MASTER'S PROGRAMME IN URBAN MANAGEMENT AND DEVELOPMENT

Urban Environment and Infrastructure Management (October 2005 – September 2006)

Managing Environmentally Harmful Economic Activities in Informal Settlements

The case of the Dar es Salaam City -Tanzania

Paul John Kanyali Mbembela

Tanzania

Supervisor: Dr. Leo Baas

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DEDICATION

THIS WORK IS DEDICATED TO MY MOST BELOVED PARENTS

MR. AND MRS,

JOHN KANYALI MBEMBELA AS WELL AS TO MY BELOVED

WIFE, BROTHERS AND SISTERS

DECLARATION

I HEREBY DECLARE THAT THIS PROJECT IS MY ORIGINAL WORK,

THAT

TO MY KNOWLEDGE AND UNDERSTANDING, IT HAS

NEVER BEEN PRESENTED

ELSEWHERE FOR AN ACADEMIC

AWARD OR OTHERWISE

…….

PAUL JOHN KANYALI MBEMBELA

Supervisor

……

Dr. Leo Baas,
Erasmus Centre for Sustainability and Management,
Erasmus University, Rotterdam,
September, 2006.

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"May you all remain blessed and the almighty God give His hand."

FOREWORD

Good monitoring system of small scale industries in the informal settlement indicates the compliance of the industrial operation to environmentally and friendly living environment. The concept represents an equilibrium state between the pollution prevention brought by the industries operation to the environment and citizens. The achieved locating and monitored operation that has led to pollution prevention in the settlement implies the presence of good monitoring mechanism by the responsible authorities. On the other hand, it implies the government is properly functioning in executing its policies, legislation and development standards, otherwise the reverse is true

The aim of this study was to document and assess from the governmental perspective the key actors' role and powers in monitoring the locating and operating of the industries in informal settlements. It was also aimed in analysing the existing enforcement tools used for monitoring the same. Thereafter, to identify the basic elements for improvement if the prevailing situation has to rectified

This research has answered one main research question including six supplementary questions. The main research question aimed in determining whether there are monitoring mechanisms in locating and monitoring the operations of the small scale industries in informal settlements in Dar es Salaam City. The sub research questions aimed in identifying factors considered for locating, actors involved with the roles and powers, assessing the operations monitoring mechanisms, individuals' perception on the operation of the industries towards environmental and health risks. Finally but not least it aimed at identifying main elements for improvement if the settlement has to have friendly living environment. Non standardized guideline questions were used for information collection.

In assessing the monitoring system it was realised the presence of weak monitoring mechanisms despite the presence of general legislations and policies for guiding small scale industry development and operations. About 82% of the industrial developers and operators interviewed neither complied with the legislation and policies nor did they the environmentally friendly. About 50% of the housing unit owners interviewed have a negative perception of the industry operations particularly for the environment friendly and health risks. The uncoordinated government institutions responsible for monitoring the small scale industries have contributed tremendously to the existing situation.

This study recommends to have a thoroughly review on monitoring mechanisms and enforcement tools. Despite the environmental awareness creation to different potential institutions responsible for locating and monitoring, this study recommends the adoption of new technology to include Cleaner production and Upsizing (Zero Emissions) by the government to the industrial developers. Beside, it is important to take into account both internal and external factors that might affect the establishment of this new changes.

LIST OF ABREVIATIONS

CBOs	Community Based Organization
CP	Cleaner Production
EIA	Environmental Impact Assessment
Env't	Environment
GPS	Geographical Positioning System
GVT	Government
HURIDOCS	Human Rights Information and Documentation System
IMC	Ilala Municipal Council
MLHSD	Ministry of Lands and Human Settlements Development
MoIT	Ministry of Industry and Trade
MPs	Members of Parliament
NEMC	National Environmental Management Council
NGOs	Non-Government Organizations
NCPC	National Cleaner Production Centre
Sett't	Settlement
SSI	Small Scale Industries
UCLAS	University College of Lands and Architectural Studies
URT	United Republic of Tanzania
USD	United States Dollar
VETA	Vocation Education and Training Agency
VPO	Vice Presidents' Office
WEO	Ward Executive Officer
WDC	Ward Development Committee

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CHAPTER ONE: INTRODUCTION AND RESEARCH METHODS

1.0 Prelude

Managing economic activities in Tanzania traced back to 19th century whereby the planning process, allocation of plots or space and land development for different economic activities emerged as a result of growing settlements and cities in the country. In this respect there were two main ways of managing economic activities in the developed settlements. The first type is formal management that was and is undertaken in planned areas whereby land development and human economic activities were confined to government procedures, rules and regulations. The land developer has to apply to the local authority of the respective area. The local authority allocated plots with regard to the planned and intended land use as described in the Master Plan. The land developer had again to apply for building permit and business license before initiating any business in the allotted land. In Dar es Salaam city, land development by that time was guided by the 1967 Master Plan under the provision of the Town and Country Town Planning Ordinance of 1956 revised in 1960, as the enforceable instrument and main principle legislation for guiding town planning in Tanzania to date.

The second type was informal economic activities management. This applied in unplanned settlements of which before 1970s were regarded as illegal settlements. These settlements emerged as a result of governments' failure to supply surveyed and serviced plots in the city. In order to offset the problem people informally haphazardly developed the settlement where they accommodated different economic activities as best as deemed suitable to their preferences. This type of planning and managing human economic activities was mostly in individual basis at a plot level and thus the government had neither control nor influence on it. On this basis they were called informal settlements since they were developed without any guidance of the national laws, Bye laws, legislations, procedures and standards concerned in urban planning and land development in Tanzania.

Since the economic activities are diverse, this study is biased to small scale industries located in informal settlements. The definition of small scale industries differ from one country to another. According to the Town and Country Planning Ordinance of 1956 section 78, "Used Class Group M" defines small scale industries as those that use electricity with horse power from 5 to 200 only. However, the National small and medium industry Policy (2002) has defined small scale industries according to the number of employees, capital investments and sales turnover. On this basis they have been grouped into micro, small, medium and large enterprises as indicated in the **Table 1**. This study concentrated on micro and small enterprise for documenting the ways they are being located, regularised and controlled with respect to environmental impacts.

Table 1 Showing the Categories of Small and medium Enterprises in Tanzania

S/no	Category	Employees	Capital Investment in machinery (Tshs)
1	Micro enterprises	1-4	Up to 5 Million
2	Small enterprise	5-49	Above 5 Million to 200 Million
3	Medium enterprises	50-99	Above 200 Million to 800 Million
4	Large enterprises	100+	Above 800 million

Source: Small and medium Enterprises Development Policy 2002, Tanzania

As time went on, the government realised the need of intervening the trend of haphazard land development for different land uses in informal settlements. Thus in early 1960s it made the slum and squatter clearance and demolition policy. This aimed to meet the political objectives of building new society soon after independence by building new Morden housing and reallocate people accordingly in different land uses with their economic activities. The Buguruni squatter settlement in Dar es Salaam city was taken as a pilot project area to realise the policy. According to Kimaryo (2001) these demolition intended to implement the urban design concept which had considerable in usage pattern of different land uses as indicated in the 1967 Master Plan. This ended in creating more housing problems and thus encouraged the development of informal settlements somewhere else accompanied by the location of different human economic activities at best will of the land developers. Therefore more informal settlements were increasingly developed that led to increase in people living in squatters.

According to Mgweno (1979), Mosha (1989), Ilala Municipal Council (2004), National Human Settlements Development policy (2000) indicates that more than 70 percent of the Dar es Salaam city residents live in squatter settlements. It is further indicated that about 60 percent of the urban housing stock in Tanzania's cities/towns are found in squatter settlements. According to the 1996 Human settlement report presented to Habitat II conference, informal sector which include small scale industries employs 56 percent of the Tanzania urban total population and contributes 30 percent to the national economy.

The above mentioned phenomena antecedent the government to recognise the informal settlements with its human economic activities. Thus in 1972 another policy of squatter upgrading and site and services was adopted to supersede the slum and squatter clearance policy. This stopped the squatter demolition process instead they had to be upgraded and serviced. The upgrading process targeted in socio-economic, improving security of land tenure and infrastructure under the support of the World Bank. The process went on till in the mid of 1980s when the World Bank withdrew due to poor performance of the project. The task of financing the project was left to the National Government which failed and stopped within a very short time after the withdrawal of the World Bank.

In 1995 the government prepared another policy aimed at promoting and ensuring security of tenure, to encourage the optimal use of land resources and facilitating the broad based social and economic development without upsetting or endangering the ecological and balance of environment. This policy excluded housing developed in hazardous areas like steep slopes and valleys to be upgraded and serviced. The Policy required the local government to prepare and implement the upgrading plans together with the residents of the respective area. In the upgrading process they have also to reorganise different human economic activities. The New Land Act No 4 of 1999 as an enforceable instrument supported the policy, yet many informal settlements have and are developing without upgrading plans as guiding to tool for harmful human economic activities.

Therefore, despite the different policies and regulations set up by the government to regulate and guide land development processes in informal settlements, the residents have

and are continuing to carry out harmful human economic activities by using traditional ways of planning and living as best of their preferences. Thus the main focus of this study is to document and explain how small scale industries are regulated and monitored in informal settlements.

1.1 Statement of the Research Problem

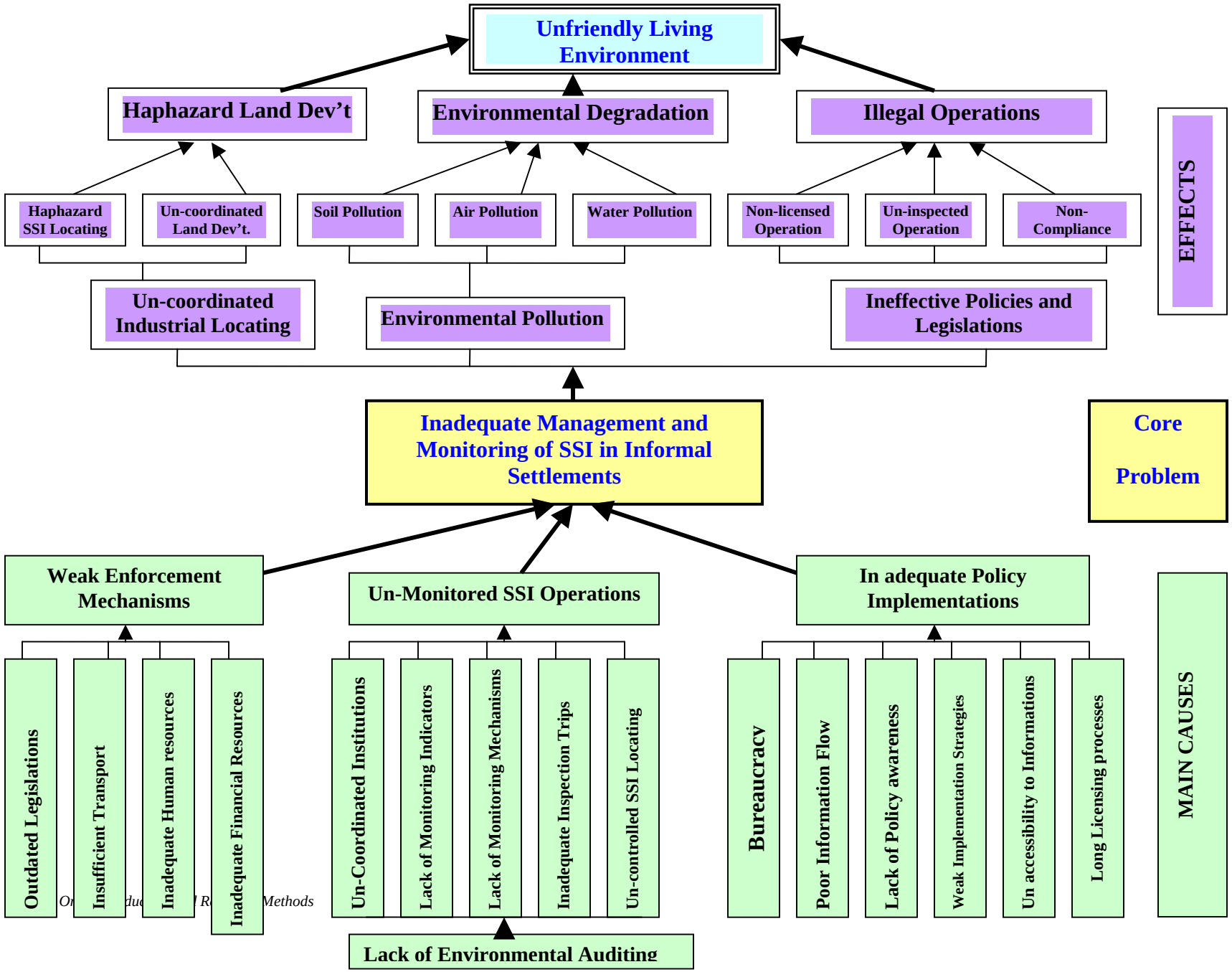
There is a serious increase of unmonitored and uncontrolled locating of small scale industries in informal settlements in Dar Es Salaam City. Despite the employment opportunity offered by these industries in informal settlements and at national level as a whole, their contribution to environmental pollution and negative health impacts should not be ignored. These industries cause local pollution and nuisance to the environment and residents living in these areas. The government had lastly attempted to intervene by reorganising them in 1960s when the squatter and slum clearance that attempted to relocate the small scale industries was implemented. This attempt caused more problems than it was anticipated since it had no lots for relocations.

The 1972 informal settlement upgrading policy superseded the former that targeted in upgrading and reorganizing different land uses instead of clearing and relocating the residents and industries. Since then the Ministry of Lands and Human Settlements Development in collaboration with the local governments have prepared informal settlements upgrading plans. At least every informal settlement in the city has land use plan for guiding economic activities developments that include small scale industries. The main intention of this policy beside the improvement of haphazard land development in these settlements was also to ensure pollution prevention brought by different economic activities.

As soon as the plans were prepared, all land developers were supposed to adhere to the land development conditions and standards for environmentally friendly. However, people have continued to locate and develop small scale industries without governments' intervention in these settlements. This is well indicated by the locating and operating the industries in the frontage, rear and sides of the housing units without any environmental and healthy risks considerations. Neither had these industries been developed according to the national standards and guidelines nor have the laws and regulations abided them. This has led to unfriendly living environment and safety risks.

This study intended to document all actors involved in the processes of locating and monitoring the operations of these industries. Besides, the study assessed the potential enforcement tools for determining whether there are any limitations in actual practice. The whole process of identifying the actors and assessing the enforcement tools was geared towards exploring the implementation gap for sustainable human settlement. The implementation gap stood as a core base for recommendations towards its improvements. The development of the supportive monitoring strategy required a detailed study on the small scale industries operating in the informal settlements against the existing monitoring mechanisms. However, the problem tree analysis as in **Figure No 1** substantiates and justifies the problem mentioned above.

Figure 1 Problem Tree Analysis



1.2 Objectives of the Research

To document and explore the existing locating and monitoring mechanisms of small scale industries in informal settlements

1. To identify key actors and their roles involved in locating small scale industries in informal settlements
2. To analyse the existing enforceable tools used in monitoring and controlling small scale industries in informal settlements.
3. To identify basic elements to be involved for improving the prevailing situation
4. On the basis of the findings to provide some recommendations.

1.3 Research Questions

Does Monitoring exist in locating and operating small scale industries in Dar es Salaam Informal Settlements? If so, how are they monitored?

1. Which factors are considered in locating small scale industries in informal settlements?
2. Which actors are involved in locating the small scale industries?
3. How are small scale industries being monitored with respect to environmentally impact considerations?
4. What mechanisms are used to locate and control small scale industries operations in the informal settlements?
5. What are the environmental perceptions of Households surrounding the small scale industries?
6. How can the existing enforceable and monitoring mechanisms be improved?

1.4 Assumptions of the Research

- Small Scale Industries in Informal Settlements are located and developed without governments' guidance, monitoring and control. This in turn pollutes the environment and hence make unfriendly living environment in these settlements.
- Unfriendly living environment in these settlements is due to inadequate integrated environmental Pollution Prevention knowledge by the industrial operators

1.5 Methodology of the Research

This is an exploratory case study research. In carrying out the research an inductive method approach was adopted. The research process is divided into two main parts which include the pre-field and field work. The fieldwork took one month which went together with preliminary data analysis as well as report compilation due to time limits. The two processes went simultaneously so as to identify gaps for data supplements before living the case study for final data analysis and report compilation.

1.5.1 Pre-Fieldwork

This stage started by reviewing different literatures towards the research title formulation. In this process the idea of taking a study of documenting the location and monitoring process of small scale industries in informal settlements came in. Thereafter much emphasis was put into theories related to the subject. Thus, two main substantial theories

of industry and monitoring harmful economic activities developments were thoroughly examined.

The **industrial development theory** developed by Weber, A. (1909) and Zero Emissions concepts developed by Pauli, G. (1998) were first studied so as to explore the mechanisms, procedures and factors considered during the locating of an industry. It also intended to acquire knowledge on industrial development process and monitoring in different settlements. This went together with the identification of potentials and gaps that were not covered by other researchers for avoiding repetition. It was then realised that in Tanzania much efforts have been made in planned areas. This paved the way to focus on informal settlements as an identified gap.

