miners did not realize that their mining activities could lead to environmental degradation, most of them expressed knowledge of the existence of the environmental provisions within the Mining Act (1998) and its accompanying regulations (1999). For those who expressed knowledge of the environmental degradation due to their mining activities, they did not know how to rehabilitate the damage and mostly do not have resources to do so.

The environmental problems that were observed during the field study are those categorized as direct effects i.e., those which could be visually observed in the field such as abandoned pits and piles of rubbles, siltation as a result of washing of ore on river banks and deforestation. (Also see plate 2). Indirect effects such as mercury entering the food chain through land, water and air contamination were revealed in a study carried out in artisanal/ SSM areas in the Lake Victoria Gold Field (LVGF) to assess the environment impacts of mining (Kahatano and Mnali, 1995). High mercury (Hg) concentrations were encountered in water, soil and stream sediment samples. The Hg concentration was higher in the samples taken from gold washing, processing and firing sites and decreases to background levels away from the sites. This suggests that Hg was being introduced to the sampled environment through misuse of Hg during gold processing. The use of retorts during gold amalgamation and construction of non-porous washing ponds/dams can reduce Hg contamination in soil, water and air.

Plate 2 Environmental degradation due to SSM at Kunduchi area.

(e) Prospecting/exploration, Mining and Processing Techniques

Most miners lacked appropriate knowledge in prospecting/exploration, mining and mineral processing. They also showed a desire to be trained in these fields.

(i) Prospecting/exploration

All the three sites visited revealed that prospecting/exploration is done sporadically (legwork) where miners traverse around the mineralized areas digging prospecting trenches and pits, normally following outcrops.

(ii) Mining

The main excavation methods employed in the visited areas include pitting, trenching, benching and sinking of shallow shafts for underground mining. The following problems were expressed by the miners.

- The size of the mineral claim, 10 hectares ($0.1km^2$) is too small to warrant arrangements of a normal shaft with manway, hoisting and service chambers. Location of the pits (for example at Merelani) is done haphazardly without any technical advice thus reducing their stability. It was observed that some of the pits were also located within the zone of influence of others. This is one of the main causes of accidents particularly during blasting.
- Lack of adequate ventilation facilities. It was observed that expensive equipment like compressors are used to ventilate deep pits (about 150m).
- There was a general lack of knowledge in mine planning and production. For example, at Merelani and Lukarasi mines where mechanical equipment have been

introduced, the equipment capacities are not linked to production volume and hence resulting in under-utilization.

- Most miners complained of water problems especially those who could not afford to buy or hire water pumps. Once mining has reached the watertable or intersected an acquifer, most mining operations are suspended. The common approach of using a bucket and rope for dewatering is inadequate. (Also see plate 3).

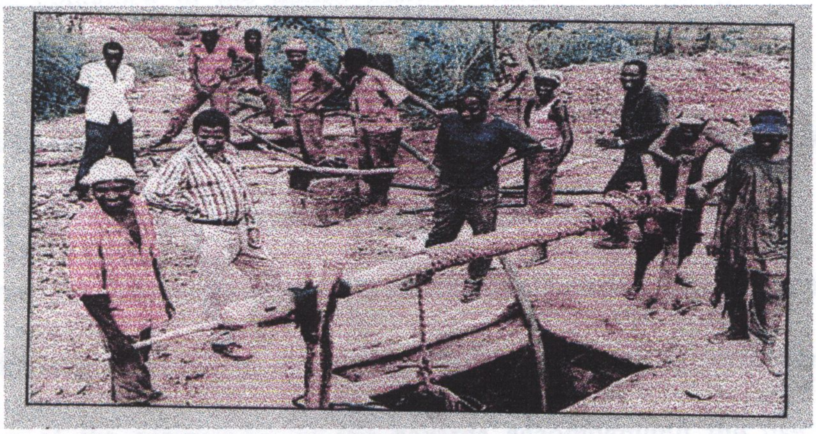

Plate 3 Arisanal gemstone mining in Tanzania
Dewatering and ore hoisting at Merelani.

(iii) Processing

Miners expressed desire for development of appropriate technologies in mineral processing. The following problems were observed as hampering the throughput and recoveries in mineral processing: -

- Inappropriate crushing, grinding and sizing equipment. The continued use of wooden mortars and car axles as pestles and manual crushing of ore by hammers is inadequate.
- There was a general lack of interest or know-how from miners in recovering smaller gemstones contained in the mined matrix. Interviews with gemmologists at the Ministry of Mines revealed that gems less than two carats are found in the waste materials in fair quantities despite being marketable. In addition the miners are not able to further process the gemstones apart from hand sorting.
- Gold miners (at Lukarasi) rejected the use of simple retorts for gold amalgamation for fear of loosing the gold in the retorts. Further, there was little consideration or awareness of the seriousness of the hazards accompanying the use of dangerous chemicals like mercury. Miners could be seen handling mercury with bare hands, heating the amalgam in open air and thus releasing the mercury vapour to the atmosphere. There is also a possibility of direct inhalation of this vapour by miners, which is a health hazard.
- They also complained of difficulties in solving amalgamation problems especially when the gold does not fully amalgamate with mercury. This is due to lack of knowledge on mineral processing and metallurgical principles.
- Gemstone miners (at Makoro, Mbinga) complained of being overstrained with inefficient screening of loose sediments with high clay content. Despite the fact that the screening of gravel is done manually, there is also lack of water at certain seasons of the year such that initial removal of the mud/clay is done with muddy water. This can lead to loss of the gemstones in the muddy water. In addition, this blocks the screen apertures resulting in poor recovery.

(iv) Mineral Valuation and Grading

The gemstone miners expressed ignorance of gemstone valuation and grading. The Government has stationed a few gemmologists in zonal offices where gemstone-mining activities are significant. However, these gemmologists lack experience and working tools and hence have not effectively assisted the miners.

(v) Women involvement in mining activities

It was found that there is a limited number of women involved in mining activities. There are about 143,135 women who are involved in mining (24% of the total SSM population). Those who were found at mining sites were mainly involved in the business of selling food stuffs, drinks, second hand clothes and other support services such as fetching water, and cooking. Few were involved in mineral processing activities such as gemstone sorting and gold panning and very few own mining licenses. However, when interviewed, they expressed desire to undergo training in mining and mineral processing techniques so that they can participate fully in mining (Also see plate 4).

Plate 4: Women participation in SSM activities at Lukarasi Gold Mine, Mbinga

To encourage women participation in mining, the Government has facilitated the formation of the Tanzanian Women Miners' Association (TAWOMA) in 1996. Through TAWOMA and other donors, there are plans to establish a lapidary industry in Dar-es-Salaam in the STAMICO premises.