The **second theory was the sustainable human settlements development**. In this theory mostly intended to explore potentials and challenges confronting sustainable human settlements development particularly in informal settlements. Among other issues realised after going through these theories is that, there is no or less intervention efforts made by the government in the process of locating and monitoring small scale industries in these settlements for ensuring friendly living environment. The details of these theories will be described in chapter II. However literature review remained as a continuous process in the entire period of the research work.

The **selection of the study area** is much considerate on the availability of the research materials, time to be spent for the research, devoted financial resources, man power and the issue to be studied. This went together identification of the required data, its source and mechanisms to be applied in collecting them as shown in **Table 2**.

Table 2 Data Required, Sources and Techniques Applied

S/no	Data required	Source of data	Techniques/method s
1	Process of registering Small scale industries in informal settlements.	Ministry of Industry and Trade	Documentary Interview
2	Aerial Photo Maps Machine Plot Maps	MLHSD Ilala Municipality	Documentary
3	Identification of small scale industries and classifying them	At site SIDO , MoIT	Physical survey, wandering around, Observations Interviews
4	Mapping of small scale industries	At site	Physical survey Detail Picking by GPS Plotting on the Map
5	Documenting land development process for Small scale industries	SSI owners IMC, MoIT	Documentary Interviews
6	Process of land regularisation	At site, IMC	Documentary, Interviews
7	Identification of actors involved in locating and monitoring small scale industries	At site, IMC, SIDO, MoIT, WDC Individuals	Documentary, Interviews
8	Identification of institutions and their roles in Environmental Management.	NEMC,IMC,VPO WDC, Individuals	Documentary, Interviews

Source: Developed by the Researcher, July 2006

As soon as the data to be collected were identified, the guiding questions for interviews were prepared ready for the fieldwork. They were tested accordingly before using them at site.

1.5.2 Actual fieldwork (data collection)

The data collection process started with physical survey at the area. This stage employed three techniques that include:

a) **Observations.** This process intended for pre identification of the small scale industries location at the study area.
b) **Wandering around.** This supplemented the observation process by updating the existing base map in relation to the existing situation of the small scale industries locations. The Base map updating was done through detail picking by using a Geographical Positioning System (GPS) instrument and plotted accordingly.
c) **Socialization.** The socializations were made to small scale industry and household owners surrounding the small scale industry locations as an entry point before interviewing them.

1.5.2.1 Government Official Interviews

This research adopted a semi-structured interview with list of non-standardized questions. The respondents were purposively selected from the government officials who are directly related to this subject.

There are different government institutions which are relevant to this context of study. These institutions include the Ministry of Industry and Trade purposely for acquiring information of small scale industry registrations process, classifications and number of registered industries in the city and in the area of study in particular. This information is crucial for comparison purpose between registered and none registered with view to establish the reasons as to why not registering.

In addition, interviews were conducted to the Municipal officials responsible in issuing business license, town planning and land development control, environment and human health affairs. These interviews intended in exploring the process of issuing business license, locating and monitoring mechanisms on the small scale industries as well as actions taken to the non compliance to the operational regulations and standards for environmentally friendly.

The National Environmental Management Council as a National Environmental Agency was also interviewed. This interview explored the laws, regulations and policies responsible in governing the operation of small scale industries in the city particularly in informal settlements. The information collected were triangulated by conducting an interview with the Vice Presidents' Office in the Environmental Division for maximizing the reliability and validity. Beside the Small Industries Development Organisation responsible in financing and training the small scale industry owners was interviewed for exploring the procedures and types of training offered to the industry owners. At ward level, the ward Executive Officer and the Ward Environment Committee were interviewed for determining their roles in locating and monitoring small scale industry in the settlement.

1.5.2.1 Non Government Interviews

This is an interview made outside the public offices with industry owners and individuals. Purposive sampling was applied whereby only industry owner and house surrounding the industry were interviewed. The settlement have quite number of small scale industries that includes milling machines, carpentry workshops, garages, slaughtering services, welding workshops, Tailoring workshops, carvings, bicycle and motorcycle repairs. In this study only carpentry, welding and garage workshops were dealt with. These are the most prominent and polluting industries in the settlement. It was also considered the limited time scheduled for the fieldwork.

The interview with the industry owners explored the process followed and criteria used in locating the industries. It also meant in cross checking whether the industries have been registered or why not registered. The individual interviews targeted in knowing their role in the process of locating and monitoring the industries with respect to the negative environmental and health impacts. The Government and non-government institutions concerned for data collections have been summarised and indicated in the table no 3

Table 3 The Institutions Interviewed, Their Roles and Its Outcomes

S/no	Name of institution	Roles	Interviews Results
1	Ministry of Industry and Trade	SSI Registrar	-No of registered SSI -Registration process
2	Vice Presidents Office (National Environmental Advisory Committee)	National Environmental Examiners & Advisors to the Ministers	-Extent of Small Scale Industries compliance to policies and laws for environmental friendly.
3	National Environmental Management Council	National Environmental friendly tools enforcement & Monitoring,	-action taken to none compliance with the laws and policies
4	Small Industries Development Organization	Training and Financial support to small scale industry development	-No of trainees/types of trainings -Criteria for the support -Environmental Protection programmes
5	Municipal Town Planning Officer	Municipal Land use planning and development control	-Process of regulating small scale industries in informal settlement -Action taken to non- compliance /violators
6	Municipal Trade Officer	Issuing of trade/business license	-Conditions for license -No of licensed SSI
7	Municipal Environmental Health Officer/	Monitoring and maintaining good environmental practice in the Municipality	-Monitoring process -Action taken to non compliances
8	Ward Executive Officer	Control and monitoring of Ward development activities	-Mechanisms used to monitor & control small scale industries
9	Ward Environment Management Committee	Environment management and monitoring at Ward level	-Environment enforcement instruments -Action taken to non- compliance /violators
10	Small scale industry owner	Running industries in the settlement	-Industrial locating process. -Registration process/license
11	Individuals	Household owners	-Roles in monitoring SSI -Environmental perceptions

Source: Developed by the Researcher, July 2006

1.6 Reliability and Validity

Validity determines whether the research truly measures that which it was intended to measure. The Researchers generally determine **validity** by asking a series of questions,

while **Reliability** has to do with the quality of measurement. In its everyday sense, Reliability is the "consistency" or "repeatability" of the measurement. In order to maximize the reliability and validity of the data, the researcher started by defining the data required, sources and collection techniques. Thereafter, the researcher defined different data required together with the institutions responsible. This was supplemented by interviewing different levels of the institutions in order to triangulate the data. Different questions while seeking for the same kind of data were asked in order to the check the validity of the data from the respondents

1.7 Data Analysis

The Stakeholder Power Analysis technique was used in order to determine the roles, influence and powers of the stakeholders in locating and monitoring small scale industries in informal settlements. Through this analysis the insight of each stakeholder in addressing the issue were identified as an important input for the recommendation and suggestions for addressing the prevailing issue. The environmental impacts brought by small scale industries was qualitatively analysed based on the information collected through the interviews. The scheme for analysis in **Table no.4** shows the Sub questions, Variables and indicators that were tested.

Table 4 The Relationship between Sub-questions, Variables and Indicators

S/No	Sub questions	Variables	Indicators
1	What factors do the owners consider in locating SSI in informal settlement?	-Availability of Land -Effective market	-Affordable land - Increasing industries
2	Which are actors involved in locating and monitoring the small scale industries?	-Government institutions -Households in the study area	-Existing Policies and Legislation -Means of communication
3	How are SSI monitored with respect to environmental considerations	-Monitoring -Legislations	-Compliance to Policies/Legislations -Regular check up report -Penalties/Sanctions against defaulters
4.	What are the mechanisms used to monitor the small scale industries?	-Industry operation -Environmental awareness	-Defined monitoring methods -Guided operations -Managed wastes -Responsiveness to pollution prevention
5	What are environmental perceptions of the households surrounding the SSI	-Environmental awareness	-Knowledge on the existing types of environmental pollution -Action taken upon it.

Source: Developed by the Researcher, July 2006

1.8 Variables of the Research

The variables of this research include with the locating process of small scale industries and monitoring. The most pollutants small scale industries in informal settlement are the units of analysis of the research. These industries include carpentry, welding and garages.

1.9 Limitations of the Research

Dar es salaam City has a multiple informal settlements which raise interest to any researcher to carry out this kind of study. However, due to limitation of time scheduled for the fieldwork it was difficult to carry out the research in a large number of informal settlements in the city. The above fact was compounded by restricted financial resources devoted for the fieldwork. Thus one informal settlement in the city was selected to represent other similar informal settlements

Besides, the researches had un-coherent definition of the term small scale industries hence based on capital investments, number of employees and turn over as most countries have adopted this definition. Also the definition of informal settlements is confusing most of the readers. It is used interchangeably with the term slums, squatters, illegal and unplanned settlements. However, for this research and in the Tanzania's context, the term is defined as settlements that were planned by the people themselves without government's guidance. The government later recognised these settlements and therefore they are legal settlements unlike most of other countries that recognise informal settlement as illegal settlements.

Nevertheless, the limited time available for fieldwork made the researcher to reduce the scope of the interview. Out of 75 the SSI identified, about 80% were interviewed. This does not mean the remaining 20% were ignored instead it was due to time limit.

1.10 The Scope of the Study

The study was limited to informal settlements in Dar es Salaam City in Tanzania. It concentrated on how small scale industries are located and monitored in those settlements. It intended to identify actors involved in the whole process of locating, monitoring and controlling them towards safeguarding the negative environmental impacts brought about by these industries. To conduct a research in all similar informal settlements in the city would be difficult due to limited time devoted for the fieldwork. Thus in order to answer the research questions, the study was conducted in one of the old informal settlements in the city to represent the rest. In the selected study area, the enforceable tools, policies and monitoring mechanisms put in place for regulating and monitoring small scale industries was assessed for identifying their potentials and weaknesses as a base for improvement and recommendations. For further details, Ukonga Mombasa informal settlement found in Ilala Municipality located for about 12 kilometres from the city centre along Pugu Road was dealt with. This is among the old informal settlements in the city that is keeping in accommodating more small scale industries as time goes on without proper attention to environmentally friendly.

Ukonga Mombasa was selected to represent other informal settlements in Dar es Salaam City due a number of reasons which includes the area being one of the old informal settlements in the city. Also the location aspect of the settlement exerts a very interesting study for urban land development managers and any other interested readers. The settlement is bordered by two railway lines on the south by Tanzania Zambia and north by the Central Railway line. It is well accessible by the Pugu road and is very close to the Dar es Salaam international Airport as shown in map no.1

In addition to that the settlement has large population, ranked second in the 22 Ilala Municipal Wards. Out of 637, 573 people in Ilala Municipality, Ukonga Ward contribute 75,014 which is about 11.7% of the total population as per 2002 Census report. It is largely developed as informal settlements with few initiatives done by individuals to survey and register their properties. Beside the few who work as Government employees, the majority are involved in informal sector activities including the small scale industries.

The settlement is among other informal settlements that have been recognised by the government. Currently the government through local government authorities undertakes the land regularisation process by issuing certificate of residence. This makes the settlement more valuable in terms of land use and land tenure. The regularisation process could have dually extended to the reorganisation of these small scale industries which pollutes the environment.

As time goes on the number of small scale industries in the settlement keep on increasing without consideration of health and environmental negative impacts. This calls for a study to document the existing situation as an input for the way forward for recommendations.

The presence of government institutions at the local level of which have environmental committee was an added advantage for the selection of the settlement. This is again supplemented by the availability of Aerial Photo Maps for locating and Mapping small scale industries so as to depict the real situation at the site.

1.11 Motivation of the Research

There are number of issues which motivated the author to carry out this research which include:-

- The rapidly growth of small scale industries in informal settlements which in turn pollutes the environment.
- The uncontrolled and unmonitored location of small scale industries by the people without consideration of both human health and environmental negative impacts.
- The presence of National Policy which recognised informal settlements aiming not only in upgrading them but also reorganising different land development for different economic activities yet unorganised land development continue to avail.
- The Government is currently undertaking an exercise of identifying and formalising informal settlements by issuing certificate of residence which could dually extended to moderate the small scale industries in these settlements.
- Environment is critical in these days of global warming. Each society should take responsibility to improve the environmental quality in their area.
- Exploring and analyse the existing enforceable and monitoring mechanisms. The analysis helped in identifying the implementation gaps and its limitations in actual practice. The identified gaps and limitations were used as a base for the recommendations and the way forward for the improvements of the existing situation.

1.12 Relevance of the Study

This study aimed in researching on the process of locating and monitoring small scale industries in informal settlements. It also studied on whether there are environmentally enforceable instruments and monitoring mechanisms being put in place by the local governments. After identifying the monitoring mechanisms, the study assessed its practicability and weaknesses in applying these mechanisms. By knowing this, it enabled the researcher to suggest and recommend the best alternative way of combating the increasingly haphazard and unmonitored growth of small scale industries in informal settlements towards improving the prevailing situation in these settlements.

The study also identified and explored the potentials of the existing laws, regulations and policies in relation to the weaknesses as the implementation gap towards monitoring and controlling small scale industries in the informal settlements. The identified potentials and gaps were among of the useful inputs towards suggesting the proper mitigation measures for the prevailing situation. In Tanzania this kind of research has been conducted in planned areas. Among other reasons was that the informal settlements were formally regarded as illegal settlements. In this respect, the informal settlements had fewer interventions by the government towards environmentally sustainability. The environmental pollution and degradation brought by the small scale industries have continued to devalue the living environment in these settlements. Therefore this study marks an entry point towards looking the best option for combating the situation. Shall the study prove to be successful, it will be replicated to the other towns and cities that face the same calamite in informal settlements.

1.13 The Structure of the Report

This report has been divided into three main parts. The first part gives a historical background of managing human economic activities which include small scale industries in informal settlements. Chapter one gives the main issue of the research and the methodology employed in doing this research. Besides, it includes different attempts made by the government through different policies not only in rectifying the haphazard land development but also reorganising different economic activities which were carried out in the informal settlements. In chapter two more emphasis has been made on different literature and theories related to industrial locating and developments, concepts and levels of monitoring especially from the government's perspective

The second part is in chapter three which discusses thoroughly about the study area. This is the central part of the research that gives detailed discussions to meet the main objectives of the research issue as well as answering the research questions. Individual industrial categories have been thoroughly dealt with on the process of locating and monitoring the same with respect to the negative environmental impacts.
In chapter four, main findings have been discussed and expressed basing on the informations and discussions made with different institutions like the government officials, industrial owners and the selected house owners. Finally chapter five gives recommendations and conclusions for addressing the prevailing situation.

1.14 Definition of Terms

1.14.1 Informal Settlement

According to Kyessy, A. (1990), Informal settlements are those areas within the urban boundary of the city/municipal or town which develops without official and approved scheme. In most cases, they lack the basic physical and environmental services. Thus informal settlements are shortly defined as that area of the Town or Municipal or City where houses are not built according to the building regulations, but as best as people in the settlement can manage. In this area the housing conditions are mostly of substandard to such extent that the physical environment for example health is endangered by those conditions**.**

1.14.2 Settlement

This is just the built up area with different land uses for example residential, industrial, circulation, facilities and services.(Wikipedia)

1.14.3 Small Scale Industries

According to Small Industrial Development Organization (SIDO), (2002), small scale industry are defined as "privately owned economic units with less than 50 permanent employees which have a minimum turn-over of USD 6000 a year and a minimum investment of USD 400"

1.14.4 Monitoring

Monitoring is a regular or irregular planned and organised series of inspections in time through observations to an activity for determining the extent of compliance with the formulated standards or degree of deviation from an expected norm. (Wikipedia)

1.14.5 Zero Emission

Zero Emission simply means nothing is being lost in the production process of an industry; all wastes are re-used as added value in the same industry or value added in put for another industry. (Pauli, G. 1998)

1.14.6 Environmental Friendly

According to the Environmental Management Act of 2004, the environmental friendly is defined as any phenomenon or activity that does not cause harm or degradation to the environment

CHAPTER TWO: AN OVERVIEW ON MONITORING HARMFUL ECONOMIC ACTIVITIES AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter deals with literature review on Managing and Monitoring of harmful economic activities that are taking place in informal settlements. In order to understand the concepts, different sources of literature have been reviewed especially those related with the managing and monitoring of the activities from the government perspectives. Different types of Monitoring systems and classification of the small scale industries have been dealt with as essential components in establishing an effective monitoring mechanism for the industry operations. Practical experiences from both developed and developing countries in managing and monitoring small scale industries have been drawn as a supportive component in explaining the concepts.

2.2 Monitoring of Harmful Economic Activities by the Local government

In order to understand the role of monitoring in the organizations or companies, monitoring is looked at a wide benefits and not just because a statutory requirement. It is not focused to biophysical; sustainable that involves social, cultural and economic well being but also the environmentally well being. (Fookes, T.1996) The development of an understanding on monitoring enables a better response to statutory requirements and non-statutory potential opportunities for monitoring. This in turn improves the functioning of the company in its operations. There are many forms of monitoring of which different researchers have used with respect to the intention and purpose of the research. This research is looking on the monitoring for of small scale industry operations under the government's perspective.