(vi) Benefits to the Local Communities

Rural development conceived in the form of the mushrooming of rural townships or per-urban settlements is attributed to the activities of the SSM sub-sector. Most mining settlements start initially as mining camps with temporary shelters. However some of these camps developed into permanent settlements or villages. For example, the sites visited in Merelani and Lukarasi, the people around these areas have invested basically in personal properties like houses, transport and other businesses within the settlements (Also see appendix H). It is envisaged that other services such as water supply, health and education will follow. (See plate 5)

Plate 5 Development of permanent settlement in SSM (Lukarasi God Mine, Mbinga)

Given the unpredictable nature of the SSM activities and the miners' habits of shifting from place to place following rumours of new discoveries, has made it more difficult to appreciate some of the positive impacts in rural development. The policy reforms have brought more visible changes in the large-scale mining sub-sector compared to the small-scale. Some of the impacts on the large-scale mining will be discussed in the next section for comparison purposes.

7.2.3 The Impact of New Policies on Large-Scale Mining

There have been positive impacts particularly on the large-scale mining operations following the enactment of the new policies and legislation. This is demonstrated by some of the following examples: -

- The growth rate of the mineral sector increased sharply from 1.17% in 1997 to 1. 27% in 1998. (Appendix F).
- The amount of investment in mineral exploration nearly doubled from US $33.5 million in 1993 to almost US $60.0 million in 1998, which represented 13% of the total expenditure for mineral exploration in Africa in 1998. The amount was higher than any single African country including Ghana and South Africa. (Jambo, 2000). Also see appendix A, Table 3.
- Mineral dealers' licenses granted increased by 31% from 162 in 1994 to 235 in 1998. This excludes broker licenses. (Also see appendix C).
- The large-scale mineral rights that have been acquired between 1990 and 1999 are shown in Fig. 7.3. This provides an indication of increase in the level of mining activities in the country.

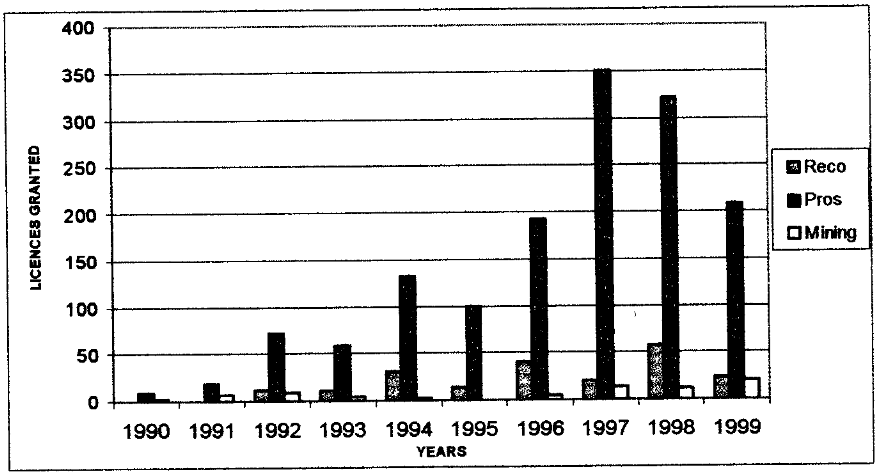

Fig.7.3 Large-scale mineral rights granted, 1990 – 1999
Source: Ministry of Energy and Minerals, Dar-es-salaam

N.B Reco - Reconnaissance licence
Pros - Prospecting licence
Mining- Mining licence

- The socio-economic impacts, especially to communities living in areas where advanced mine development projects are located, have been tremendous. For example, a 130 km all weather road has been constructed by Kahama Mining Company Ltd. in collaboration with Ashanti Goldfields Mining Company Ltd. and thus providing easy connection between Geita and Kahama towns. Construction of 22-km water pipeline from Lake Victoria to Geita, which will supply water to the mines and villagers along the pipeline, is under construction by Ashanti Goldfields Mining Co Ltd. A 22-km all weather road connecting Nungwe Bay to Geita has been constructed. Three aerodromes have been constructed in Geita by Kahama Mining Co Ltd. Primary and secondary schools were also constructed in Geita by Ashanti Goldfields Mining Company Ltd.

These projects will also create employment for both skilled and unskilled labour, which will have a positive impact on the communities around the areas. Ashanti Goldfields Mining Company Ltd. in Geita is expected to be the largest gold mine in the country producing around 14 tonnes of gold per annum.

- A number of gold exploration projects that have reached an advanced stage are shown in Table 7.1.

7.2.4 Attractiveness of Tanzania for Foreign Direct Investment

Implementation of the various strategies in developing the mineral sector has improved the country's position in attracting mineral investments. A comparison of investment climate in selected mineral rich countries was carried out which indicates similar trends. The comparison, which is shown in Table 7.2, indicates good sign for Tanzania (which is an agricultural dependent economy) as an attractive destination for foreign investment in mining. At the same time this indicates the growing pressure on the Government to compete for foreign investments. Sustainability of these measures is key factor for the country to remain afloat in the current competition for foreign investments.

7.2.5 Some of the Achievements under the New Policies

Following the release of the mineral policy and its implementation strategy, there have been some achievements in the SSM sub-sector. For example,

- The number of primary mining licenses (formerly mineral claims) increased by 6% from 1209 in 1994 to 1272 in 1999. (Appendix B).
- The number of broker licenses (small-scale mineral dealers) increased by 21% from 142 in 1996 to 180 in 1999. (Appendix C).

Company	Area	District	Estimated resources (troy ounces)	Planned production (Troy oz/annum)	Investment capital (US $ million)	Production commencement dates
Resolute Ltd. and Ashanti Goldfields Ltd.	LUSU (Golden pride)	Nzenga	2,400,000	180,000	48	Nov. 98
Kahama Mining Co.	Bulyanhulu	Kahama	9,000,000	300,000	350	Mid 2000
Ashanti Goldfields Ltd.	Geita	Geita	12,000,000	450,000	140	Mid 2000
Afrika Mashariki Gold Mines	Nyabirama and Nyabigena	Tarime	1,500,000	140,000	80	Late 2000
Randgold Resources/Panged Ltd.	Nyaligongo (Golden Ridge)	Shinyanga	1,670,000	60,000	37	2002
Madaba/Anglo-American/Pangea Ltd.	Mwime (chocolate Reef)	Kahama	2,000,000	-	-	2002
East African Mines	Buckreef Rwamagaza Buziba	Geita	375,000	-	-	Investigation in progress
Anglo-American	Nyamulilima	Geita	2,250,000	-	-	Investigation in progress

Table 7.1: Gold Exploration Projects in Tanzania

	Income Tax	Royalty	Import duty	Dividend tax	Tax holiday	External A/C	Government equity	Export duty	Exchange control	VAT	Tax stability
Tanzania	30%	3% of net back value	5% in the cap. limit	10%	None	Allowed	None	None	None	20% exempted when products shall be exported	Full project life
Zambia	35%	3% of net back value	Exemption	15%	None	Allowed	-	-	None	17%	Full project life
Ghana	45%	3012% of cross value	Exemption	10%	Allowed	Allowed	10-12%	-	None	17%	Full project life
South Africa	35-40%	-	-	-	-	Allowed	-			14%	Full project life
Botswana	25-50%	3% of net back value	Exemption	-	None	Allowed	-	-	-	20%	Full project life
Zimbabwe	39%	3 % of net value	Exemption	-	-	Allowed	-			17%	Full project life
Mozambique	40%	3 to 5% on FOB export value	Exemption	18%, exempt for a period 10 years	50% of the income tax for a period of 10 years	Allowed	Yes	Exemption	None	None	None
Namibia	25 to 51%	Up to 5% of sales	Yes	10%	None	Allowed	None	None	Apply	5-10%	Yes but the duration is not specified
Burkina Faso	35%	3-4%	Importation free of custom duties	12.5%	None	Allowed	10%	None	None	Yes	During the period of license validity
China	33%	2-4% of sales revenue	Apply	None	5 years for more than 10 years life	Allowed	None	Apply	None	13%	None
Philippines	35%	2% of gross value	3%	15%	5 years	Allowed	Negotiable	None	None	10% exempt during first 5 years	Agreed
Peru	30%	None	12%	0%	None	Allowed	None	None	None	18%	10-15 years
Bolivia	25%	1-5% of gross sale	5% for capital goods	12.5%	None	Allowed	None	None	None	Exempt for export products	None

Table 7.2: Comparative Fiscal Policies for Selected Mineral Rich Countries

- Mineral sales and exports show a remarkable trend as shown in Figure 7.4. It can be deduced from the graph that there has been an increasing trend for gemstone production and sales from 1996 to 1999. In the case of gold, there was a sharp decline from 1994 to 1997. This is when the BOT stopped buying gold from the small-scale miners. From 1998 to 1999 there is an upward trend due to the new Government's policies in which individuals and companies were licensed to buy gold directly from the miners. In the case of diamonds, there was a decline from 1994 to 1995 when the Williamson Diamond Mines in Mwadui closed down temporarily due to lack of investments. In 1996, the De Deers Diamond Mine Company Ltd. acquired 75% stake at the mine and hence the trend has since then been upwards.

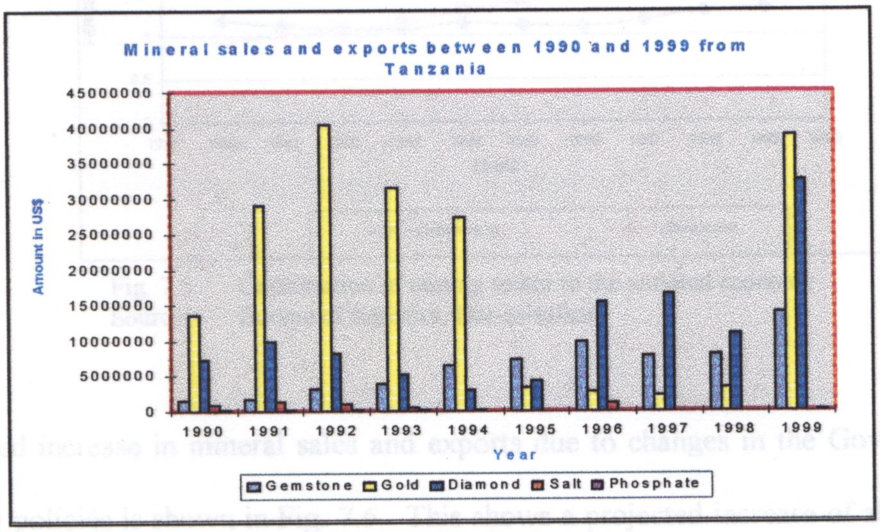

Fig.7.4 Selected mineral sales and exports between 1990 and 1999
Source: Ministry of Energy and minerals, Dar-es-Salaam

- There have been some positive socio-economic impacts especially to communities living in areas where mine development projects are located as indicated on Section 7.2.3. Also employment of local people have been tremendous.

- The contribution of mining to Tanzania's economy has been growing though slowly. The contribution measured by the share of mining in GDP has been increasing progressively from 1992 onwards as shown in Figure 7.5. For example, the percentage share of mining in GDP increased by 40% from 1.5% in 1996 to 2.5% in 1999. The mineral policy of Tanzania identifies the share of mining in GDP as one of the main indicators of development in the mining sector. The values for GDP used are at factor cost and adjusted for inflation at constant 1992 prices. Mineral exports and expenditures on mineral exploration are the major influences on the GDP trend. Both small-scale and large-scale operations contributed to this trend. Small-scale operations contributed mainly in mineral exports whereas large-scale operations spent more on exploration.

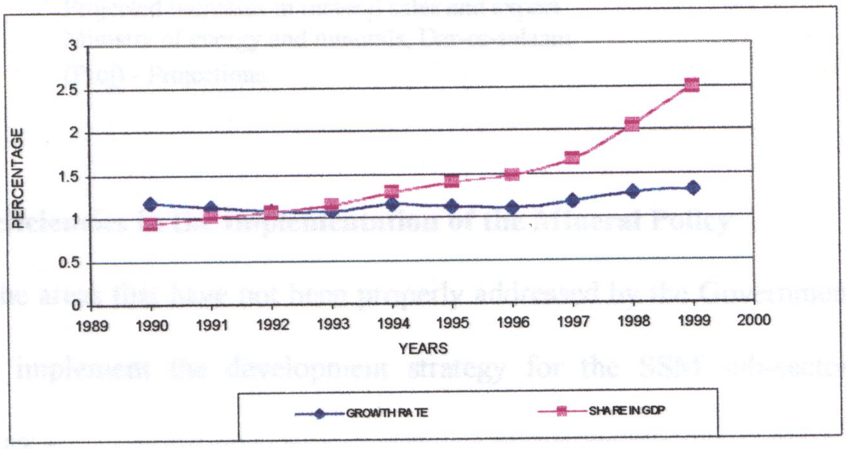

Fig. 7.5. Contribution of mining sector to the national economy
Source: Bureau of statistics, Dar-es-salaam

- Projected increase in mineral sales and exports due to changes in the Government's mineral policies is shown in Fig. 7.6. This shows a projected increase of about 78%, from US$ 76 million in 1999 to US$ 337 million in 2002. However, this still remains a great challenge to the Government to create an investment climate that will make it possible to meet this projection considering the current competition for investment not only in mining but also other sectors of economy particularly in Africa.