According to HURIDOCS[1] (2003), the term Monitoring is defined as the close observation of a situation or individual case carried out in order to determine whether further action needs to be taken. Monitoring is constituted by the following elements:
-It is carried out over an extended period of time
-It involves collection and receiving a large quantity of information.
-Close observation of a situation, investigation and documentation of development.
-Standards or norms are used as reference in objective question especially for determining potentials, weaknesses or deviations.
-Preparing or realising document report about the situation

2.3 Types of Monitoring

There are many types and forms of Monitoring depending on the subject matter. Hutching, J. (1995), categorises monitoring basing on the activities or operation as;

1 Human Rights Information and Documentation System, Switzerland.

2.3.1 Baseline Monitoring

This is a monitoring responding to the status of natural and physical resources

2.3.2 State of the Environment Monitoring

This is an outcome and routine monitoring the outcomes include the anticipated environment results rather than output

2.3.3 Trend monitoring

This intends to detect a long term change of a trend

2.3.4 Impact Monitoring

This monitors the pollutants level within the environment of the plant or industry and its areas of influence and effects on the ecosystem

2.3.5 Human Activities Monitoring

This intends to monitor peoples' visions and operations, economic aspects, material and energy fluxes, product and wastes

2.3.6 Performance Monitoring

This monitors the effectiveness of objectives, policies and plans

2.3.7 Compliance Monitoring

This is an activity concerned with the compliance of resources consent applications from the government. This monitoring is more output related than outcome.

2.3.8 Incident Monitoring

This is responsible for monitoring unauthorized events or activities/operations.

2.4 What should be Monitored?

Hutchings (1995), argued monitoring involves the collection of data, analysing to get the information required, reporting of the information and hence give feedback and review. Taking an example of the small scale industries, monitoring should give the government with valuable feedback on the operations compliance or non compliance to policies, legislation or any agreed terms for the desired friendly living environment. Monitoring is therefore in one way become involved in the governments' planning and decision-making.

2.5 Monitoring Requirements

According to Alberta Environment (2004), monitoring requirements is tailored for each industrial operations based on the types and quantity of emission. Thus monitoring requirements differ from one industrial sector to another. However, the following are general monitoring requirements for industrial operations:

1. Operators and authority should define and understand clearly the objective before monitoring
2. The monitoring system should be known well to both parties

3. Monitoring location or sample location should be clearly defined
4. Frequencies of monitoring for example how often monitoring is carried out at week or month.
5. Identified parameters to be measured
6. Identified monitoring methods
7. Identified an analytical methods
8. Data recording, record keeping and reporting

2.6 Who should take out the Monitoring?

According to European Union, (2003), monitoring should be taken by a competent authority, operators (self-monitoring) or contractors as a third party on behalf of the authority or operators. However, whenever monitoring is carried out either by the operators or contractors, the authority still have the responsibility of ensuring the standards and quality requirements have been met accordingly. It has to check the format and process of monitoring instead of relying on written reports. Wherever there is self monitoring, the authority has to provide some guideline and standards of which the monitors have to conform to those guidelines and standards provided.

Self Monitoring has some potential advantages not only in minimizing the administrative monitoring costs, but also in allowing the operators to use their knowledge in reducing emissions. This makes them to be more responsible and accountable to the minimization of the emission. However, the competent authority is still responsible to confirm the quality of monitoring and operations of the industry with respect to the set standards.

2.7 Advantages and Disadvantages of Monitoring

Monitoring is not a new concept in organizations or companies. It is an intrinsic or innate part of what an organization is doing in relation to its daily functions or activities. However, monitoring may range from the conscious activity of assessing the performance in comparing to the goal being set against the achievements for realising its effectiveness.

2.7.1 The Advantages of Monitoring

1. It helps to improve the level of customers service
2. It helps to identify problem areas and hence assisting in setting the priorities in the annual planning and budgeting.
3. Creates knowledge on what is happening especially with human activities like industrial operations.
4. It helps the government on deciding measures to improve the prevailing potentials or problems
5. Raises environmental awareness to the community which include industrial operators.
6. The community provides useful information such as what a consumer product/companies and activity are detrimental to the local community and activity.
7. It brings an improvement of relationship between the community or Industrial operators and the government.

2.7.2 The Disadvantages of Monitoring

1. Monitoring is resource consuming
2. There are difficulties in record keeping and hence make the monitoring process not applicable in the near future
3. It adds extra costs to the organization.
4 .May led to wastage of resources if it not well planed and organised.

2.8 Level of Monitoring

The level of Monitoring differs from one country to another. Taking an example from New Zealand, the levels of monitoring in the country is as shown in **Figure 2**.

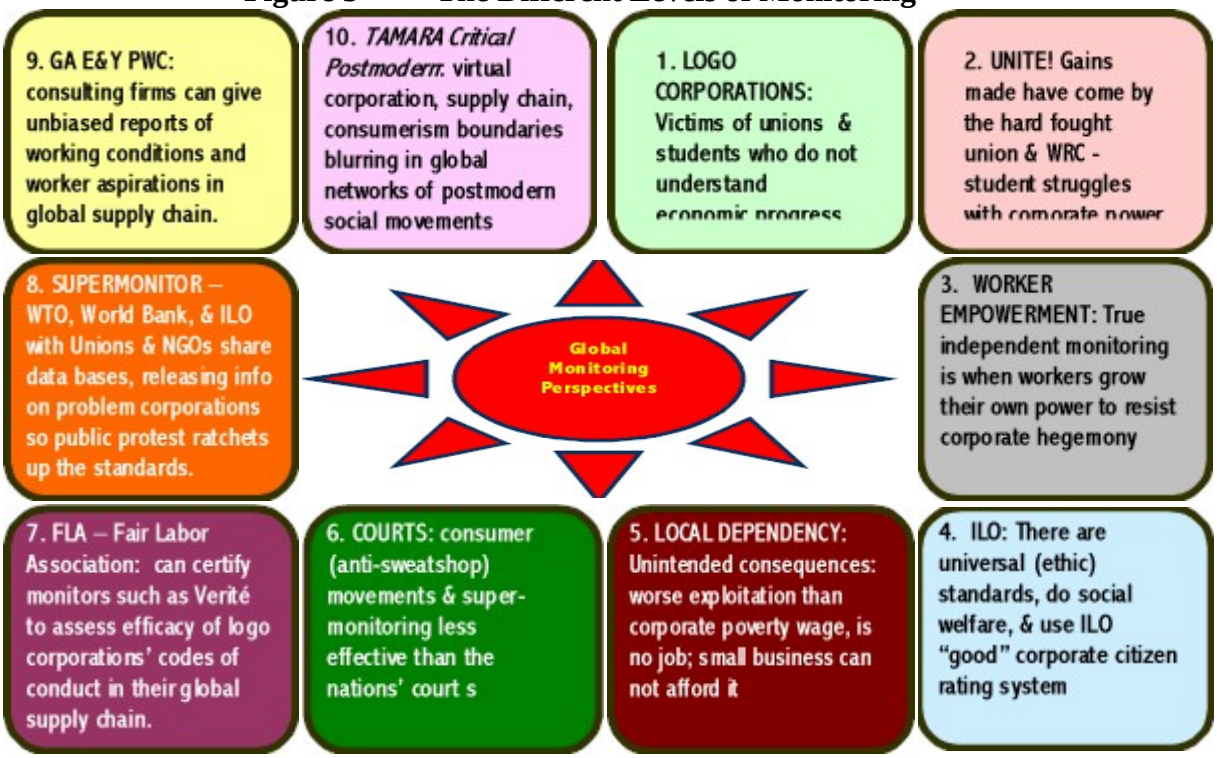
Figure 2 The Levels of Monitoring in the New Zealand Governments

		Examples of Monitoring Activities
GLOBAL	UNCEP, OCED NGO's	Global trends and issues State of the Environment
NATIONAL	MoT, MfE, MAF, DoSLI, MoH, DoC, CRI's, Dept. of Stats, Other Govt Depts, Industry	State of the Environment Reporting (SER) National Networks (rivers, lakes, air, climate, monitoring, water supply etc.) Material and energy fluxes, hazardous wastes etc. Development and standardisation of methodologies National Environmental Standards Census and economic information Resource inventories, fishery/wildlife databases etc.
REGIONAL	RC, DoC, CHES, Resource Users Iwi	Compliance monitoring Natural resource surveys Protected areas, rare and endangered species Coastal resources inventory etc. Pest control and noxious weed information Transport statistics Public opinion and aspirations State of the Regional environment
LOCAL	Territorial Authorities, CHE, Community Groups	Compliance/impact monitoring Water supply quality Solid waste generation and disposal Land use changes and impacts Reserves, tourism, recreation Public opinion and aspirations Maori values State of the Community Environment

(Source: Hutchings 1995:6)

However, Boje, J. (2001), describes these levels of monitoring in a complex way. He grouped them into two main groups which include independent and dependent monitoring. Independent Monitoring occurs when an organization or company gives solely responsibilities to the company employee while the later is when the company hires private firms or consultants to monitor company's activities. This type of monitoring ranges from an individual, different levels in the authority starting from local, region, nation and international. However, monitoring extends to other stakeholders in the system like private consultants; International Agencies and organizations and workers in the firm. The relationship among the stakeholders herein mention is as shown in **Figure 3**

Figure 3 The Different Levels of Monitoring



Source: Boje and Landrum (April, 2001)

2.9 Theoretical Framework and Concepts for Monitoring Small Scale Industries

In view of the management of environmentally harmful economic activities in the informal settlements (squatter settlements) it was considered important to review some theories related to industrial development as input to this subject. The theories play an important role when considering developing and monitoring the industries operations in these settlements.

2.9.1 Industrial Development Theory

There are a lot of theories and concepts being developed in relation to industrial development. In this study, the theory of the location of industries developed by Weber, A. (1909) and the Zero Emission Concept developed by Pauli, G. (1998) were thought to be more relevant. According to these theories normally an industry is located where transportation cost of raw materials and final product is at minimum. The theory has been developed by five assumptions that include:

i) The model operates within a country with a uniform topography, climate and economic system
ii) One-finished products at a time is considered and shipped to a single market.
iii) Raw materials are fixed at a certain location together with market at which consumption occurs is fixed and known
iv) Labour is geographically fixed but is available in a limited quantity at any production site selected.

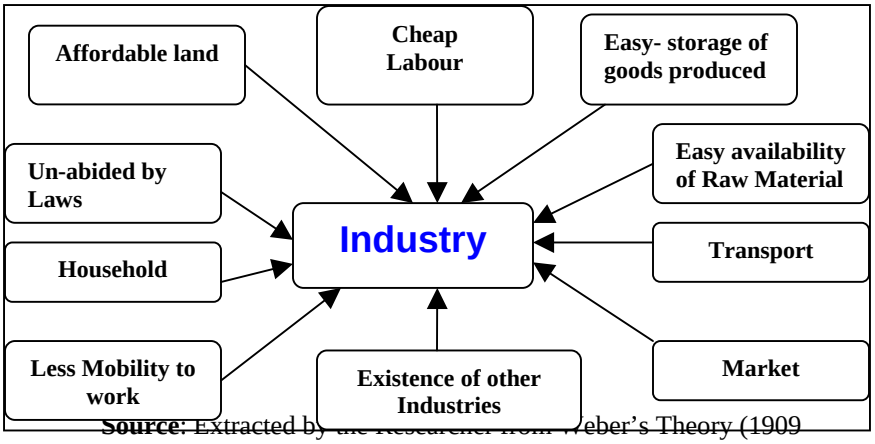
v) Transport cost are function of the weight of items shipped and the distance they are shipped

In this theory there are two cases that have been singled out which includes the weight losing and gaining. The weight losing is when the weight of the final product is less than the cost of transporting the raw materials to the plant and vice versa for the weight gaining. In the systematic model an industry is used as the unit of analysis. The labour force and availability of the raw materials are among other factors considered when locating an industry. However, the regional and location factors may affect the industry in terms of labour and transportation of either raw materials or final products to the consumer respectively.

The industries concentrations in one local area may be due to sufficient labour force and effective demand for the final product. This is further explained and supported by the Cumulative causation theory cycle of industrialization[2]. Alternatively, de-agglomeration is the result of over concentration of industries in one area that led to the shortage of labour force, capital, affordable land and market. Todate this is indicated by the fragmentation production process of the industries.

According to Natalie (2004), the major factors considered in this theory when locating an industry include the affordability of low cost of space (land), good transport facilities, availability of strong utility system like energy, water and waste water system. Beside, the availability of labour force of diverse in multiple of disciplines, nearness to the market which reduces transport cost as well as reliable effective demand for the product is among key factors for locating the industry. The relationship between the pulling factors for industry locating is as shown in **Figure no 4**

Figure 4 Factors Attracting the Locating of an Industry



Source: Extracted by the Researcher from Weber's Theory (1909

2 The Cumulative Causation Theory Circle explains that industrialization follows the virtuous principle where by new industries are located where others have been located in order to avail the productivity advantage

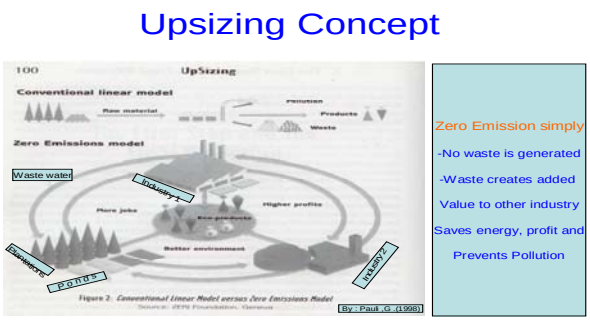
2.9.2 The Zero Emission Concepts

This is the newly and recently emerged concept as a management tool. It is a continuation of the total customer satisfaction whereby no executive will rest until a customer comes back for another product. The Zero Emission concept simply means the re-use of all components as value added so that no waste is discarded. The concept aims in not generating liquid, solid or gaseous waste instead all inputs are used in production. When waste occurs, it is used to create value by other industries.

According to Pauli, G. (1998), the value added makes the economy tick, secure sustainable flow of funding and hence a pre-condition for independence and growth for autocatalytic growth. If this does not happen then the concept of upsizing is the best alternative where by many products are merely downgraded, incinerated or left as a soil conditioner. The author defines the term Upsizing as the process of clustering of industrial activities whereby the by-product without value for one industry is converted into value- adding input to the other industry. In this process there is a transformation of capital, labour and raw materials. In turn it is not only increasing the products and services for sale but also jobs and income. The Kalundborg industrial site in Denmark takes advantage of this concept. The author argues that this concept could have further extended to the Palm plantation industries in the same country which generates 200 million tons per year as a massive biomass waste and regarded as has no value. The re-use of this waste through a cluster of industries may create a lot of jobs as it is in Kalundborg industrial site. This concept is being practiced and proved successful in different countries like Fiji, Namibia, Colombia, Geneva and Sweden industries. The operation of this concept was explained by Pauli, G (1998) when he showed the dependencies of one industrial by-product by the other as raw materials in the production process as shown in **Figure no.5**

Figure 5 Industrial Dependencies under the Upsizing Concept

Source: Pauli, G. (1998)



2.9.3 The New Design Triangle Concept

This is a concept developed by Piasecki etal (1998) in the book about America's future in hazardous waste management. The concept is based on three unrelenting principles that include energy conservation, saving materials and reducing waste towards economic motives and environmental enhancement. By using this concept Sunkiss developed a thermo reactor in metal finishing operations which was used in small metal products to cars and locomotives. The metal painting lines reduced emissions of evaporated solvent which were destroyed by the thermo reactor as well as drying time by 90%. This resulted into increase in production yields. In addition to that there were less energy required and hence 80% of

the energy required for the operation was saved that led to annual earnings of 1.1 million Francs as savings. In this way also the explosive risks that occurred during the drying process was also reduced.

The concept was further adopted and applied in heavy metal waste from the industries which transform the discarded waste into solid metallic sheet and sell them as scrap. This led to zero discharge of heavy metals. According to Bruce P. et al (1990), the Borden Chemical Plants in Calfonia and 3M Electronic Plants in Colombia use the same concept and have shown success not only in terms of saving the operational costs but also reducing pollution to the environment during the production process. The author complemented by arguing that the key to success of this was not only technological dynamics but also institutional innovations in management. Environmental dynamics is highly required in institutions especially during the decision making process.

2.10 The experience of Managing Small Scale Industries in Developing Countries

The management of small scale industries in many developing countries has a long history with respect to is role, controversy and definition of the same. There is still on going process of conceptualising a proper definition of small scale industries. In most developing countries small scale industries are defined according to labour intensity, Investment capital, turnover and household ownership. However, there is available evidence that small scale industries are significantly dominant component of the industrial sector in most of African countries. Small scale industries generate an important portion of the value added of Africa's industrial sector although their share value added is not as great as their employment contribution.[3] According to Matambalya (2002) it is argued that, although Tanzania has introduced economic reforms since 1986 that aimed in restoring macro-economic stability, the political and social environment yet is still bias against development of small and medium industries. The degree of Donor influence on the reform process, the lack of adequate anti-dumping legislation and the devaluation of the currency have all continued to undermine the development of the Small and Medium Scale Enterprises. In Early 1960s Tanzania had the first attempt in reorganising informal settlements harmful economic activities by introducing squatter and slum clearance scheme. This scheme operated in the form of relocation of the residents with the economic activities. Due to financial crises the scheme ended in creating more problems instead of solving them (Nnkya 1999). In 1970s, Tanzania introduced Informal Settlement Upgrading Policies which is still in place to date. The scheme has not yet managed to monitor harmful economic activities apart from concentrating on issuing residence certificate and providing social infrastructures through community initiatives while the government acts as the facilitator and enabler.