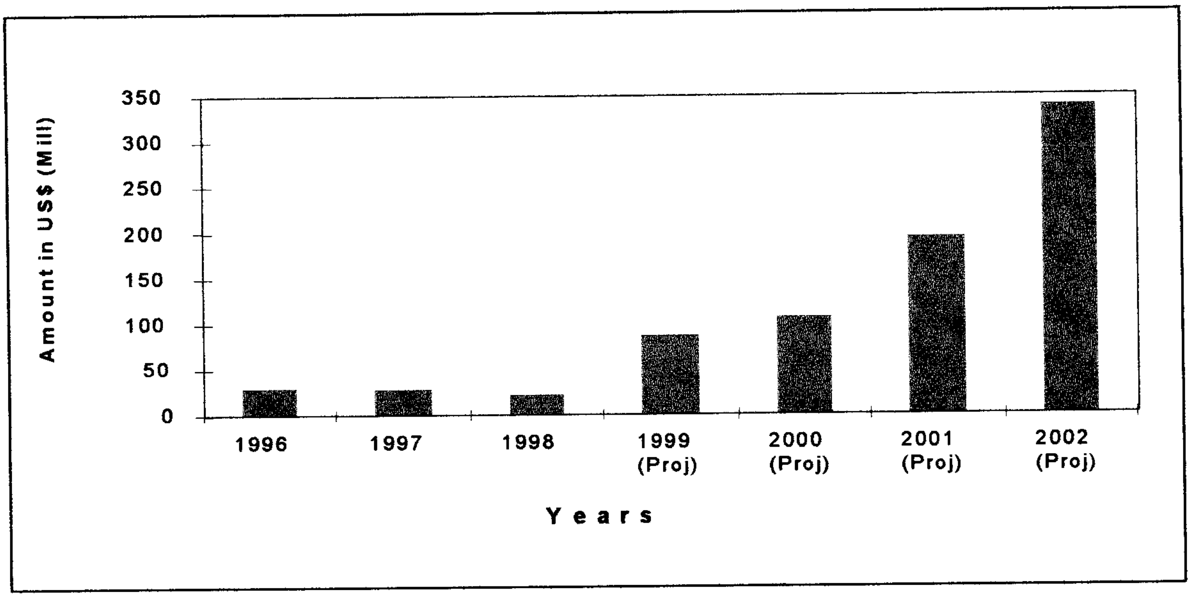

Fig.7.6 Projected increases in mineral sales and export
Source: Ministry of energy and minerals, Dar-es-salaam
N.B. (Proj) - Projections.

7.2.6 Deficiencies in the Implementation of the Mineral Policy

Some of the areas that have not been properly addressed by the Government in its efforts to implement the development strategy for the SSM sub-sector were identified as: -

- Inability to develop a well established and trained human resource base. The study indicated that there was an exodus of mining professionals mainly geologists and engineers from Government to the private sector. However, a further research carried out by the University of Dar-es-Salaam in five mining companies around Lake Victoria goldbelt and published in the local newspaper (Business Times, May 12, 2000), revealed the following:

➢ There is a serious gap between demand and supply of local personnel who are trained in mining or mineral processing engineering. Currently there are 18 mining engineers and 22 mineral processing engineers for the said five companies while the required number is 39 and 37 respectively.

- Most of the mining and mineral processing engineers in the said five companies are foreigners coming mainly from South Africa, Ghana and Zambia. This shows that there are very few Tanzanian experts available to service the fastest expanding mining industry.

- Social and labour issues is an area which needs urgent Government intervention. Use of child labour, unsafe working conditions and completely lack of or poor health facilities are rampant in SSM areas. At Merelani, for example, children aged between 10-15 years (snake boys) were seen sieving debris in search of smaller tanzanite, fetching water from nearby streams and run errands for the adult miners. Because of their size and agility they can make four round trips in the time an adult would make one. The eagerness to be the first to reach newly blasted areas and, hopefully, find tanzanite means that little time elapses between underground blasting and workers (especially the snake boys) re-entering the mine, some hide in the mine to ensure that they will be the first at the work face after blasting (evidence of there being no record of who is working). These children receive no payment, except sometimes when tanzanite is found.

  Sanitary conditions at the mine are deplorable, with no separate eating areas (empty paint containers are used as cooking utensils) no toilets, no clean fresh water (workers drink water from a nearby stream without boiling it)

  Major health hazards of work at Merelani are heat, noise, vibration, dust and lack of adequate ventilation underground. Lack of medical and health facilities (other than private dispensaries manned by medical assistants) means that there are no screening and no indication of the effect of these working conditions on any of the workers. Those who are not paid (particularly the snake boys) clearly cannot buy medicine, although some employers may contribute if they feel it is in their interest to have the worker return to work rather than find a replacement.

- The provision of adequate infrastructural facilities is another area where the Government has not performed well. Most areas with potential mineral resources have the worst infrastructure. This, in most cases, has an adverse impact on the development of the mineral resources by retarding the Foreign Direct Investment (FDI). In some of the areas, particularly around Lake Victoria goldbelt, some mining companies have been forced to invest in basic infrastructures such as power lines, access roads, water supply, and communication lines. These, eventually, increase the cost of investing in the mineral sector. It also decreases the Government revenues through extended tax holidays and exemptions.

CHAPTER EIGHT

8.0 Discussion

The SSM sub-sector policy analysed in Chapter Four revealed that the decline in mineral production and investment between 1965 and 1980s was attributed to the Government policies of socialism and self-reliance, which did not allow for private investment in all sectors of the economy. A sudden boom in production and investment levels in the mineral sector between 1990 and 1995 is a reflection of the Government's economic reform programme, which allowed for private sector participation in the economy. A similar trend in SSM activities can also be observed. These positive impacts, however, could not be sustained because of the underlying policy constraints, that is, they were introduced in a piece-meal manner and lacked an implementation strategy. This signified that the Government has a key role to play in promoting and developing the mining industry by formulating relevant and coherent mining policies.

The Government recognized the need to promote the SSM sub-sector activities. It also acknowledged that the poor performance in the SSM sub-sector was mainly due to lack of a clear, well-formulated and publicized mineral policy specifically for the sub-sector. Consequently, it formulated and published the new mineral policy in 1997, which outlined the strategies for developing the sub-sector. It also set out the implementation plan. This can be described as a positive move in the right direction.

The effective administration of the new policies is as important as the policies themselves. To accomplish this, various legal and regulatory frameworks, which include, mineral rights and mineral trade licensing procedures, were revised. Financial, environmental, and institutional support regulations were also revised. The main aim is to transform, administer and improve the productivity of the SSM sub-sector. Interactions between various key players in the mineral sector were also identified for successful implementation of the development strategies. A logical implementation plan was also put in place.

The findings presented in Chapter Seven showed that while some of the policy strategies were directly applicable and easily implementable some were not. For example the issue of encouraging partnership between large-scale miners/investors and the small-scale ones as a means of gaining access to technology and finances and at the same time designating areas for small-scale miners only create barriers between the two. This makes implementation of such a strategy a bit difficult.

Also the issue of joint venture (JV) was found to be controversial in the sense that it promotes the small-scale miners to transfer their mineral rights to the new investors (usually large-scale). The consequence of this is to eliminate the very same people the Government is advocating for safeguarding and developing.

The impact of the new measures was found to be more pronounced in the legal and regulatory framework, environmental awareness and institutional framework. The enactment of the new Mining Act (1998) the Mining (Environmental Management and Protection), Regulations (1999) and the Mining (Safe Working and Occupational Health) Regulations (1999) is a confirmation. The restructuring of MEM so that it can reposition itself in the changed environment is another example. Another positive impact was noted in the marketing channels as evidenced in the increase of mineral sales and exports.

Lesser impacts were noticed in the rural development conceived in the form of the mushrooming of rural townships or pre-urban settlements. Depending on the stability of mineral production and existing authority structures, it is envisaged that miners participation in community development activities such as construction of roads, schools, and clinics will follow.

Increase of mining sector's contribution to the GDP, which increased from 1.3% in 1994 to 2.5% in 1999, an average increase of 9% per annum is another positive factor. Much of this increase is attributed to the growth of SSM.

However, it was noted that the speed at which the SSM sub-sector has been growing in comparison to the capacity of the Government institutions with the responsibilities to manage it has made it difficult to directly appreciate some of the positive impacts. Negative impacts are still noted in the field of application of appropriate technology. The small-scale miners are still trapped in a vicious circle of dilemmas such as poor health, safety and environmental degradation, inadequate prospecting, mining and mineral processing techniques, inability to invest, low income, low recovery and productivity. Other areas such as inadequate trained human resource base, deficiencies in addressing labour and social issues and poor infrastructural development still remain the inhibitors in the realization of mineral sector objectives. However, given the measures and strategies being persued by the Government, it is evident that, with time, these negative impacts will be reduced or eliminated.

From what have been presented in this report, it follows that the future of SSM is secured but its development is still a challenging one. The main challenges are to maintain and increase the investment levels in the mining industry, particularly in the SSM sub-sector. Furthermore, the benefits by the country from the sub-sector will depend on how much of the produced commodities (minerals) will be marketed through the official channels (Nayopa, 1998). The view being advanced here is that no matter how equipped or advanced the miners are, if much of their products go into the black market, dominated by foreigners, (non-Tanzanians) profits will be externalised resulting in diminished benefit to the country. Financing and marketing arrangements for SSM are areas that need further attention by the Government, as they will continue to impact negatively on the efforts to develop the sub-sector and its contribution to the national economy.

CHAPTER NINE

Conclusions and Recommendations

9.0 Conclusions

From discussions that have been presented in the foregoing chapters, the following conclusions can be made.

- The SSM sub-sector and hence the mineral sector as a whole, is the fastest growing economic sector in the country. The current mineral policy can be accredited for the growth although much remains to be done in order to transform the SSM activities. Also, at macro-economic level, the introduction of free market policies and accompanying supportive institutions that have been set up have played a part in this success.
- The new measures (policies and legislations) taken by the Government can be viewed as a positive move in the right direction in the promotion of the SSM sub-sector development. However, the reaction among the key players will have a significant impact on their full implementation in the long run.
- The work of transforming the SSM activities is a challenging task and hence the special approach accorded to it.
- The SSM will continue to dominate the mining industry in the near future since most of the large-scale mining companies are either in the exploration stage or about to start production.

- The fiscal regime accorded to the mineral sector is competitive and has contributed substantially in attracting investments to the sector.
- Liberalized marketing arrangements that have been put in place are satisfactory especially the introduction of the mineral dealer and broker licenses. However, smuggling is still rampart mainly due to poor coordination among the various Government departments. For example, there is poor coordination between the departments of Immigration (to track down the illegal immigrants who are involved in illegal mineral dealings), TRA (to follow up the tax evaders) and the Mineral Trade Division of the MRD (which has the overall responsibility in mineral trading in the country).
- Generally the mineral policy and the mineral legislations are adequate, particularly on the formulation and implementation of the specific strategies for the SSM. However, they need to be revised accordingly following the on-going social-political-economic developments in the country and the world at large.
- Lack of competent and well-trained human resource base, inadequate and unreliable infrastructural facilities will have a negative impact on the SSM development strategies. Without a competent human resource base, administration of the legal and regulatory framework is impossible. Poor infrastructural facilities existing in most SSM areas will continue to make the Tanzania's mineral sector an expensive area to invest compared to other neighbouring mineral rich countries.

9.1 Recommendations

From the discussions and conclusions given above, the following recommendations can be made: -

- The people involved in the process of transforming the SSM sub-sector (such as the leaders of mining associations, NGOs, and Government officials) require special training programs related to SSM.
- Whereas the Government staff employed by MEM, mainly mining engineers have been left without adequate mining experience (due to lack of field exposures), the private sector has already given an indication that they intend to train their engineers to acquire high professional competence. Furthermore, the more experienced ones have left and are still leaving the Government to join the private sector. In administering the Mining Act and the Regulations, senior Government engineers (as mine inspectors) are required to perform duties that require high professional competence. Therefore, there is an urgent need for the Government to put in place a comprehensive industrial training program for its mining engineers employed by MEM. This will enable them to gain the much-needed experience in mining and particularly in various fields related to SSM.
- There is a need to establish a well-trained human resource base for servicing the mining industry in general. This will also widen the employment opportunities for Tanzanians. It is now that the University of Dar-es-salaam is considering introducing first degree courses in mining and mineral processing engineering. This is a positive

development, which will minimize the current shortage of mining expertise. The continued closure of the only mining technician-training institute, the Madini Institute, has worsened the situation. The re-opening of the institution, which can also be used to train small-scale miners in prospecting, exploration, mining and processing techniques, is highly recommended.

- The Government should improve the remuneration and working conditions for MEM employees in order to retain the few professionals who are available and at the same time should encourage students to pursue mineral sector related studies.
- From the study, it can be deduced that foreign companies are not likely to take keen interest in the country's small mineral deposits amenable to SSM. Consequently meaningful development of the small-scale mining sub-sector in general is more likely to come from Tanzanian entrepreneurs and local resources. It is therefore recommended that more financially and technically able Tanzanians be encouraged to invest in the sub-sector for its sustainable growth.
- Although there is a large geological and mineral database stored in Dodoma, this information is not being fully utilized. It needs to be disseminated and interpreted for the fullest use by small-scale miners and investors in the country.
- The Government should strive to improve the infrastructure particularly in remote geologically attractive areas to increase the country's attractiveness as mining investment destination.