3 Mulat T (1994) pointed out that the Ethiopia Government Policy has neglected and excluded the cottage industries despite its dominance every where in the country. The Policy has considered only those with relatively largely intensive capital. This implies that small scale industries are operating without any guidance**.**

The experience from India shows that the capital city of Delhi is among the fastest growing urban mega polis in the world. The rapid population growth goes simultaneously with the growth of informal settlements as in Dar es Salaam city. According to Chakrabart, P. (2001), the informal settlement has more than tripled since 1981 to 1994. This has led to lack of employment opportunities, consequently people engage in informal activities which include small scale industries.

According to Carr (1981), India is among other developing country which is advanced in small scale industries in its operations. It started developing and promoting small scale through the formation of Department of Industrial Research that analysis the needs of the industry before development. The department has developed three models responsible for small scale industries.

i) Ranch Model/scheme. This scheme is responsible in advising the government when planning new areas for small scale industries development
ii) The Second scheme is responsible in planning for effective use of scarce resources. It also collects essential ingredients of success program from other centres and hence become a common and integrated approach in solving small scale industries development related problems.
iii) The third scheme is responsible and operates in places where there is no small scale industries by training and motivating none employees to establish small enterprises with friendly sound environment which include squatter settlements.

Although the small scale industries are labour intensive and employment generating in India, they have mostly been established and developed by undergraduate students who were not employed by the government. Therefore, it is evident that technology in India exists in small scale industries operations unlike most of the African countries whereby operated by unskilled labour. Besides, India has dependent policy for guiding the same with support programmes financed by the central government in promoting and monitoring small scale industries. However, the industrialization growth has environmental impacts. According to D'Souza (2001, 2002) the size of small scale industries has often been the misconception hence the issue of pollution brought by the same has often been overlooked. Different researches are in controversy that some argue the small scale industries have less pollutant than the large and vice versa. In combination of both small and large industries green gas emission makes India to be the sixth largest and second fast producer of green gases. The tons of waste generated mostly are disposed in unsafe ways like burning, dumping into oceans and other water bodies. This disqualifies the latter argument made above. However, both small and large scale industries pollutes the environment, the question remain to what extent has not been proved.

2.11 The Concept of Sustainable Development

The concept of sustainable development as defined in chapter one was in place since the mid of 1990s when economic growth and social development were required not to undermine environmental and developmental of the future generations. However, Richards et al (1992) argued that sustainable development is something that can go on ad infinitum unless there is an obstacle upon it.

The sustainable development idea is about range of different pattern of growth and social change that are environmentally and socially better than the alternative patterning (Pugh 2000). The concept came more effective after the World Commission on environment and development made a statement in 1987 (Brutland Report). The report set a conceptual framework for development that targeted to meet the present generations needs without compromising those of the future generation. However, the term development and needs had no admitted straightforward definition. On one hand the concept is about economic, social, political and environment while on the other hand it is about pattern of development and its environment, social and economic impacts. This is well linked with the 1960s emerged theories about housing development in urban areas particularly squatter settlements. Among other theories that have remained relevant is that of John Turner who favoured in situ slum improvement and instalment construction. The theory has been extended into Brown Agenda environmentalism of 1990 at the meeting held at Rio de Janeiro in 1992. The idea was brought further in Habitat II meeting that came up with the new approach of participatory environmental improvement in urban areas. The New approach is through the environmental Planning and management (EPM) that envisage meeting of wide range of stakeholders in identifying, prioritizing and implementing urban social and environmental development related problems. This approach is currently being applied in many cities in developing countries

2.12 The Practice of Sustainable Development in Informal Settlements in Tanzania

The practice of sustainable Human settlements in most cities is one of the implementation results of the UN Habitat Agenda reached at the meeting held in Istanbul in 1996. The meeting agreed on the Agenda about adequate and sustainable human settlement development in an urbanizing world. In 1990s the Sustainable cities programme started under the UN Habitat and UNEP. This programme aimed in assisting cities in achieving more environmentally sustainable growth and development. The program used a Participatory based approach though Environmental Planning and Management concept. According to the Nnkya, T. et al (1992), the Environmental Planning and Management is an effective urban management methodology that cities use to deal with urban development and environmental related problems.

Tanzania through the Ministry of lands and Human settlement development in 1990 approached the United Nations Development Programme for technical assistance to review the 1979 Dar es Salaam Master Plan. It also coincided with plans to put in place the Sustainable Cities Programme in Tanzania. Among other reasons that prompted this request include with the teething environmental problems and unguided growth of the city. The city was characterised by the growth of spontaneous informal settlements with unserviced housing. This was against the anticipation of the master Plan that land has to be serviced before allocating to the developer. Also according to the Town and Country Planning Ordinance of 1956 stipulates the master Plan has to be reviewed in every five years in order to reflect economic, social and environmental changes

According to Nnkya T, et al (1992), in the process of reviewing it was realised that if Tanzania has to overcome urban land development problems it has to change the approach of its city management and not reviewing the plan. The city management was realised to be uncoordinated among departments, development sectors and beneficiaries.

Thus in 1992 the Sustainable Cities Program was initiated for the first time at Dar es Salaam city as the primate city in the country. The positive results of this pilot project led to the replication to other nine Municipalities in the country as shown in the **Map 1**

Map 1 The Areas of Sustainable Cities Program in Tanzania

Source: Sustainable Cities Programme in Tanzania (1992-2003) Report, Volume 2

Besides, the environmental problems addressed in the planned areas, the project extended to unplanned and unserviced settlements. To start with, the Hanna Nassif community based labour intensive infrastructure-upgrading project was initiated. The lessons learnt from this project were used as input when replicating the project to other areas of the city. The Mbezi C' area, Kijitonyama and Tabata neighbourhoods were among other areas where this approach was replicated. The community in the respective area participated by giving labour to the project. This led to acquainted knowledge on how to sustain the project after withdrawal of the government and donors. The success of the Hanna Nassif project is currently taken as the role model when planning any upgrading project in the country. There is ongoing process of upgrading informal settlements under the support of the National Government in collaboration with the World Bank through community initiatives in the country.

CHAPTER THREE: AN OVERVIEW AND MANAGEMENT OF ENVIRONMENTALLY HARMFUL ECONOMIC ACTIVITIES IN INFORMAL SETTLEMENT IN TANZANIA

3.1 Introduction

This chapter has two parts. The first part is on an overview of informal settlements in Tanzania. It gives the background information on the emergence of these settlements, their general physical, social, and social characteristics. The second part gives the actual situation on managing and monitoring small scale industry operations, its classifications as well as the environmentally and healthy impacts brought by the industrial operations. It also gives different responsibilities and roles of the responsible institutions in monitoring them.

3.2 Historical Background of informal settlement in Tanzania

Tanzania is the biggest of the East African countries (Kenya, Uganda and Tanzania). It is located between longitude 29^0 and 41^0 East with latitude 1^0 and 12^0 South. It has the total area coverage of 945,000 km^2 of which 881,000 km^2 is in the mainland, 2000 km^2 in Zanzibar, 62,000 km^2 as water bodies and 3.350 km^2 as forestry. It has 26 Administrative regions with 130 Districts. The country has a total population of 34,569,232 with growth rate of 2.9% as per 2002 National Census Report.

Informal settlements were formerly recognised by the government as squatter areas or unplanned settlements. They were treated as illegal built up areas and thus were not considered in terms of servicing the areas by infrastructures. This idea went on until early 1972 when the national government changed its attitude on informal settlements. The site and services and squatter upgrading program was initiated for the first time in Tanzania.

The view on informal settlements development in Tanzania is like many other developing countries of which rural urban migration is the engine of spatial urban growth[4]. They were quite different from those in developed countries like UK which were due to industrialization. In Tanzania, urbanization was the main cause for the emergence and development of informal settlements. According to Mghweno (1979), Ngware S. and Kironde J.M.L (2000) this was well attributed by the rural-urban migration trends. The migration trends as time went on led to increasingly urban population growth. The rapid urban population growth in urban centres implies that more housing and services were and are needed. This led people to find other alternative way of living of which informal housing unit construction was among. This in turn has led to mushrooming of informal settlements to date. The rapid population growth rate to date is as shown in the **Table 5**

4 Gugler (1982), the main motivation of rural- urban migration is the search for better paid jobs especially by the young group. This is well supported by the biased development between Rural and Urban particularly in terms of social services like health. These reasons act as the pull factors to the immigrants.

Table 5 Urban Population Growth Rates in Tanzania

Year	Country Total Population	Urban total population	Urban population growth rate (%)
1948	7 744 600	183 362	2.4
1957	9 087 600	364 072	4.0
1967	11 958 654	685 547	5.7
1978	17 036 499	2 265 854	13.3
1988	22 533 758	4 043 684	17.9
2002	34 569 232	7 970 935	23

Source: Ngware S and Kironde J.M.L (Eds) Urbanizing Tanzania, issues, initiatives and priorities, DUP (1996) LTD, Dar Es Salaam, National Bureau of statistics (2002) National Population Census Report

Soon after the independence in 1961, many Tanzanians migrated to urban areas with the notion that they will secure jobs and better social amenities. The population increase in urban areas went simultaneously with shortage of surveyed and serviced plots. The shortage of plots pushed people to struggle for land in unplanned areas that accelerated the emergence and growth of many informal settlements. Taking an example of the Dar Es Salaam City Council in the year 1978 to 1992 received a large number of plot applicants yet it was able to meet only few demanded as indicated in the **Table No 6**. The newly emerged informal settlements were associated with social problems like lack of clean and safe water, lack of electricity supply, unhealthy living condition due to absence of sanitary services and other infrastructures.

Table 6 Numbers of Applicants versus the Available and Allotted Plots

Year	No of applicants	No of allotted	Percentage
1978/79	81400	1865	2.3
1979/80	81900	3604	4.4
1980/81	19350	1199	6.2
1981/82	20,000	1490	7.5
1982/83	22,296	3388	15.2
1983/84	24,200	1660	7.2
1984/85	24,100	1528	6.3
1985/86	24,880	2000	8.1
1986/87	25,200	1718	6.8
1987/88	25,856	1205	4.7
1988/89	28,900	1560	5.4
1989/90	30,000	1490	5.0
1990/91	37,316	934	2.5
1991/92	40,170	1362	3.4
Total	**261,668**	**17,751**	**6.8**

Source: Dar Es Salaam City Council Statistics (1992), Ministry of Lands and Human Settlements Development Budget Speech 1992/93, Page 52.

Initially the government had no funds to upgrade those informal settlements until in 1970s when the World Bank assisted the upgrading process. The upgrading process went into different phases and improved few regions to include the Dar Es Salaam City, Mbeya and Mwanza as the Pilot projects. As time went on the pilot projects did not perform as expected that led to the World Bank to withdraw up in early 1980s. The task of financing the programmes was left to the National Government which did not exist longer due to financial crises. Thereafter, the Government made a directive which

required local authorities in collaboration with the Ministry of Lands and Human Settlements Development to prepare layout plans that could guide land development in informal settlements[5]. Many layout plans were prepared hoping that they could have guided land development process yet the plans remained as good as papers could not meet the intended objectives and goals

3.3 Factors contributed to the Emergence of Informal Settlements in Tanzania

The informal settlements as defined in chapter one can be classified into three categories with respect to their nature of formation and incorporation in the urban areas. According to Mgweno (1999), the informal settlements can be grouped into three main categories as follows:

1. Those that developed as villages but were later incorporated or converted into urban areas by expanding the urban boundary of jurisdiction in terms of physical boundaries. Formerly the customary law governed these areas. As time went due to high pressure on land people subdivided and sold land according to their wish. In Dar es Salaam city, the Manzese informal settlement is a very good example area that grew in such process. The incorporation of this area in the urban boundary was not accompanied with proper mechanisms of land development control. Thus people continued to subdivide their land that resulted to a more expansion of the unplanned settlement in spatial growth.

2. There were those that grew and developed in the freehold estates which were invaded after freehold. They were converted to the government titles through the use of free hold Act of 1963. Workers were allowed to construct a dwelling unit by using temporary materials. Due to lack of proper land development control, the informal land market grew more in this area and hence remained as informal settlements with permanent building materials. The Hanna Nassif settlement found in Kinondoni District is a very good example of such kind of informal settlement in the Dar es Salaam city.

3. There were those that grew near or close to industries or amidst planned land. The land was mostly subject to landslide or floods. The residents developed the land at their own risk. As time went on they claimed to rights to the land. They started subdividing and sell to new land seekers. This led to high concentration of housing in the form of squatting. In Dar es Salaam city the Buguruni and Keko informal settlements are among those that grew in this way. The spatial development and distribution of informal settlements in Dar es Salaam city is as shown in the **Map No 2**

Tanzania like many other least developing countries has some common factors that led to the emergence and growth of informal settlements. Among other reasons include:

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5 The Ministry of Lands and Human Settlements Developments Technical Directive No 1 of 1989 set guideline for the preparation of informal settlements plans for the entire country that could have guide land developments in these settlements.

i) Lack of development conditions and control that allowed the flexibility in choices on type of development and speed of implementation[6]. This was well accompanied by land developers' freedom to select areas they wanted to develop without governments' interference and intervention by any building regulations and standards that were applied in planned areas[7]

ii) Easy availability of land in unplanned areas was another factor that contributed to the emergence and growth of informal settlements in Tanzania. This is well indicated with the rapid increasing number of informal settlements in the country. Taking an example for the Dar es Salaam City the numbers of informal settlements have more than doubled in the last decade. This is as shown in the **Table no 7**.

Table 7 The Informal Settlements Trends in Dar es Salaam City

Dar es salaam City	1980	1988	1992	2006
No of Informal Settlements	25	40	46	+56

Source: Kombe (1994), Mghweno (1999), UCLAS (2005/6)

Iii) Shortage of housing in urban areas due to high rural-urban migration trends is another factor that leads to the cropping up of informal settlements in most urban areas. People have a notion that in urban areas there is better life than in villages. They also hope to secure employment opportunities in urban areas. People migrate to urban areas without capital for house construct at once as one of the conditions in planned areas. The best option is to build a house in unplanned areas where they built on piecemeal bases depending on their income they earn. This is well encouraged by the laxity in enforcement of land development control, enforcement of regularization as well as inadequate manpower by the responsible authorities to identify areas that have been developed unlawfully[8]. The developers have taken an advantage of the weaknesses of the responsible institutions for monitoring and controlling land development in the city. This has resulted to the city sprawl of informal housing as an alternative to the shortage of housing units for accommodation. This urban informal housing sprawl has led to the rapid spatial growth of informal settlements. The spatial informal settlements development trend is as shown in **Map No 2** in this report.

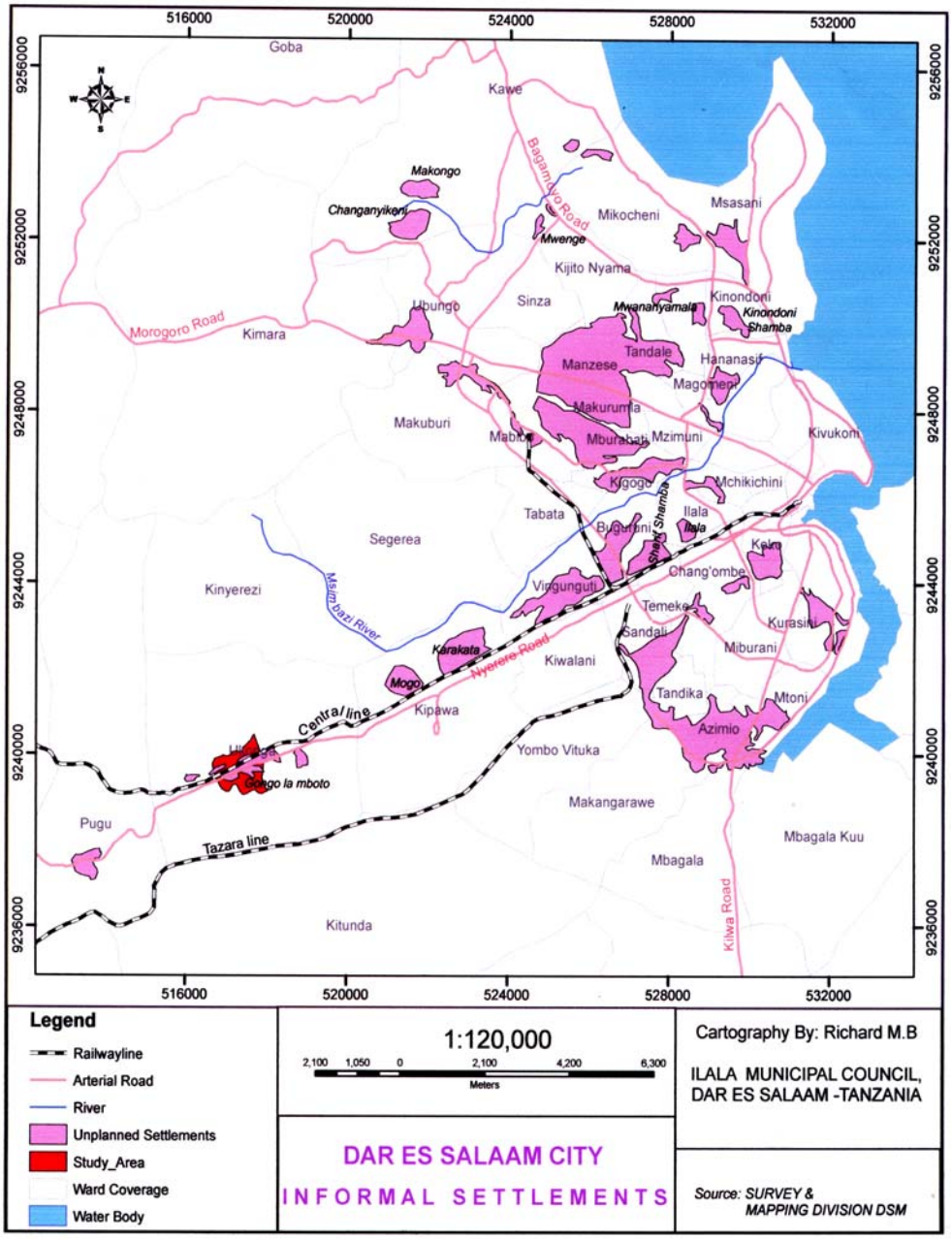
6 Kironde (1999)

7 Kombe (1994,)

8 According to Kombe (1994), the Municipalities had and have no land rangers who can inspect illegal land developments. The Municipalities that have the inspectors had no transport facilities to facilitate them. Till 1997 only Kinondoni District and Dodoma Municipality had one and four Land Rangers respectively.