- Most of the small-scale miners sell their minerals in unprocessed form resulting in reduced earnings. This is mainly due to lack of promotion of down-stream activities. Further feasibility studies for establishing the down-stream processing facilities such as lapidaries and jewelleries is highly recommended particularly for gold and gemstones.
- The formation of the SSM unit within MEM is well acknowledged. It is however recommended that the unit should strive to make the sub-sector more economically and socially justifiable. This will make the sub-sector more competitive and co-exist in the free market economy rather than protecting it by creating strategic barriers between the small and large-scale miners/investors. This will eventually eliminate the identified difficulties in implementing one of the mineral policy strategies, which calls for cooperation between the two groups.
- The growth of the mineral sector in Tanzania is still dominated by investment mainly in gold, gemstones, diamond and other base metals. Given the mineral potential the country is endowed with, efforts should be directed toward attracting investments in other mineral commodities such as fuel minerals (coal, gas and oil) and industrial minerals (Kaolin, phosphate, gypsum, soda ash, and limestone) by improving the infrastructure particularly roads and railway lines leading to mining towns (areas). Transport component is the major consideration in the heavy low-value minerals group. (Kambani, 1995). This is important particularly for construction materials that are required for housing which is one of the mankind's basic needs.

APPENDIX A

MINERAL PRODUCTION, EXPORTS AND EXPLORATION EXPENDITURE FROM 1990-1998

Table 1: Mineral Production 1990 - 1998

YEAR		1990	1991	1992	1993	1994	1995	1996	1997	1998
Mineral	**Unit**									
Coal (Bituminous)	Tonnes	41,900	33,213	31,140	40,248	45,027	43,200	52,000	28,448	NIL
Diamond	Carats	90,000	99,762	67,303	40,847	17,177	49,538	126,670	123,090	97,830
Gemstones	Kg	38,700	59,625	48,938	32,979	48,506	111,404	142,160	509,489	48,518
Gold	Kg	1,710	3,779	4,525	3,370	2,861	320	318	232	427
Phosphate	Tonnes	26,000	2,419	4,948	2,219	NIL	6,686	717	2,120	NIL
Kaolin	Tonnes	2,021	1,738	1,360	477	541	596	1,332	898	NIL
Salt	Tonnes	39,300	64,419	77,281	83,400	84,289	105,000	86,700	72,511	75,000
Tin	Tonnes	15	7	8	12	9	3	0	0	0

Source: Mineral Resources Department, Dar-es-Salaam.

Table 2: Mineral Exports

YEAR		1990		1991		1992		1993		1994		1995		1996		1997		1998	
Mineral	Unit	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Bituminous Coal	Tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diamond	Carats	75,979	7.40	90,892	10.03	70,706	8.30	39,885	5.27	22,567	2.90	44,492	4.34	126,670	15.50	123,090	16.6	95,337	11.5
Gemstones	Kg	32,292	1.58	59,625	1.76	26,678	3.24	32,979	3.91	48,507	6.46	94,296	7.28	137,165	9.87	124,570	7.95	48,518	8.13
Gold	Kg	1,650	13.64	5,435	29.10	4,525	40.38	3,364	31.45	2,803	25.68	322	3.27	301	2.78	232	2.0	334	3.3
Phosphate	Tonnes	3,582	0.10	3,334	0.10	3,900	0.14	3,541	0.11	0	0	1,149	0.04	235	0.007	2,120	0.068	600	0.02
Kaolin	Tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salt	Tonnes	8,700	0.91	9,831	1.48	8,590	1.02	6,755	0.61	1,596	0.11	0	0	143,331	12.0	1,030	0.06	0	0
Tin	Tonnes	10	0.025	6	0.019	6	0.025	12	0.046	6	0.018	3	0.03	0	0	0	0	0	0
TOTAL			23.7		42.5		53.1		41.4		35.2		14.9		40.2		26.7		22.9

Source: Mineral Resources Department, Dar-es-Salaam

N.B Values are in US$ (Millions)
Qty- Quantity

Table 3: Actual Exploration Expenditure 1990-1998

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998
BUDGET (US$ Million)	0.63	1.98	26.19	33.65	40.27	21.07	46.27	50.0	57.7

Source: Ministry of Energy and Minerals, Dar-es-Salaam

APPENDIX B

Table B: Mining Claim Titles Issued 1991 - 1999

Type of Mining Claim	**Gold**	**Diamond**	**Coloured Gemstones**	**Industrial Minerals**	**Building Minerals**	**Total**
YEAR						
1991	84	-	166	52	55	357
1992	43	-	112	22	59	236
1993	184	495	230	28	166	1,103
1994	201	608	258	41	101	1,209
1995	459	514	239	20	39	1,271
1996	81	64	350	52	605	1,152
1997	156	253	339	36	878	1,662
1998	61	6	199	50	436	752
1999	63	61	391	75	682	1,272

Source: Mineral Resources Department - Dodoma

APPENDIX C

Table C: MINERAL LICENSES ISSUED FROM 1990-1998

YEAR	1990	1991	1992	1993	1994	1995	1996	1997	1998
DEALERS									
Gemstone	-	56	105	128	127	145	132	108	150
Gold	14	07	12	13	24	23	26	24	30
Lapidary	03	04	07	10	11	12	30	27	55
Brokers	-	-	-	-	-	-	142	150	180
TOTAL	17	67	124	151	162	180	330	309	415

Source: Mineral Resources Department - Mineral Trade Division, Dar-es-Salaam

Appendix D

Table D: Reported Mining Accidents 1993-1998

YEAR	1993	1994	1995	1996	1997	1998
Mining Method	Underground and open cast	Underground and open cast	Underground and open cast	Underground and open cast	Underground and open cast	Underground and open cast
Mineral Type	Gold, Gemstones	Gold, Gemstones, Coal	Gold, Gemstones	Gold, Gemstones	Gold, Gemstones	Gold, Gemstones
Number of Victims	40	18	22	50	43	120
Minor Injuries	7	5	2	15	15	5
Serious Injuries	10	-	5	20	8	10
Fatal	23	13	15	15	20	105
Cause/ Remarks	Roof failure, wall collapse, suffocation	Unsafe handling of explosives, roof failure, wall collapse	Wall collapse, Suffocation, falling stones	Blasting, suffocation, wall collapse	Falling stones, wall collapse, roof failure	Roof failure, mine flooding, suffocation, wall collapse

Source: Mineral Resources Department, Dodoma

APPENDIX E

FORM I

QUESTIONNAIRE FOR SMALL-SCALE MINERS

A. Respondent Details:

1. Sex: ☐ Male: ☐ Female: ☐

2. Age: below 18 ☐ between: 19-25 ☐ 26-30 ☐

   31-35 ☐ 36 and above ☐

3. Marital status: Married ☐ Single ☐ Divorced ☐

   Widowed ☐ Separated ☐

B. Qualification and Training:

4. Education background: ☐ Primary ☐ Secondary ☐ College

   Other, please specify: ....