Map 2 The Informal Settlements in Dar es Salaam City

3.4



The Physical, Social and Economic Characteristics on Informal settlements

3.4.1 Physical Characteristics

In Tanzania, the housing conditions in informal settlements are of substandard with physical environment that endangers health. There is poor public infrastructure like unpaved roads, lack of sewage system and electricity, highly populated density, mostly poor housing and unplanned location of the same. However it should be noted that the age, size, nature of formation and housing conditions are diverse from one settlement to another within the same or different towns and settlements in the country. Currently

people are using permanent building materials in housing construction. This has reduced the disparity in terms of housing quality between planned and unplanned areas. The 1972 Squatter Upgrading and Site Services Policy which superseded the slum and squatter clearance policy of the 1960s acts as the pull factor to this changes of housing development in informal settlements. The Housing developers are confident that their houses would not be demolished any more.

Beside, the issue of land use planning is mostly at an individual and plot level. This has led to highly mixed of land use regardless the use has negative impact to the environment or neighbour. People locate economic activities within the plot to reduce communicating costs that had the business been distantly located would face.

3.4.2 Social Characteristics

Land development in informal settlements is not classified according to the level of income as in planned areas where there separation of people according to income earnings. There are three classes of land developers in planned areas whereby low, medium and higher income earners are segregated respectively. The people living in informal settlements have an advantage of knowing each other hence cooperate closely in upgrading the settlement in terms of service provision as well as family related problems.

3.4.3 Economic Characteristics

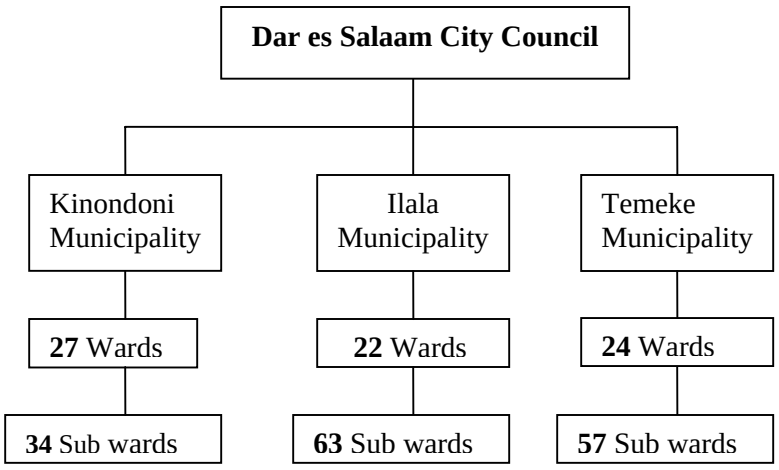
Most of the people in informal settlements are of low and medium income group. Self employment through either agricultural activities, small business like selling buns, vegetables, kiosk, shops and other manual related works are the main source of their income. Beside, there are those who have established small scale industries within their plot to supplement income. The location of these businesses does not mostly consider about the human health. It is focused on income generation and earnings.

3.5 The Management and Monitoring of Small Scale Industries in Ukonga-Mombasa Informal Settlement

3.5.1 Background information

Dar es Salaam is among of the 26 Administrative Regions being located between 6^0 and 7^0 with area coverage of 1800 km^2. It is one of the largest East African cities with 2,497,940 people and growth rate of 4.3% as per 2002 National Census report. The city has four administrative local authorities which include the Dar es Salaam City Council, Kinondoni, Ilala and Temeke Municipal Councils. The City council has the coordination role to all cross cutting issues among the three Municipalities in the city. The administrative structure of the city is as shown in the city administrative structure bellow.

Figure 6 The Dar es Salaam City Council Administrative Structure



Source: Author's experience in the City, July 2006

The Dar es Salaam is the primate city which functions as the major business centre in the country. It also hubs the major physical infrastructures such as the international Airport, port/harbour, big market both for whole and retail trade and trunk road which exert in Ilala municipality as the starting point.

The Ilala Municipality is centrally located among the three municipalities. It absorbs both Political, social, economic potential and risks for its growth. It has area coverage of 210 km^2 with 637,386 people and average population growth rate of 4.6 as per 2002 Population Census Report. The Municipality has 148,386 households with the average of 4.3 people per household. Out of the 56 informal settlements as mentioned in Chapter Two, 17 are found in Ilala Municipality. This include with the Ukonga Mombasa informal settlement.

3.5.2 The Ukonga-Mombasa Informal Settlement

As stated in chapter one, The Ukonga Ward is in Ilala municipality with six sub wards. This study covers only four sub wards out of the six namely Markazi, Mazizini, Mwembemadafu and Gongo la Mboto that forms part of the Ukonga Mombasa Informal Settlement. According to the Ward Strategic Development Plan of 2006/2007, the four sub-wards are comprised of 37,011 people with 14, 440 households.

Despite the settlement being an informal, it is well organised in terms of land use patterns. The occupants have defined behavioural rules, spatial boundaries and methods of solving land development disagreements. Land is subdivided, leased and informal housing units are sold. The settlement is also recognised by the private and public institutions, in this way land is transferred from one owner to another. The settlement has been integrated as part of the Dar es Salaam urban fabric.

3.5.3 Access to Land and Land Development in the Ukonga-Mombasa Informal settlement

According to the 1979 Dar es Salaam Master Plan, the area was zoned for agricultural activities. People started to settle in the area in early 1940s. According to the six key

informants who have lived in the settlement for more than twenty years that land developments have been changing with respect to the population growth and land development pressure in the Dar es Salaam city.

People got access to land in different ways which include inheritance that were the main form of accessing to land at that time, clearing bushes, free provision by relatives and buying. Before 1960s the local leaders called "Mundewa" who can be compared to Mtaa[9] leaders today supervised all kinds of land development control and dispute settling. The Mundewa were appointed by old men with respect to the wisdom they had to the society and agreed by the community of the neighbourhood. They were also responsible in ensuring environmental quality in the neighbourhood by insisting general cleanliness surrounding every body's house. As time went on the pressure on land increase that transformed and changed the whole system of inheriting land and become as business. People started to subdivide land and sell at market prices. The Ward Executive officer in collaboration with the Mtaa leaders and individuals in the neighbourhood carries out the land development control

3.5.4 Types and Classification of Small Scale Industries in the Settlement

Ukonga- Mombasa is like any informal settlements in Tanzania and in the entire world is developed by people with different levels of income. However, the low and medium income people are the dominant group. These groups experience with unemployment crisis. However, self-employment especially in informal sector which include the small scale industries is amongst the best option to them. The small scale industries found in the settlement include carpentry workshops, garage workshops, welding, tailoring marts, brick making, iron and aluminium smith, milling machines, printing, shoe making, repairing office machines, and slaughtering services. This research dealt with garages, carpentry workshops and welding only.

3.5.5 The Environmental and health Impacts brought by the Industries Operations

There are a lot of environmentally and healthy impacts brought by different economic activities being carried out in the settlement. This study has only discussed the impacts being brought by garages, welding and carpentry activities.

a) Garages.

There are about 15 garages operating in the settlement of which only three have been licensed. The garages have no special places for pouring and throwing wastes like oil wastes and faded spare parts. The oil and greases are haphazardly thrown which are drained to the main sources of drinking water during the rain season. The unmanaged wastes pollute the soil, air, ground water and the physical environment as a whole. The garage operations also cause noise pollution which in turn has a negative impact to residents' health. People use the polluted water for daily consumption including cooking and drinking of which in a long run affects their health. The fuels like petrol and diesel in garages are exposed to the air and hence cause air pollution. Some garages take advantage of the existing waste heaps to throw garage waste regardless of the resulting of the environment degradations as can shown in **Plate No 1**

[9]"Mtaa leader" is the lowest local governments' leadership unit at community level in Tanzania.

Plate 1 The Garages Adjacent to the Heaps of Wastes

Garages at Ukonga Mombasa Informal Settlement (Photo by the Researcher, July 2006)

b) Carpentry Workshops

There are about 44 carpentry workshops of which 6 have been licensed in the settlement. Despite the carpentry activities providing furniture to the people for housing construction and furnishing yet they have negative impacts to the environment and human healthy. The carpentry workshops do not collect wastes to the dumping site. They used either to throw along the roads, burn or leave nearly to their workshop premises. During the rain season the waste decomposes and decays hence generate obnoxious smell which has both negative impacts to the air and human healthy. Besides, some of the rotten wastes after decomposition are drained to and pollute the main sources of water as is in **Plate No 3**

Plate 2 The Uncollected wastes at the Carpentry Workshops

Carpentry workshops at Ukonga- Mombasa Informal Settlement, (Photo by the Researcher, July 2006)

c) Welding

Dar es Salaam city is among cities in the world that experience the rapid increase in crime rates as time goes on. This has inevitably led people to construct houses with iron burglary proof and grilles on the door or windows. The need of these kinds of finishing motivates more people to engage in welding activities. There are 16 welding workshop found in the settlements of which 5 have been licensed. The process of making window and doors grilles involves painting. The Painting process is exposed to the air that pollutes the environment. The painters also don't use masks thus exposing themselves to health risks. Besides, the welding process generates an excessive noise that in turn pollutes the environment and disturbs human health in a long run. Due to poverty and ignorance, the welders do not use welding shields and hence expose themselves to healthy risks as can be clearly seen in **Plate No 3**

Plate 3 The Welders without Face Shields

Welding workshops at Ukonga- Mombasa Informal Settlement, (Photo by the Researcher, July, 2006)

3.6 The Actors and Perceptions on the Small Scale Industry Developments and Operations in the Informal Settlements

There are quite number of institutions responsible in managing and monitoring the small scale industry locating and operations in the informal settlements in Tanzania. According to the legislations and regulations the main responsible actors and institutions include the Ministry of Industry and Trade, the Small Industry Development Organization, the Vice President's Office -Division of Environment, the National Environmental Management Council, the Local Authorities and the Industrial Developers in the respective areas.

3.6.1 The Ministry of Industry and Trade

This is the custodian of industry policy and management guidelines in the country. The Ministry is responsible in Policy making and regulations formulation for both small and large sale industries. It is also responsible for trainings to the industrial operators for environmentally friendly. Currently the Ministry is solely responsible in large scale industries trainings and monitoring while the small scale industry owners trainings are left to the Small Industry Development Organization (SIDO) as the main governments'

arm and agency for the small scale industries. The Ministry has remained with supervisory and policy role in the country.

3.6.2 The Small Industry Development Organization

This is the main government arm for promoting small and medium scale industries in the country. It has 140 sheds at regional head Quarters and 16 Industrial estates. The Parliament Act established the Agency in 1973. Its main tasks are to plan, coordinate, promote and offer every form of services to the small scale industries. The offers include training and financial assistance to the industrial owners. The trainings offered include waste recycling programmes, marketing, financial and credit management, marketing and entrepreneurship, food processing and business management. The training has been scheduled four (4) times for each region in every six month. Due to financial constraints the trainings to small scale industry operators are not conducted as scheduled. According to the Business Development Officer the trainings are mostly focused on improving profitability and productivity (interviewed on July 2006). The small scale industry operators/owners have to apply for the trainings to the Regional Office and pay part of the training costs. The payments vary from one type and duration of the course.

3.6.3 The National Environmental Management Council

This is a government agency that was established through a Parliament Act no 19 of 1983. It was objectively established to undertake the enforcement, compliance, review and monitoring of Environmental Impact Assessment in the country. It is also responsible in facilitating public participation in the environmental decision-making. Despite the tasks mention above, the council performs other functions herein mentioned:

a) To carry out environmental auditing in the country
b) To undertake and coordinate research, investigation and surveys in the field of environmental and disseminating the environmental information to the stakeholders accordingly
c) To review and recommend for approval or rejection of the Environmental Impact Statements
d) To enforce and ensure compliance to the National Environmental Quality Standards
e) To undertake in cooperation with sector ministries programmes intended to enhance environmental education and public awareness for sound environmental management.
f) To identify projects and programmes of which environmental audit or monitoring have to be conducted. This goes simultaneously with the identification of projects that need partial or full environmental impact assessment.

Currently the council has conducted environmental training programmes in 3 out of the 112 Districts found in Tanzania Main land. This was based on the availability of the financial resources. According to the Principal Management Environmental Officer, the council has facilitated the prevention of environmental pollution by large scale industries through encouraging them to apply voluntary compliance to the National Environmental Standards. The council is also responsible in registering competent institutions for competent carrying out the Environmental Impact Assessment (EIA). However, to date

there are none of the institutions that have been registered for carrying out the Environmental Impact Assessment in the country. The University and Academic Institutions and few private people who are known to the council mostly carry it out. The Universities, Academic Institutions and the Private people are free to determine and bargain with the project developers the cost rates of carrying out the Environmental Impact Assessment.

3.6.4 The Vice President's Office, Division of Environment

This is a department under the Vice President's office in collaborations with other sector Ministries like the Ministry of Industry and Trade, Health, Water, Energy and Agriculture etc in issuing guidelines and conducting studies on environmental aspects. It is responsible in guiding the sector ministries in the process of policy preparations based on the National Environmental Policy. Beside, the department is responsible in handling international environmental management issues such as ratification of international conventions. The department performs other functions like:

- Examining matters referred by the ministries or any sector ministry especially those related with the protection and management of the environment and advise them accordingly.
- Reviewing and revising the National Environmental Standards, guidelines and Regulations.
- Receive and deliberately report to the sector ministry and matter related to environmental issues.

Currently the Department is reviewing all environmental pollution sources and types of wastes towards the formulation of the National Waste Management Strategy and Action Plan. This intends to improve the environmental protection and pollution prevention

3.6.5 The Local Governments

The local government that include City, Municipal and District councils are responsible for the provision of basic social services like primary education and partly secondary education, primary health care, waste management and cleanliness, district roads, water supply, cooperatives, agriculture and livestock development, recreational parks, and urban planning, forestry, fisheries and monitoring trade activities especially informal sector development which include small scale industries.

There are two levels of managing and monitoring small scale industries operations in the city. At Municipal level there are two committees namely Urban Planning and Environment and Municipal Economic and Community Services Committee. The former is responsible in approving land development permits with respect to the environmental concern and the later among other responsibilities is responsible in approving the issuing of business license.

In order for the small scale industry developer to be issued with the business license, the developer has to apply to the Municipal Trade Office through filling the application form. The application form has to be returned with copy of supportive documents like title deed/Contract agreement to prove the operation premises, taxpayer identification number and birth certificate or affidavit. According to the Municipal Trade officer, it takes one to

three months for the applicant to get the business license unless the conditions were not met.

However, in actual practice very few industry developers in informal settlement do apply for business license as indicated and shown in figure no 7. During the interview with them one of the respondent said, *"I don't see the logic of having a business license as it has nothing to do and add to my capital and business"*. There is one trade officer in each ward responsible for inspecting business licenses and illegal business operations. The area coverage is too big for the trade officer to manage, inspect and monitor the SSI operations.

On the environmental aspects, the Municipal Council uses the Environmental Health Officers to inspect different economic activities and operations in the municipality. However, during the interview with the Acting Municipal Environmental Healthy Officer, said they don't have standards and indicators for inspecting small scale industries operations. At Town planning Section, there is one Town Planner assigned to deal with the business license in the Municipality. During the interview with the Town Planning Officer, argued to be difficult to handle informal business trade operating in informal settlement. It has become more complex as the activities not been mapped to determine the actual location of operations.

3.6.6 Ward Environmental Development Committee

According to the National Environmental Act No 20 of 2004, each administrative jurisdiction is supposed to have an Environmental Standing Committee. Ukonga Ward has established this committee whose functions are as stipulated in this Act include:

- Initiation of inquiries and investigation about any environmental allegation and violations
- To Inspect and examine any premises, streets, vehicles or any place that may be a pollutant
- Command and require any person to remove at own costs any substance that may cause unsafe and unhealthy
- To initiate proceedings of civil or criminal nature against any institution that fails or refuse to comply with the environmental directives

The Ward Environmental Committee is a potential resource in managing and monitoring economic activities that are taking place in the settlement. However, the existing committee haven't been trained and informed about roles and responsibilities that undermined its performances. This was revealed during the meeting on 18th July, 2006 whereby 9 out of the 13 committee members attended. Among other obstacles confronting the performance of the committee is lack of working equipments, low fines at the court to the defaulter and violators. Besides, most of the residents and economic operators in the settlement lack environmental education that makes ineffective performance on the environmental concerns. The individuals are categorized into three groups. The first group is of industrial developers who develop and operate the industries. They have developed the industries in either on their own plots, rented land or invaded land along the road reserves and hazard land for residential development. The other group is those who have developed land for residential purpose. Lastly but not least

is the group of tenants who have rented houses or rooms for living. The roles of groups are detailed discussed in Chapter Four of this report.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS OF THE RESEARCH

4.1 Introduction

This chapter has data analysis collected from the 60 small scale industries (Garage, Welding and Carpentry) operating in the Ukonga Mombasa informal settlement. It also gives out the perception of 86 House unit owners interviewed in the settlement. The method of analysis is briefly explained to depict the importance of using the techniques for analysing the collected data. The data was collected from government and private institutions directly related and concerned with this field.

The settlement entails a wide range of small scale industries that are operating. However, for the purpose of meeting the objectives of this research, purposive sampling was used so as to deal with only the selected industries that include garages, welding and carpentry. Stakeholders and Qualitative method techniques were used to analyse the data. Beside, the purpose of determining the power, role, interest and influence of each stakeholder, qualitative data analysis was used where it was difficult in establishing the quantification of the data collected.

4.2 The Stakeholders Method of Data Analysis

There are different types of stakeholder data analysis being used with respect to the purpose of the research. This study used Stakeholder Power Analysis methods in order to determine the legitimacy, interest and roles of each stakeholder responsible in developing, operating or monitoring the industry operations in the informal settlement for friendly living environment. This approach helps in understanding why the situation is as it is and what is needed in order to make changes. This reason forms the base for the selection of this approach in data analysis.

The analysis underwent different stages to include stakeholder identification, analysing their interest and circumstances, pattern and context of interaction between them and finally looked into powers and potential roles in managing and monitoring the small scale industries. The stakeholders identified were grouped into different categories depending on their status and roles as shown in **Table No 8**

Table 8 The Stakeholders According to their category

S/No	Actor group	Actors
1	National level	Vice Presidents' Office (Division of Environment), Ministry of Industry and Trade, Ministry of Lands and Human Settlements Development, Ministry of Regional Administration and Local Government (Local Governments),
2	Sectoral Agencies at national level	The national Environment Management Council, Small Industry Development Organization
3	Local Government	Mayors' office, Councillors, Lands Development and Environment Department, Finance and Trade, Waste Management, Works and Water
4	Individuals	Licensed and unlicensed industrial operators, House unit owners, Residents living in the settlement, Any interested individual
5	Ward Environmental management team	Ward Environmental management Committee
6	Community Based Organizations (CBOs)	Neighbourhood Associations, Local Cooperatives
7	Media	Newspapers, Televisions, Radios
8	Donors/NGOs	Funding Institutions like Registered Business, Industrialists, Financial Institutions (National Enterprises Loan Facility (NEDF), Youth Development Fund (YDF), Women Development Fund (WDF), National Income Generating Program (NIGP), President Trust Fund (PTF), Community Trust Fund (CTF)

Source: Developed by the Researcher, July 2006

The interest and characteristics, interaction with other stakeholders, roles/powers and influence to the intended changes on management and monitoring of the small scale industry operations is as summarised in **Table No 9** in this text.

Table 9 The Analysis of the Stakeholders' Interests, Powers and Influences

Name of the stakeholder		Interaction with other stakeholders	Powers/Roles	Influence for the new changes
Ministry of Trade and Industry	-Implemented Policy and regulations -Industry Compliance to the standards	Local Government -Sector Ministries and agencies -Individuals -Donors, NGO and COBs	-Funding -Promotion of CP -Political support -Economic incentives -Integrating sector ministries plan -Reviewing Policies/Legislations	-Financing the new programmes -provision of guidelines for changes -Integrating other sectors -Political support -Technical support
Local Government	-Meeting National Requirements -Business compliance to the rules -Friendly living environment -Service provisions -Good environmental image within settlements	-Ministries(Lands, Environment, Industry and trade) -Government agency like (SIDO,NEMC) -Individuals -Sectoral Depts -NGOs & CBOs	-Capacity Building -Monitoring the operations/ inspection -Executing laws and policies -Issuing business license / sanctions -Promoting new changes	-Mobilization for the new changes programmes CP, Zero Emissions -Political support by the councillors and MPs -Fear to changes -Fear to coast
Ministry of Lands	-Land development according to plans -Having friendly living environment	-Local Government -Sector Ministries -Gvt Agencies like SIDO& NEMC -Individuals	-Issuing titles and Residence licenses -Making and reviewing Land Policies and	-Fear to change of land uses -Accommodating the SSI in the upgrading plans

		-Donors -NGOS and CBOs	Legislations -Change of land uses -SSI relocations	-Reviewing development conditions in informal settlements
Vice Presidents' Office	Adherence to the National Environmental Policy and Regulations	Ministries/Sectoral Ministries and National Agencies	-Reviewing National Standards and Indicators	-Integrating sectoral ministries in revising the National standards
National Environ mental Management Council (NEMC)	-Sustainable environment through preventing pollution and destruction of natural resources	-Sectoral Ministries -Local Government Government Agencies -Individual developers -NGOs, CBOs Academic Institutions	-Proposing National standards and inspection indicators -Environmental Auditing -Enforcements of the policies and laws 'Capacity building on environment	-Appointment of representative at regional level -Promote new Technology -Incorporate Local Government to formulated inspection indicators -Compliance incentives
Small Industrial Development Organization	-To support business for small scale enterprises -Provide technical advise	-Ministry of trade and Industries -Local Government -Individuals -Donor Agencies	-Promoting small industries -Issuing capital support	-Funding enterprises -Trainings support -Technical support
Small scale industry owners	-Maximise profit -Simple business regulations and policies -None intervention from the government	-Individual as customers -Funding institutions -Local government for service provision	-Running industries -Owns capital and investments -Voice for business conditions	-Self compliance for pollution prevention -Resistance for new changes -Facilitation of the new approach
Individuals	-getting construction material at less distant -Source of employment and income -having good living environment	-Industrial owners -Local Government -Politicians	- Initiation of sanctions -Can voice for good living image -Voters for the Councillors	-Voice for relocation of the industries -Voice for good image of the environment
CBOs/Community organizations	-friendly living environment	-Local government -Individuals -Industrial owners	-Mediation between the government and individuals	-may facilitate resistance of changes -Mediate for the new technology
Ward environmental committee (WEC)	-Good Environmental image in the settlement	-Local government -Individuals -Industry operators	-Advocacy environmental friendly -Initiate sanctions -Regular environmental inspections	-Basic information for industrial operations -Documentation of the small scale industries in the settlement
Donors/NGOS	-Environmental friendly	-Local government -Individuals	-Funding	-Funding Technical support
Media	-Good Environmental image in the settlement	Local government Public	-Information dissemination	-Advertising the new changes/technology -Awareness creation -Political challenges

Source: Developed by the Researcher, July 2006

The analysis above has revealed that, there are many institutions that have stake in monitoring small scale industries operations in informal settlements. However, in order to bring changes these institutions have potential roles in bringing the changes. Their power and influence may negatively or positively affect the intended changes of the industrial operations in these settlements.

4.3 Qualitative Data Analysis

This is an analysis mostly contained with data that cannot easily be quantified like statements from the respondents. This research used guideline questions as an open-ended interview of which encouraged more discussion with the respondents so as to get an in depth and insight of the issue. The analysis comprises the policies and legislations analysis, institutions performance, perception on the industry operations and individual behaviours especially industrial owners.

4.3.1 Policy Analysis

The monitoring of the SSI among other instrument is the Small and Medium Enterprises development Policy of 2002. Among other priorities indicated in the same is the facilitation of the awareness creation on environmental issues to the SSI operators. However, in actual practice the SSI operating in informal settlement have no special environmental programmes. This was revealed during the interview with the SSI operator as well as when reviewed the training programmes offered by the SIDO as the main Government Agency for the same. Neither had there clustering of the small scale industries as stated in the policy. The courses offered is included in **Appendix No 3**

4.3.2 Institutional Interactions and Integrations

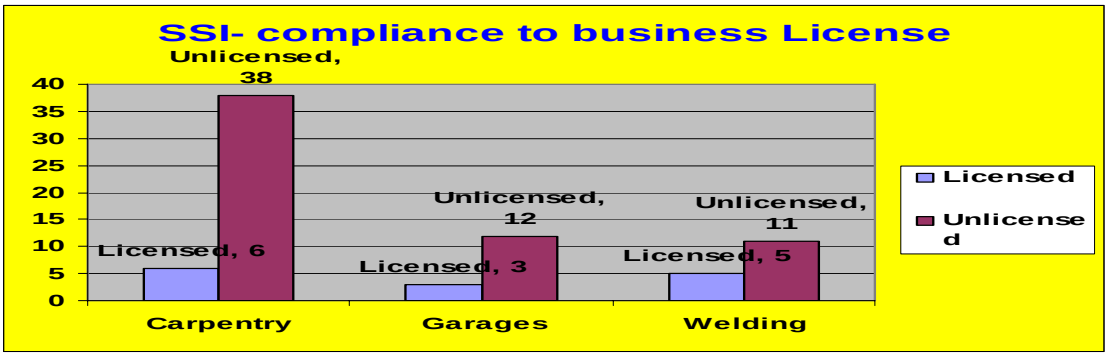
There are uncoordinated and un-integrated institutions in monitoring SSI operations in informal settlements. In the interview with the Environmental Compliance and Enforcement Officer and the Principal Environmental Management Officer at the National Environmental Management Council argued that environmental inspection indicators are supposed to be prepared by the Local Governments. However when interviewed the Local government officials responsible in monitoring and inspecting the SSI operation at Ilala Municipal Council argued they don't have inspection indicators as waiting to be due from NEMC. The same case was reported during interview with the Environmental Town Planners at the Vice Presidents Office. The Vice presidents Office argued to be concerned with the large scale industries. This implies that there are uncoordinated and un-integrated institutions responsible for SSI monitoring

4.3.3 Business Compliances to Policies and Legislations

What was found in reality is that there is less compliance to the policies and legislations. Taking an example of the 75 identified garage, carpentry and welding in total of which 60 SSI owners were interviewed. It was revealed that only 15 industries equivalent to 11.25% have complied to the business conditions by atleast having business license. This is attributed by inadequate monitoring mechanisms by the local government. There is no any inspection and monitoring documentations reports with them. The absence of this

report justified the statement mentioned above. The relationship between compliance and none compliance to the business license is as summarised in **Figure No 7**

Figure 7 The Compliance and Non-Compliance to the Business Conditions



Source Field Survey at Ukonga Mombasa Informal settlement, July 2006 by the Researcher

From the above figure it can be concluded that, there is inadequate monitoring and inspection mechanisms to the business condition by the government institutions. This has led to large number of SSI developers to operate without environmentally friendly and human health considerations.

4.3.4 Long Process and Bureaucracy in Issuing Business License

It was revealed from the interview with 60 SSI operators at Ukonga- Mombasa Informal settlement that 48 (equivalent to 83%) of the interviewees complained about the long process and bureaucracy in getting business license. Their argument corresponds to the license conditions and time spent for issuing the business license as pointed out by the Municipal Trade Officer as indicated in item no 3.6.5. The best solution to them is to operate without business license. Some of the respondents who have business license argued that have struggled to get the business license for accessing and meeting the financial loan conditions to SIDO otherwise they wouldn't seek for it.

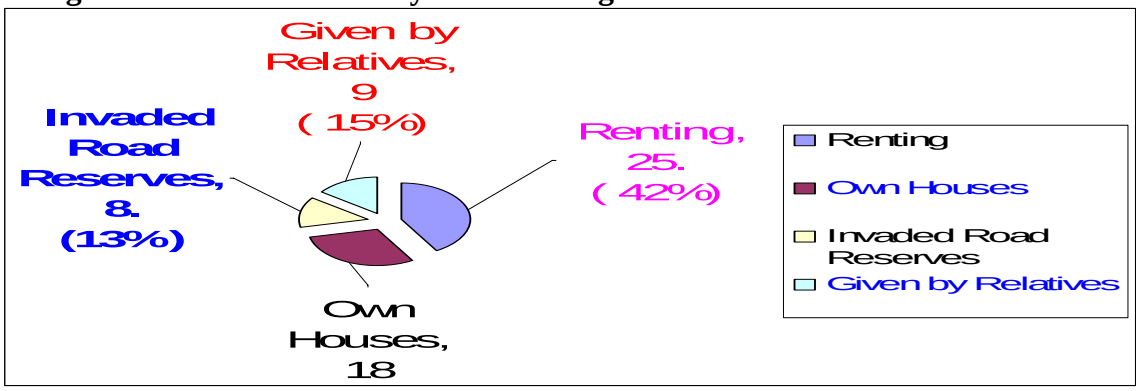
4.3.5 Non Involvement of Individuals in Locating the Industries

It is currently insisted all over the World that Participatory Planning seems to be the appropriate way of implementing projects and Plans. The residents particularly the house owners surrounding the SSI were interviewed to determine the role in planning and locating the industries in the settlement. Out of 86 House unit owners interviewed, none of them were even consulted when their neighbours were locating the industries despite the impacts they get from the operations. It was revealed that, the most important thing is the ownership whereby land use planning is solely remained to the landowner. The easiest available of land with less land development conditions as in planned areas motivates the industrial developers to locate them in these settlements.

There are about a total of 75 Small Scale Industry owners dealing with carpentry, garages and welding in the settlement. Out of them, 60 small scale industrial owners were interviewed. The interviewed owner 25 got accesses to land through renting the premises, 18 have their own premises, 8 have invaded along the road reserve/hazard land for residential development and 9 have been given temporarily by relatives or neighbours.

Thus the easiest availability of space in these settlements absorbs those who failed to get surveyed plots. The interview was limited to 60 respondents due time factor. Thus the remaining 15 were not ignored since they could have contributed to more findings. However, the openness of the respondents was very big and representative to depict the real situation in the settlement. As indicated in Table No 6 there is shortage of surveyed and serviced plots for different land uses that push people to seek other option for plots. The ratio of accessing land for industrial development is as indicated in **Figure No 8**

Figure 8 Different Ways of Accessing Land for Small Scale Industries



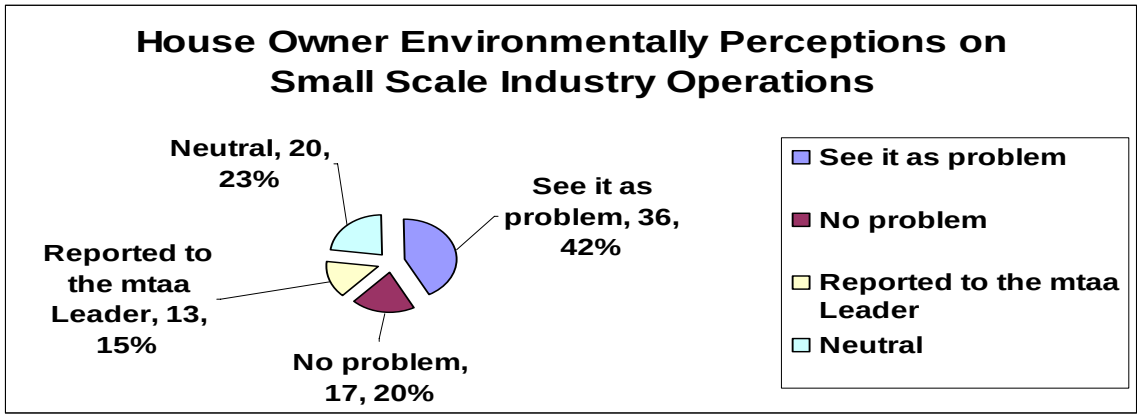
Source Field Survey at Ukonga- Mombasa Informal settlement, July 2006 by the Researcher

From the above figure, it can be concluded that the residents are very keen to rent their lots for industrial development despite the negative healthy and environmental impacts brought by the industrial operations. This makes people to be more accessible to plots they want for industrial development. The unavailability of surveyed plots led people to be absorbed in the informal settlements for locating and developing industries.

4.3.6 Environmental Perceptions by Individuals in the Settlement

It was realized that people are concerned with the environment in their settlement. However how to voice their dissatisfaction against the problem seems to be difficult. This was realized through the interviewed 86 house owners surrounding the small scale industries locations. The perception and reactions from them to the industrial locating and operations in the settlement is as shown in **Figure No 9**.