6. What was your previous occupation?..

7. Why have you decided to engage in SSM activities: -

   a) It is a lucrative business ☐

   (b) I was retrenched ☐

   (c) Due to good Government mineral policies ☐

   (d) Other reasons, please specify ....

   ....

8. Do you have any training in SSM activities?

   Yes ☐ No ☐

9. (a) If yes, where and in which field of SSM were you trained?

(b) If no, what kind of training do you desire?

C. Nature of Mining Operations and Equipment/Technology used

10. What type of minerals are you mining?

(a) Gemstones ☐

(b) Gold ☐

(c) Diamond ☐

(d) Coal ☐

(e) Industrial minerals ☐

(f) Base metals ☐

(g) Combination, please specify ....

....

11. What problems do you face in: -

(a) Prospecting and exploration

....

(b) Mining:..

(c) Mineral processing:...

D. Mineral Rights and Access to Deposit:

12. What type of licence do you have? ....

13. (a) How much did you pay for your licence? ....

(b) How do you view the fees paid for the licence?

Very low ☐

Low ☐

High ☐

Very high ☐

14. Are there any disputes between the SSM and medium/large-scale mining companies?

Yes ☐ No ☐

(a) If yes, what is the cause of these disputes?

(i) Poor boundary locations ☐

(ii) Large companies view SSM as a nuisance to their operations ☐

(iii) Large companies acquire large areas hence displace the SSM ☐

(iv) Others, please specify:...

(b) If no, to Q.14 why is this so?

(i)
(ii) Due to good mineral policies which promote co-operation between large and small-scale companies ☐

(iii)
(iv) Large-scale companies assist the SSM with technology, equipment etc. ☐

(iii) Others, please specify:...

15. Were there any difficulties in following the procedure to obtain your licence?

Yes ☐ No ☐

16. If yes to Q. 15 what type of problems?

(a) Non-availability of mines office in the area ☐

(b) Delays due to bureaucracy ☐

(c) Others, please specify ....

17. If no to Q. 15 why?

(a) Due to good and clear procedures laid down by the Government ☐

(b) Decentralized system ☐

(c) Others, please specify ....

E. Access to Markets

18. What problems do you face in marketing your minerals?

(a) Non-availability of markets ☐

(b) Distance between mining and marketing centres ☐

(c) Others, please specify ....

19. Do you have information on pricing and valuation of the minerals?

Yes ☐ No ☐

20. If no to Q.19, would you like to have this information?

Yes ☐ No ☐

F. Access to Finance:

21 How do you raise funds to run your mine?

(a) Borrowing from lending institutions ☐

(b) Own resources ☐

(c) Other, please specify ....

22. What percentage of your income do you pay to the Government as royalties and taxes?

(a) None ☐

(b) Less than 3% ☐

(c) 3-8% ☐

(d) 8-10% ☐

(e) Above 10-15% ☐

(f) Above 15% ☐

G. Framework for Accelerated Development and Growth of SSM In the Country:

23. Is there any mines office in your area?

Yes ☐ No ☐

24. If yes to Q.23 what type of services do they provide?

(a) Guidance on exploration and mining methods ☐

(b) Solving disputes ☐

(c) Enforcing mining laws/regulations ☐

(d) Other, please specify ....

25. If no to Q.23 how often does the mines department officials visit your mine?

(a) Frequently ☐

(b) Rarely ☐

(c) On special occasion only ☐

26. Are there non-citizens (non-Tanzanians) who are engaged in the same activities as you in the area?

Yes ☐ No ☐

(a) If yes to Q.26 do you prefer a mixture of citizens and no citizens

Yes ☐ No ☐

(b) If yes to part (a) why?

(i) They assist in technology transfer ☐

(ii) They help by buying minerals ☐

iii) They build roads, schools, clinics etc ☐

(iv) Other specify ....

(c) If no to part (a) above why?

(i) They are involved in smuggling minerals ☐

(ii) They use sophisticated machinery producing in large quantities thereby depleting the reserves ☐

iii) They are acquire larger areas than citizens ☐

(iv) Other, specify ....

(d) If no to Question 26, why?

(i) They are barred by the Government from entering the SSM

areas ☐

(ii) The area has been invaded by a multitude of small-scale miners ☐

iii) Others,specify

....

27. Do you know of any activity initiated by the Government recently towards solving the problems faced by small-scale miners?

Yes ☐ No ☐

28. If yes to Q.27 when did you know about it? ....

29. What type of initiative(s) do you know?

(a) ....

(b) ....

30. Has the initiatives helped you in any way? ....

31. Are there any associations (NGOs) in your area involved in SSM?

Yes ☐ No ☐

32. Do you belong to such an association Yes ☐ No ☐

33. If yes, please name it (them) ....

34. What do you benefit from such an association?

....

35. If no to Question 27, why?

(a) No such type of association do exist in the area ☐

(b) The membership fee is very high ☐

(c) There is no reason of belonging to such an association ☐

(d) Other reasons, please specify ....

....

36. Do you have information on pricing and valuation of the minerals?

Yes ☐ No ☐

37. If no, would you like to have this information?

Yes ☐ No ☐

H. Environmental, Health and Safety:

38. Are there enough mines safety officers in your area?

Yes ☐ No ☐

(a) If yes, how frequently do they visit your area?

(i) Only when there is a mining accident ☐

(ii) Frequently ☐

iii) Very rare ☐

39. How often do mining accidents occur in your area?

(a) Very frequently ☐

(b) Frequently ☐

(c) Rare ☐

(d) Very rare ☐

40. Do you know of any law/regulation requiring you to keep your workings as safe as possible?

Yes ☐ No ☐

41. If yes, please name it (them) ....

....

42. SSM has been cited as a sub-sector that is environmentally destructive. Would you say that there are mines of a similar size to yours that are environmentally destructive?

Yes ☐ No ☐

43. Do you think it is necessary to have ongoing environmental controls for a mining operation like yours?

Yes ☐ No ☐

44. Do you fill in your excavations once mineral extraction is completed?

Yes ☐ No ☐

FORM II

QUESTIONNAIRE FOR MINISTRY OF MINES OFFICIALS

A. Respondent Details

1. Department: ....

2. Sex: [ ] Male [ ] Female

3. Age: ....

4. Professional qualification(s): ....

5. Length of service in the Ministry of Mines: ....

B. Framework for Accelerated Development and Growth of SSM in the Country:

6. What problems do you face in your work in relation to provision of services to SSM?

....

....

7. What has the Government done to address them?

....

8. What opportunities exists to advance your career so that you can provide effective assistance to SSM?

....

....

9. It is a well known fact that the SSM sector in Tanzania is beset by a number of problems (e.g. technical, financial, environmental degradation, poor marketing arrangements etc) what do you think are the factors leading to these problems?

The Government through the World Bank Mineral Sector Development Technical Assisted project (WB, MSD-TA, 1995) has put in place strategies/measures to transform and develop the SSM sector in Tanzania. Such strategies include the Investment Promotion Policy (1996), the Mineral Policy of Tanzania (1997), The Mining Act (1998) etc.

10. Were these measures taken at appropriate time?

....

....

11. Are the measures adequate/appropriate to solve the problems?

....

12. Are there any changes/effects caused by these measures so far?

....

13. Any recommendations on what should be done to solve the problems facing the SSM sector?

....

....

FORM III

RESEARCH QUESTIONNAIRE FOR MINERAL DEALERS

Instructions: For open-ended questions, space has been provided. For questions with alternatives, please tick the most appropriate answer(s).

1. Sex: Male ☐ Female ☐

2. Age:...

3. Nationality:..

4. Education background: ☐ Primary ☐ Secondary ☐ College

5. Professional qualification:..

6. (a) Do you have any training in the field of mineral dealing?

   Yes ☐ No ☐

   (b) If yes, where and in which areas were you trained?

   ....

   ....

   (c) If no, what kind of training do you desire?

   ....

   ....

7. For how long have you been in this mineral dealing business?

   ....

8. Why have you decided to engage in mineral dealing activities?

(a) Is a lucrative business ☐ (b) I was retrenched ☐

(c) Due to good Government policies on mineral marketing ☐
(d) Other reasons, specify ....
....

9. What type of minerals are you dealing in?

(a) Gold ☐ (b) Gemstone ☐ (c) Industrial minerals ☐

(d) Diamond ☐ (e) Coal ☐ (f) Base metals ☐

(g) Combination, please specify.
....

10. What type of licence do you have?

(a) Dealers' licence ☐ (b) Brokers' licence ☐

11. Are there any difficulties in following the procedure to obtain the licence?

Yes ☐ No ☐

(b) (i) Delays due to bureaucracy ☐

(ii) Issuing office is at the headquarters ☐

(iii) Others, specify. ....

....

(c) If no, what could be the reasons?

(i) Decentralized system ☐ (ii) Reduced bureaucracy ☐

(iii) Others, specify...

....

12. Are the licensing conditions the same for both Tanzanians and non-Tanzanians?

Yes ☐ No ☐

(b) If no, what is the difference?

(i) Security bond requirements for non-Tanzanians ☐

(ii) Amount of fees for Tanzanians is lower than that for non-Tanzanians ☐

(iii) Others, specify

....

13 Are there illegal mineral dealers in your area?

Yes ☐ No ☐

(b) If yes, what do you think is the cause of this illegal dealing?

(i) Lack of well-structured market ☐

(ii) High licence fees ☐

(iii) There are very few licenced dealers ☐

(iv) Others, specify.

....

....

(c) If no, why

(i) Liberalized market ☐

(ii) Easy market accessibility due to good Government policies ☐

(iii) Strict Government laws / regulations. ☐

(iv) Others, please specify..

....

14. Do you export the minerals? Yes ☐ No ☐

(b) If yes, are the procedures to acquire export permit easy to follow?

Yes ☐ No ☐

15. If the answer is no to Question 14, what do you do with the minerals?

(i) Sell in local auctions ☐ (ii) Sell to other dealers locally ☐

(iii) Others, specify..

....

16. In what form do you sell/export the minerals?

(i) Rough ☐ (ii) Cut and polished ☐

(ii) Finished products i.e. cut polished and purified ☐

17. Are there any incentives for exporting/selling finished products?

Yes ☐ No ☐

(b) What type of incentive (s)?...

18. What problems do you face in processing the minerals to the final product?

....

....

19. Do you have information on pricing and valuation of gemstones?

Yes ☐ No ☐

(b) If no, what kind of information do you need?...

....

20. Do you belong to any association related to mineral marketing?

Yes ☐ No ☐

(b) If yes, why?...

....

(c) If no, why? .

....

21. What problems do you face in mineral marketing?

22. Any recommendations/suggestions on improving the mineral marketing arrangement in the country?

....

....

APPENDIX F

Table 1: Gross Domestic Product (GDP) Growth Rates (%) at 1992 Constant prices

Economic Activity	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Agriculture	1.05	1.04	1.01	1.03	1.02	1.06	1.04	1.02	1.02	1.03
Mining	1.17	1.12	1.08	1.08	1.24	1.12	1.10	1.17	1.27	1.30
Manufacturing	1.04	1.02	0.96	1.01	1.00	1.02	1.05	1.05	1.08	1.09
Electricity and water	1.08	1.11	0.99	1.01	1.02	1.06	1.11	1.02	1.06	1.05
Trade: Wholesale and Retail	1.07	1.02	0.99	1.00	1.01	1.03	1.03	1.05	1.05	1.06
Construction	1.30	0.93	1.06	0.86	1.01	0.85	1.08	1.08	1.10	1.15
Financial and Business Services	1.02	1.01	1.04	1.05	1.03	1.01	1.00	1.08	1.06	1.07
Transport and Communication	1.01	1.03	1.14	1.00	1.01	1.06	1.01	1.05	1.06	1.07
Public Administration and other Services	1.03	1.05	1.06	0.96	1.00	0.97	1.02	1.03	1.03	1.04

Table 2: Gross Domestic Product (GDP) Percent Share at Constant 1992 Prices

Economic Activity	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Agriculture	47.9	48.3	48.0	49.3	49.6	50.7	50.6	50.1	49.1	49.2
Mining	0.92	1.00	1.06	1.14	1.29	1.40	1.47	1.66	2.04	2.50
Manufacturing	8.78	8.70	8.20	8.22	8.09	7.94	7.98	8.11	8.43	8.50
Electricity and water	1.48	1.60	1.55	1.56	1.57	1.60	1.71	1.69	1.72	1.54
Trade: Wholesale and Retail	16.3	16.3	15.9	15.7	15.7	15.7	15.6	15.8	15.9	16.0
Construction	5.74	5.19	5.40	4.60	4.60	3.79	3.91	4.10	4.33	5.00
Financial and business Services	9.97	9.84	10.0	10.5	10.6	10.3	9.92	10.3	10.5	10.4
Transport and communication	4.63	4.63	5.19	5.17	5.15	5.27	5.11	5.19	5.30	5.20
Public Administration and Other Services	8.69	8.87	9.20	8.81	8.68	8.16	7.95	7.94	7.84	7.54

Source: Bureau of Statistics, Dar-es-Salaam.

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