Figure 9 The Individual Perceptions on Industrial Operations in the settlement



Source Field Survey at Ukonga- Mombasa Informal settlement, July 2006 by the Researcher

From the above figure it can be concluded that more than 50% see that there is an environmental problem brought by the industrial operations in the settlement. Thus proper attentions need to be taken by the responsible institutions for monitoring and regulating the industry operations in the settlement prior to the resident's voice.

4.3.7 Shortage of Expertise in the Environmental Field

The Environmental Management Act No 20 of 2004 requires the Local Authorities to have Environmental experts at each level. However it has been revealed that the Local Councils including the Ilala Municipal Council haven't yet employed the expertise due to inadequate expertise in this field. The council uses health officers to monitor the environmental issues and small scale industry operations. In this case it has been difficult to approve the Environmental Impact Assessment at Municipal level as stipulated in the in this Act. Neither had the NEMC registered expertise for carrying out the EIA at different levels. There is no environmental Impact Assessments being carried out for the development of the small scale industries in the informal settlements. Neither had there been environmental auditing reports at the local and national levels. This implies that environmental auditing for the SSI operations is more or less non-existent in the country. Thus the negative environmental and healthy impacts are neither pre determined.

4.3.8 The Environmental Information Dissemination to Individuals

In reality there is poor environmental information dissemination to individuals living and carrying economic development in informal settlements. Out of 75 SSI industry identified in the Ukonga-Mombasa 60 were interviewed. Among the interviewed only five respondents said they have heard about cleaner production after they have attended seminars for recycling delivered by the Vocational Education and Training Agency (VETA). The process of accessing information as explained in item no 3.7.2 make difficult for the individuals to access the courses offered by SIDO. When interviewed the Business Management and training Officer (July, 2006) argued that there is difficulties in accessing individual developers in informal settlement. He continued arguing that the local government has not registered them. The issue of registration seems to be controversial to the relevant institutions responsible for small scale industry developments in the city. The local government officials at Ilala municipality argued that the Ministry of Industries and Trade do register them. During the interview with the Ministry's Registrar of companies, argued that, the Ministry registers companies and not small scale industries. Thus the concept of small scale registration seems to be unclear to them all. The process and cost of registration is as shown in **Appendix No 2** attached. This also implies that despite the poor information dissemination, there is unclear definition of functions among the responsible institutions. Neither had they integrated in performance among them.

4.3.9 Mutual Advantage as a Factor for Industrial Locating in the Settlement

It was revealed during the interview that, industries are located where other industries have been located for sharing the mutual advantages. This is clearly shown in the spatial distribution of industries in a **Map No 3**. For example as soon as the Carpenter finishes to make a frame of a window has to sent to the frame to the welder for fitting in iron bars

with welding as can be seen in picture attached in **Plate No 3**. However, the spatial distribution implies that each developer is trying to be as closer as possible to other industries.

Map 3 The Spatial Distributions of Small Scale Industries in Ukonga-Mombasa

Source: Extract from Ukonga Mombasa Satellite Image, Ministry of Lands, Survey and Mapping Division

4.3.10 Factors Attracting the Locating of the Industries in the Settlement

There were 6o industry owners interviewed on the factors that motivate them to locate industries in the settlement. Among other factors mentioned include the easy availability of space/premises, effective demand and market, less development conditions, less communication costs to the working premises, presence of other industries and rapid construction of housing that need that needs their services. The ration of the respondents is as shown in **Table No 11.**

Table 10 Factors Attracting the Locating of SSI in the Settlement

S/No	Attracting Factors	No. of Respondents	Percentages (%)
1	Easy availability of space/Premises	21	35
2	Low communication cost to working places	10	16
3	Easy storage of products	09	15
4	Effective demand and market of products	16	26
5	Less development conditions	3	05
6	Presence of other Industries	2	03
	Total	**60**	**100**

Source: Field Survey by the Researcher, July 2006

From the above table can be concluded that, the easiest available of premises is the main factor for locating industries in informal settlements. It is supplemented by the effective demand of the products due rapid increase in housing construction that led to the need of the small industry operations services. However, the less communicating cost to the premise is the third factor attracting the locating of industries as they are after earnings.

4.3.11 Individuals Responsiveness to Environmental Pollution

There were 86 house owners interviewed about the environmental pollution in the settlements. The first question was concerned if they have ever heard about it and the second meant to determine the cause of it in the settlement. Out of the 86 respondents, 63 said they have heard about it, 12 have heard the concept but don't understand and 11 have ever heard about the term environmental pollution. It can be concluded that about 87% of the respondents have heard about it. However, coming to its applicability is questionable since some of the pollutants come from their house units. The main causes mentioned in general include with the petty trading, toilet flooding especially during the rain season, small scale industries operation, road traffic especially big vehicle, slaughtering services especially in the process of drying animal blood as a source of raw material for animal feeds. The value for each cause is as shown in **Table No 10**

Table 11 The Causes of Environmental Pollution in the Settlement

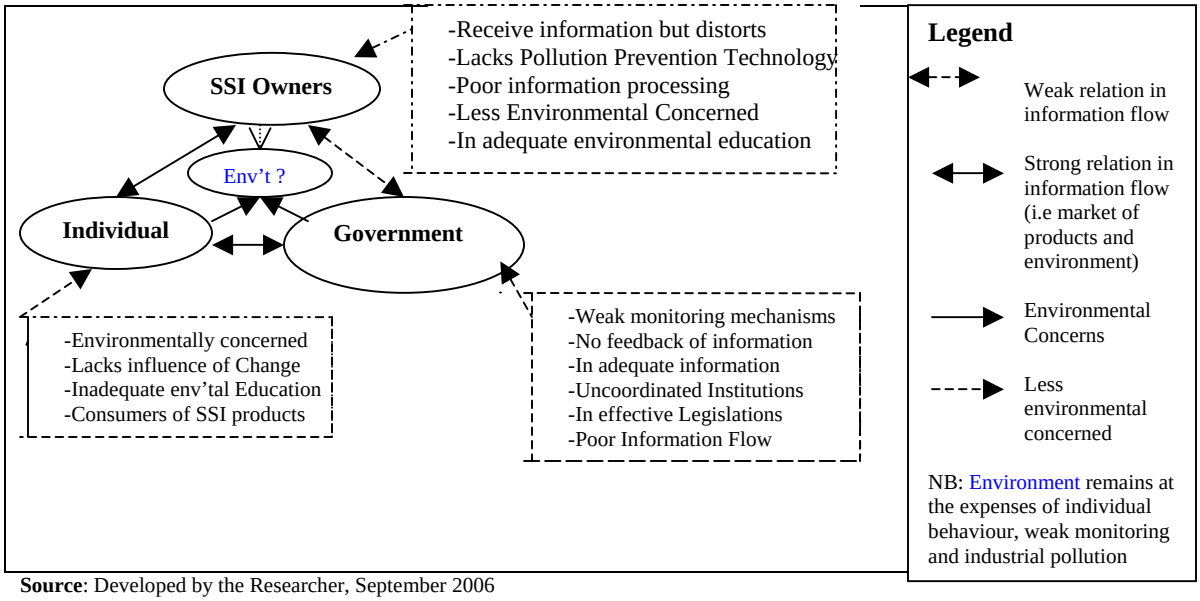
S/No	Cause of the Environmental Pollution	Number of Respondents
1	Drying of the Animal blood for animal Feeds/road traffic	3
2	Petty trading especially Genges	23
3	Small scale Industries in general	18
4	Carpentry	14
5	Garages	9
6	Welding	6
7	Domestic wastes including toilets flooding	7
8	Allot of causes (?) (They didn't mention any of the sources)	5
Total		**86**

Source: Field Survey by the Researcher, July 2006

From the table above, it can be concluded that, small scale industries operation is the leading in polluting the environment. It is about 47% of the total sources. This implies that a special attention and initiatives by the responsible institutions for monitoring the industrial operations is needed for addressing the prevailing environmental situation in the settlement. The above result is well linked with the people's perceptions on the industrial operation as shown in **Figure No 9**. Despite the six people not mentioning any source as they had a general answer that there are a lot of sources yet the openness of the respondent is very big to depict and represent the actual environmental problems brought by the small scale industry operations in the settlement.

The industrial operators were also interviewed on their awareness on the environmental pollution term. Out of 60 industry owners interviewed, only 22 respondents (equivalent to 30%), said have heard about the environmental pollution. The remaining 42 industry owners argued have not heard about it. On the other hand this might be the industry owners defence mechanism from the issue. This can also be supplemented by information processing whereby people tend to introduce distortion of the information or bias that blocks good judgement of the issue. In comparison to the House owners, it can be generally concluded that house owners are aware of environmental pollution than the industry owners. Besides, the operators were asked if they have taken any measures to avoid and prevent environmental pollution. Out of the 60 owners, only three respondents atleast said they used to set fire to the accumulated waste that also causes environmental pollution by smoke. This implies that the industrial operators lack environmental education for pollution prevention. They were also interviewed about the government officials' visits to their industries. The governmental officials have inspected 7 out of the 60 industry owners interviewed for business license once a year. This implies that there is no environmental auditing for the industries operations that links well with the absence of the inspection and monitoring reports as mentioned in item no 4.3.7 in this report. The problem analysis and conclusion is as summarised in **Figure No 10**

Figure 10 Summaries of Problem Analysis and Conclusion



Source: Developed by the Researcher, September 2006

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The recommendations given in this chapter are based on the findings as well as literature review. They have been categorized into short and long term depending on the nature of the issue to be addressed with respect to the government procedures in adopting the changes.

The findings indicate that there are general policies and legislations concerned in monitoring the industry operations. However, the guidelines, standards and monitoring mechanisms were generally looked from the industrial level without categorizing their status. In actual practice the Small scale industries have remained without development standards, monitoring mechanisms and inspection indicators as discussed in chapter four. This has led to operating without proper attention to environmentally concerns and friendly living environment in the settlement.

5.2 Short Term Recommendations

These are recommendations that need immediate action and the solutions can be met within a period of five years.

5.3 Policies and legislations

The Ministry of Industry and Trade should review its Small and medium Enterprises Policy of 2002 so as to include action plan of which will clearly show who is responsible for what. The present policy is missing this item. On the other hand, the Ministry of Environment should prepare by-laws to support the implementation of the Environment Management Act of 2004. The absence of the by-laws has made ineffective implementations of the Act by the relevant institutions responsible for environmental management and protection. Beside, there should be clearly defined responsibilities, roles and boundary of functions among the institutions responsible for small scale development and monitoring if Tanzania has to attain the sound living environment in informal settlements where this informal sector is mostly dominant.

In the new redefined functions and responsibilities, also has to include standards, development guidelines and inspection indicators for the small scale industry operations. Basing on that, the local governments have to be directed to formulate standards and inspection indicators with respect to different types of SSI operating in its area of jurisdiction.

5.4 Monitoring and Development Control

The MoIT should set a general Monitoring mechanism, standards and controlling guidelines for SSI at National level. However, the local government has to interpret and prepare its monitoring mechanisms at local level. At present each Ministry has a respective mandatory role to affect the National Plans and Policies concerned in environmental protection and pollution prevention. The issue of monitoring SSI

industries operations falls under three Ministries including the Ministry of Industry and Trade, the Ministry of Environmental and the Ministry of Regional Administration and Local Government. It should be clearly defined on who is solely responsible in preparing the annual environmental auditing and inspection report with respect to small scale industries operation and performance on environmental aspects. The three Ministries have to seat and agree on this issue. It should not be like the registration issue and concept as explained in item no 4.2.7 of which the industry developers have used the weaknesses of the un integrated institutions to operate illegally.

5.6 Trainings and Awareness Creations

The MoIT has a wide range of training programmes that are potential for awareness creation and small scale industry promotion. The programs are executed by SIDO as the national arm for the small scale industries development and promotion. However, based on the analysis and findings the courses offered do not involve many environmental aspects as can be seen in an **Appendix No 3** attached. They are mostly oriented in economic and business promotion. The Ministry has to seek for the possibilities of introducing Cleaner Production, Industrial Ecology and Zero Emission concepts to the industrial developers. In this case the National Cleaner Production centre (NCPC) is a potential resource to be used for the training and technical support for the new changes

On the aspect of environmental awareness creation, the MoIT in collaboration with the Ministry of Regional Administration and Local Government should mobilize financial resources for funding the trainings. The SIDO, VETA, NCPC, Ward Environmental Committee and the Mtaa leaders are potential resources to be used in environmental awareness creation. The SIDO and VETA can make this awareness through their training programmes. Besides, SIDO provides financial support to the industrial developers. The environmental concern could be among of the conditions for accessing this support. The Mtaa leaders and the Ward Environmental Committee have to be trained on how to sensitize the environmental awareness at community level. The NCPC can provide technical support required for environmental awareness to the industrial operators.

5.7 Interaction and Integration of the Institutions

The uncoordinated and un-integrated function of the institutions has led to institutional conflicts and confusion to the service consumers. This was revealed to the developers who have invaded the road reserve and being connected with electricity services and telephone lines. This has resulted in land use planning conflicts among the service providers. Currently the developers have been asked to vacate from the road reserves which has led to confusion as to why they were connected to the services by the government institutions if it was really known to them that was a road reserve. The service providers include the Tanzania Electricity Supply Company, the Dar es Salaam Water Supply Company and the Tanzania Telecommunication Company Limited. This problem needs an integration and interaction among the responsible institutions. At the local level where they are responsible in preparing land use plans should incorporate the stakeholders from these institutions. For example the current Urban Planning and Environmental committee do not have representatives from the above mentioned service

providers. They have to be involved as member committee so as to create awareness on where have been designated for what use when approving land use plans at local level.

5.8 Business Compliance to the Policies and Legislations

The current business license conditions and delivering system of the service has been one of the foremost factor that attracts none compliance to the business conditions. There are complicated conditions as explained in item no 3.6.7 in this report. The Ministry of Industry and Trade in collaboration with the Local government as implementers of the business conditions should revise the conditions accordingly. The assessment of the business application forms can be done at ward level. All the responsible experts should be available at ward level. Basing on the fact that there are inadequate experts in assessing the same, a schedule of time has to be made with respect to the number of wards and the citizens be informed respectively on this new procedures. This will also improve the identification, documentation and inspection of the operations of different types of business and premises in the settlements. The licenses can be collected at the ward level after the relevant authority has been satisfied with the premises and business conditions.

5.9 Improvement of the Environmental Expertise in the country

The MoIT in collaboration with the Ministry of Environment should establish special environmental training programmes. The local authorities may be given special priority and incentive by training its employees at reasonable cost in the established programmes. This program can be incorporated at the Civil Servants Institute at Magogoni Dar es Salaam for the Government employee where they can be trained. This will help to improve the number of expertise for environmental inspection and auditing at local level. The trainees have to be acquainted with the knowledge on the legislations, environmental standards, indicators and monitoring mechanisms of different economic activities that are taking place in their areas.

5.10 Long Term Strategies

These are strategies that need and take time to realize the effects of the changes. Taking an example of introducing technology in industrial operations have to consider many factors including awareness creation, training, accumulation of capital by the industrial operators for meeting the new defined standards and indicators for the new changes.

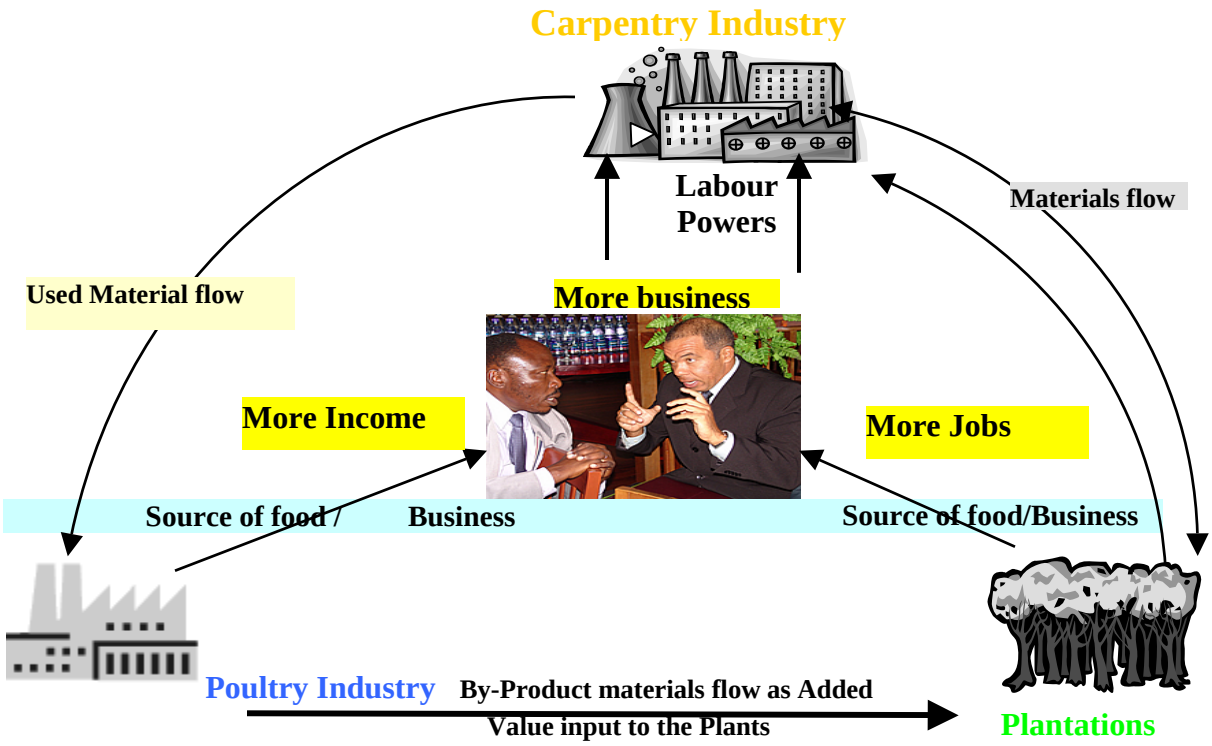
5.11 Introduction of Cleaner Production to the Small Scale Industries Operations

The MoIT in collaboration with the Local Government should first document all the SSI operating in the city. The documentations form the base for determining which type of technology can be applied to what kind of industries. Thereafter, the developers have to be sensitized on the economic advantage of this new approach while the government at the same time will be achieving the environmental aspects. Pilot projects have to be initiated by the government by covering large part of the transformation costs to the new form of operation. The government has to incur the training and mobilization costs.

However, the SSI operating in Ukonga informal settlement has great possibility of applying the Zero Emission concept for environmental friendliness in the settlement.

Taking an example of the carpentry operators may collaborate with poultry industries at the nearby settlement namely Kitunda settlement. The by-products from the carpentry may be used in poultry industry. The by products generated from the poultry industry can used as added value to farming of fruit crops of which in turn the plantations stem can be used as fresh raw materials in the carpentry industries. They can be sources of can supplying logs and timber for furniture. The operation and mutual advantage of the industries is as shown in **Figure No 11**

Figure 11 Application of Zero Emissions Concept to Small Scale Industries at Ukonga –Mombasa Settlement



From the proposed figure above, by-products from carpentry will be used to the poultry at the same time the carpentry makes and earns income from selling the wastes. The waste from the poultry will be sold to farmers. The farmers also will use directly wastes from the carpentry industry at the same time supplying logs as fresh raw materials to the carpentry operations. In this way nothing will be used as waste. The workshop owners will be doing businesses in two ways system. Despite the polluting prevention more jobs, more business, income and employment opportunities will be generated.

5.12 Decentralization of the Town Planning Functions at Ward Levels

The local Government should train people who can at least read and interpret land use maps. The trainees have to be stationed at ward level that will carry out the function of inspecting and executing land use plans at Wards level. The Qualified Town Planners should be coordinating these trainee personnel in daily land use development inspections.

This will easily identify SSI developers and enforce them to adhere to the business conditions for environmentally friendly.

5.13 General Conclusions

5.13.1 Technology

It is recommended that, the adoption of the new technology should take into consideration of many factors including the educational level of the operators, policy and legislation implications, capital investments, possibility of resistance of the new technology by the developers as well as the government institutions, financial implications to either side as well as availability equipments to fit in the new changes. Beside, there should be a consideration of the availability of different types of infrastructures to the industry, market for the products and cost recovery for the investments.

5.13.2 Monitoring and Control of the Industry Operations

It is recommended that, monitoring and control of the industries operations at Municipal level be done by the Department of Lands Development and Environmental protection. The Department should inspect, audit, document and compile an environmental auditing report for the industries operating within the area of jurisdictions. The environmental section should have trained experts/staffs in environmental auditing and inspection according to the defined standards and indicators.

5.13.3 Documentation of the Existing Industries

It is recommended that, the local Government should document all small scale industries operating in the informal settlements. In the process of documentation, a pre assessment has to be done for identifying those industries that need partly of full environmental Impact Assessment for environmentally pollution prevention. All industries that will be identifies as not complying for friendly living environment in these settlements, proper procedures have to be defined for relocation unless they change to comply with the environmental standards.

5.13.4 Preparation of the national Environmental and Development Standards

It is recommended that the MoIT and the Ministry of Environment should prepare a National general standards and inspection indicators for small scale industries. The local governments should base on those standards in formulating standards to suit their local environment with respect to types of industries operating in their area. The Central government also should review penalties charged by courts for environmental defaulters and non-compliances. Beside, special court be set up for hearing environmental cases to facilitate the hearing as the present courts takes long time for judgments.

5.13.5 Environmental Awareness Creations and training

It is recommended that the Ward Environmental Committee and the Mtaa leaders are potential resources for daily inspection and environmental protection at local level. The local government should take initiative to train them for environmental friendly in the

Municipality. The NCPC should be involved in this training as they can offer simple technology for industrial operation and environmental Pollution prevention.

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Appendix 1: Guideline Questions

Appendix 1 Guideline Questions

Name of the Institution……..

Position of the respondent…….

Address of the respondent…….

1 Guideline Questions- Municipal Town Planning Officer

1. Do you regularize the small scale industries in informal settlements? If yes, how?
2. How small scale industries are defined in these areas?
3. Are there any standards used to guide the SSI developers in informal settlements?
4. How do you monitor the process of locating small scale industries in the informal settlements?
5. How do you moderate the rapid increase of small-scale industries in these areas?
6. What mechanisms are used in monitoring the rapid increase of the small-scale industries in these areas
7. Does small-scale industries operation cause any environmental pollution in these areas?
8. How often do you inspect the small-scale industries in the informal settlements?
9. Are there any conditions for issuing development permit for SSI development in these areas?
10. How do you handle the un- compliance to the policies and regulations in developing small scale industries in these areas?
11. Are there any constraints and limitations in issuing business license to SSI developers in these areas?
12. Are there any limitations in monitoring small scale industries in these areas?
13. Do you have any opinion on small-scale development in informal settlements?

2 Guideline questions for Municipal Trade Officer

1. Do you issue business license to small scale industries in informal settlement?
2. What do you mean (define) by the small scale industries in these areas?
3. Are there any requirements before issuing the license to the applicants?
4. What mechanisms are used to monitor the compliance with the business license in informal settlements?
5. How do you identify the non-compliance/violators of business regulations in informal settlements?
6. What actions are taken to non-compliance/violators of the business regulations in these settlements?
7. Are there any limitations in monitoring business legislations in informal settlements?
8. Do you have any opinion for the improvement of the existing situation?

3. Guideline questions for Municipal Health Officer

1. What is your position in relation to environmental health in this Municipality?
2. Do you monitor small scale industry activities in informal settlements?
3. What standards are used in monitoring the compliance with environmental friendly by small scale industries in informal settlements?
4. What kind of indicators is used to measure the compliance with the environmental quality by the small scale industries in informal settlements?
5. How often do you inspect the small scale industry operations in the informal settlements?
6. Are there any limitations in monitoring small scale industries activities in informal settlements?
7. Do you have any opinion on the management and monitoring of small scale industries in these settlements?

4 Guideline Questions to the Vice Presidents' Office

1. What indicators do you use to measure the compliance of small scale industry development in informal settlements to the national environmental policy?

2. How does the development of small scale industries in informal settlement comply with the national environmental policy?
3. Are there any National Programmes for environmental friendly promotion to the small scale industry operators in informal settlements?

5 Guideline questions for ward executive officer

1. Are there small scale industries operating in this area?
2. How is environmental pollution brought by small scale industries being monitored
3. What are the main causes of environmental pollution in this area?
4. What kind of indicators do you use to measure the compliance of small scale industries operation to the environmental friendly?
5. What do you do to the non- compliance with the environmental regulations?
6. What enforceable tools are used in monitoring environmental pollution in this area?
7. What monitoring mechanism do you use in checking the compliance of scale industries operations with the laws and policies?
8. How often do you inspect small scale industries operation?
9. Are there any limitations in monitoring small scale industries operation in this area?
10. Do you have any opinion to improve the environmental pollution brought by small scale industries?

6 Guideline questions for Ward Environmental committee

1. Are there any small scale industries in these areas?
2. How do you classify the small scale industries in this area?
3. How and where the small scale industries waste is disposed?
3. What environmental pollutions are caused by the industries?
4. What mechanisms are used in monitoring the activities of small scale industries?
5. What enforcement tools are used to non-compliance with the environmental friendly?
6. Are there any limitations in monitoring small scale industry activities in these areas?
7. Do you have any opinion for improving the environmental condition in these areas?

7 Guideline questions for Small Industry development Organization (SIDO)

1. How do you define small-scale industries?
2. How do you support the growth of small-scale industries in informal settlements?
3. Does small scale industries contribute to environmental pollution in these settlements?
4. What kind of environmental training programmes do you offer to small-scale industry operators in informal settlements?
5. Have you ever heard of the Cleaner Production Technology?
6. How and where do the small scale industry operators apply this technology?
7. Are there any limitations in applying this technology?
8. How small scale industries are clustered in the informal settlements?
8. Do you have any opinion on improving the situation in informal settlements?

8 Guideline questions National Environmental management Council

1. How environmental audit is carried out for small scale industry operations in informal settlement?
3. Are there any environmental Impact assessments being carried out in informal settlements for small scale industry development?
3. How often do you inspect small scale industry operations in informal settlements?
4. What kind of indicators do you use to measure the compliance of small scale industries operation to the environmental friendly in these areas?
5. Do you have environmental standards for small scale industries in informal settlements?
6. What limitations do you face in monitoring the small scale industries compliance with the environmental standards?
7. How is clean production being promoted to small scale industry operations in informal settlements by your organization?
8. Are there any mechanisms/incentives used in promoting cleaner production to small scale industries in informal settlements?

7. Do you have any advice/opinion to improve the existing situation?

9 Guideline questions –Ministry of industry and Trade

1. Do you register small scale industries operating in informal settlements?
2. How do you define the small scale industries in these settlements?
3. Are there any requirements for the registration process?
4. Do you face any limitations in registering small scale industries in informal settlements?
5. How do you promote cleaner production technology to small scale industry operations in informal settlements?
6. What mechanisms/incentives are used to promote cleaner production in informal settlements?
7. Do you have any advice/opinion to improve the existing situation?

10 Guideline questions for Small Scale industrial Owners

1. What motivated you to locate your industry here?
2. How often do the government officials visit your industries for industrial operation advices?
3. When was the last visit to your industry?
4. What kind of advice do they normally offer?
5. Where did you get your business license?
6. What steps did you follow to get your business license?
7. Are there any constraints faced in getting your business license?
8. Have you ever heard the word Environmental Pollution?
9. How do you avoid environmental pollution from your industry?
10. Where do you dispose of the industrial waste?
11. When did you register your industry to the Registrar of Companies?
12. What are the registration procedures?
13. Did you incur any costs for registration? If yes, what are they?
14. Have you ever heard of Cleaner Production Technology?
15. How is it applied in your industry?
16. Do you have any opinion on license or registration procedures?

11 Guideline questions for Individual (House owner/Tenants)

1. Have you ever heard of the word Environmental Pollution?
2. What are the causes of environmental pollution in this area?
3. What initiatives have you taken to solve the environmental pollution?
4. To whom do you report the environmental pollution?
5. What actions do they take to solve the environmental pollution?
6. Does small scale industry cause any environmental pollution here?
6. Were you informed before locating the industry here by your neighbour?
8. Do you have any opinion on the environmental pollution?

Appendix 2: Courses Offered by SIDO to SSI Developers.

SIDO TRAINING SCHEDULE July-September 2006

REGION	Training Programme	Dates
ARUSHA	Rural Artisan Technology	July
	Food Processing	August
	Chalk making	Septembet
	Grass root Management	September
COAST	Food Processing (Mafia)	3-28July
	Marketing Management (Mkuranga)	7-11 August
	Improve your Business	21-25 August
	Food processing course (Rufiji)	4-29 September
DAR ES SALAAM	Finance Management	24-28 July
	Marketing	21-25 August
	Chalk Making	7-11 August
	Food Processing	18-29 September
DODOMA	Marketimg Management (Kondoa)	July
	Food Processing (Mpwapwa)	August
	Marketing (Kongwa)	September
	Quality improvement	August
	Designing blacksmith products	August
	Food Processing	11th-22 September
KIGOMA	Credit Management	13-14 July
	Entrepreneurship	17-18 August
	Marketing Management	21-25 August
	Food Processing	14-18 September
	Financal Management	4-14 July
		1st -11th August
		18-22 September
KILIMANJARO	Credit Management	July
	Chalk Making	July
	Food Processing	August & September
	Start /Improve Your Business	August
	Soap Making	August
LINDI	Grassroot Management (Ruangwa)	July
	Start and Improve Your Business(Kilwa)	August
	Food Processing (Ruangwa)	September
MARA	Entrepreneurship	3-14 July
	Timber Seasoning and Drying	24-28 July
	Business Management	2-4 August
	Marketing Management	14-18 August
	Financial Management	21-25 August
	Start Your Business	4-8 September
	Improve Your Business	13-15 September
	Export Marketing	25-29 September

Appendix 3: Process and Costs of Registering Business Companies

BRELA ups registration fees for businesses

2006-05-15 08:57:12
By Beatrice Philemon

The Business Registrations and Licensing Agency (BLERA) has introduced new registration fees to regulate and govern the registration of companies.

A statement issued by the registrar of businesses and made available to The Guardian last week indicates that, registration fee for a firm with a nominal share capital of not more than 20,200/- and not more than 500,000/- is 50,000/-.

It says that, for company having capital whose nominal share capital is more than 500,000/- but not more than 1m/- registration fee is 80,000/-, while for the registration of a company having capital whose nominal share capital is more than 1m/- but not more than 2m/- the charged fee is 120,000/-.

The statement says that for the registration of a company having capital whose nominal share is more than 3m/-, but not more than 5m/-, the owner has to pay 150,000/- as registration fee.

A company whose nominal share capital is more than 5m/-, but not more than 10m/- will have to part with 180, 000/- to register, while for that with nominal capital share of more than 10m/-, but not more than 30m/- will pay 200,000/-.

For companies whose nominal share capital is above 30m/- will pay 300,000/-, the statement further says.

Highlighting on registration of companies that do not have share capital, it says:For such a company, where the number of members as stated in the Articles of Association, does not exceed 25, it will pay 50,000/-, while its counterpart with members exceeding 25, but less than 50 will pay 60,000/-.

Any company with members above 50, but less than 100 will pay 70,000/- and at the same time that with between 100 to 150 members will be charged 80,000/-.

The statement details that a company with between 150 members and 200 will part with 90,000/- , while for any number of members beyond that, the company will be charged 120,000/-.

Clearly, it spells that for a company to reserve its name, it will have to pay 50,000/- and 15,000 if it wants to change it.

It says that for a receipt, or document, which under the Act is to be delivered to the Registrar, the respective firm will have to pay 15,000/-, while late filing or registration of document will cost it 1,500/-.

For the filling of annual returns, a company will pay 15,000/-, for document certification it will cough out 2,000/-, for reference making or search in any file or perusal the charge is 2000/-, and for obtaining a written search report the fee is 15,000/-.

Further, for the registration of certified copy of a charter, company statutes or memorandum and articles or other instruments, the charge is USD500.

Registration or filing any document required to be delivered to the Registrar under Part XII of the Act or other than the balance sheet, a company will have to pay150, while balance sheet filing, the same amount will be applicable respectively, according to the statement.

SOURCE: *GUARDIAN* available on: www.ippmedia.com/ipp/guardian/2006/05/15/66415.html

Appendix 4 List of Interviewed Respondents

1.Vice Presidents Office

1. Mr Damas Mapunda,	Environmental Town Planning Officer, Vice President's Office, Division of Environment

2. National Environmental management Council

1. Mr Frederick Lugiga,	Principal Environmental Officer
2. Mr/s Gloria Kombe	Senior Environmental Management Officer, Directorate of Environmental Compliance and Enforcement

3. Ministry of Industry and Trade

1. Mr Massawe ( )	Registrar of Business Companies

4. Small Industry Development Organization

1. Mr Jaribu Milao.	Researcher at the Directorate of Extension services
2. Mr Eliasa Mushi,	Business Development and Trainings Officer

5. Local Government	**Ilala Municipal Council**
1. M/s Dyness Mwasyoge	Municipal Town Planning Officer
2. M/s Martha Mayila	Municipal Trade Officer
3. Mr. Ibrahimu Mdingi	Acting Municipal Health Officer
4. M/s Anna Macha	Coordinator for Community Infrastructure Upgrading Program in the Informal Settlements
5. M/s Evelyne Baruti	Coordinator for issuing Residence License in the Informal Settlements

6. Ukonga Ward Environmental Committee

1. Mr. Agustin Bundala	Committee chairman, Mazizini Mtaa Leader
2. M/s. Restuta Msofe	Committee Secretary
3. Mr. Stephan N Mahimu	Committee members
4. M/s. Magrete Selutuye	”
5. Mr. Sululu A Sululu	“
6. M/s. Mariamu Hamisi	“
7. Mr. Haruna S. Mohamed	“
8. Mr. Yasini Salehe	“
9. Mr. Haruna Mahamed	“

7. Key Informants

1. Pr. Cleo Mijiro	National Cleaner Production Centre
2. Mr. Mohamed Rashid.	An old man lived in the study area more than 20yrs
3. Mr. Mohamedi Ally	“
3. Mr Njeje A Njenje	“
4. Mr. Surabaya	“

8. Individuals

1. 86 House owners surrounding the SSI locations
2. 60 Industrial owners and operators of SSI in the settlement