

ENVIRONMENTAL MANAGEMENT SYSTEMS
WITHIN LOCAL GOVERNMENT:
A CASE STUDY OF MSUNDUZI COUNCIL

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ABSTRACT

Environmental management has increasingly become a critical approach for dealing with environmental issues. Implicit in this, is the premise that for environmental management to be effective, a systematic approach is imperative. For this reason, environmental management systems have emerged as the strategy for organizations within which environmental management initiatives are co-ordinated. While environmental management systems (EMS) are a necessary and important tool to achieve quality environmental performance and protection, experience with them illustrates how their adoption and implementation are constrained by a number of factors. EMS cannot operate in isolation. Rather, they need to be incorporated into an organization's overall management strategy.

Using the Msunduzi Council as a case study, this study looks at the challenges and complexities that local governments, tasked with the protection of the environment at local level, encounter. The New England Road Landfill Site has been highlighted as a section of the Msunduzi Council where an Environmental Management System is entrenched.

Research methods used to obtain data comprised a workshop and key informant interviews. Issues that emerged from the workshop informed and directed the analysis of the data.

As research undertaken and conclusions drawn suggest, the adoption and implementation of an Environmental Management Framework or System ensures that environmental matters are tackled in a systematic and proactive manner within an organization. This in turn promotes quality environmental management and subsequently sustainable development.

PREFACE

This thesis is the work of the original work of the author and has not otherwise been submitted in any form to any other University. Where use has been made of others' work, it is duly acknowledged in the text.

.....
Signed.....
Date

Balungile Judith-Anne Khumalo

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ACRONYMS

BSI : British Standards Institution

EIA : Environmental Impact Assessments

EI & MP's: Environmental Implementation and Management Plans

EM : Environmental Management

EMF : Environmental Management Framework

EMS : Environmental Management System

EXCO : Executive Committee

IEM : Integrated Environmental Management

IDP : Integrated Development Plan

ISO : International Organization of Standards

LA21 : Local Agenda 21

NEMA : National Environmental Management Act

PMBMET: Pietermaritzburg Metropolitan Transport Plan

UNCED : United Nations Conference on Environment and Development

WECD : World Commission on Environment and Development

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CHAPTER 1
BASIS OF THE STUDY

As the realization that environmental problems have attained global significance dawns on both the politicians and the public alike, there is an increased awareness of the critical importance of understanding how human beings mis(use) the environment. Not only has the awareness become increasingly apparent, so too has the need for coordinated human response to these problems (Wilson *et al.*, 1997:3) This response has given rise to environmental management as a central concern in human-environment interaction.

Governments, as custodians of the environment, are entrusted with the care and management thereof. In South Africa, for over 40 years power and responsibilities have been centralised. However, since 1994 and with the new dispensation in place, these have devolved to the other two tiers of government, namely, provincial and local government. Of critical importance for the local governments is service delivery terms to facilitate economic growth, job creation, and the delivery of better housing, water and sanitation, health and infrastructure. Whilst ensuring quality service delivery in whatever form, local government is also charged with making sure that the environment is not adversely affected. This is the greatest challenge facing local authorities in the 21st century.

It is, therefore, within the context of promoting sustainable development at local level that local governments are critical players. To this end, environmental management has become a necessary and crucial tool. Furthermore, environmental management as an organizational tool, needs a systematic approach to ensure quality environmental performance. This is where an environmental management system comes into play. As Netherwood (1996:98) puts it, ".....organizations will be faced with the problem of finding a systematic way of implementing commitments (made in policies) to environmental management within their existing organizational structure". Of critical importance is its integration into the local government's overall management strategy.

1.2 Research Problem

In response to a call for sustainable development or environmental sustainability, local governments have to find ways to manage the environment effectively. This cannot be achieved as long as a situation exists where environmental activities within a local government as an organisation remain fragmented and compartmentalised within the departments. Furthermore, environmental matters have not been viewed as an integral part of the organization's overall management strategy. It is, therefore, imperative for local governments to:

1. deal with environmental issues by adopting a systematic and integrated approach; and
2. integrate an environmental management system into their development and management plans

1.3 Aim

The aim of this investigation is to assess the response of the Msunduzi Council to environmental challenges.

Objectives

The objectives of the study include:

1. a comprehensive literature review of environmental management systems;
2. an assessment of programmes of sustainable environmental management currently in use by the Msunduzi Council;
3. a review of the management system at the New England Landfill Site;
4. conducting workshops and interviews with authorities involved with environmental issues; and
5. recommendations to local governments in general and the Msunduzi Council in particular.

1.4 Structure of the thesis

The focus in the first chapter of this study was on a broad introduction relating to the problem under investigation viz., the absence of environmental management systems

in the overall development and management plans for local governments. This is followed by a comprehensive literature review of environmental management systems in chapter two. The third chapter of the study provides the reader with a detailed description of the study area. The methodology employed to undertake this investigation and the rationale for the choice for such methodology is discussed in chapter four. The results of the investigation and subsequent analysis and discussions feature in the fifth and sixth chapters respectively. The final section of this study encompasses an overall conclusion and recommendations

1.5 Limitations of the study

It must be noted from the outset the Msunduzi Council which is used as a case study for this investigation, is undergoing transformation. Documents were not easily accessible. Because of time constraints on the part of the Council officials and the fact that the environment is overextended, the questionnaire that had already been prepared, was not a feasible way. Therefore, alternatives were employed as set out in the methodology section. For these reasons some of the expectations of the study could not be met.

CHAPTER 2

**A CONCEPTUAL FRAMEWORK FOR AN ENVIRONMENTAL
MANAGEMENT SYSTEM**

The chapter deals with sustainable development as a preamble to examining issues around LA21; the concept of environmental management seen from the international and South African perspectives and proposes an EMS for local government. This chapter will attempt to highlight environmental management as an integral component of sustainable development within the global, national and local context. Further, it will propose an environmental management system within which any local government would best operate in order to achieve the objectives of Local Agenda 21 as the programme action at local level.

2.1 Preamble

Environmental management cannot be adequately tackled as an isolated entity. On the contrary, it is an integral part of the concept of sustainable development. This interface between development on the one hand, and the environment on the other, is at the heart of sustainable development, which was advocated by the World Commission on Environment and Development (Brundtland, 1987).

For centuries people have attempted to triumph over nature. This is manifested in the various forms of development and advancement that has characterized human history. In the words of the United Nations Secretary-General, Boutros Ghali at the opening of the United Nations Conference on Environment and Development, 3 June, 1992:

“All victories have been victories over nature, from the wild beast menacing the caveman to the distances separating communities. The wild beasts have been conquered, and so have the distances, and taking both these conquests into account, we can say that all of science has grown out of the conflict between man and nature, with man moving forward by gradually taming an infinite nature.” (Graham *et al.*, 1993:20).

Triumph over nature continues and invites incalculable and sometimes irreversible damage to nature itself and invariably to human kind. Herein lies the irony of development. Progress can no longer take place in *laissez faire* fashion. People have discovered that they can no

longer take nature for granted, that nature is not infinite. The time of the finite world has come, a world in which we are "under house arrest". What this means is simply that nature no longer exists in the classic sense of the term, it is a triumph fraught with danger. Finally, it means that there are no more oases to discover, no more frontiers, and that every new triumph will be, in fact, a triumph over ourselves.

The awakening of people with regard to their responsibility towards their environment makes a new pathway in which development should take place. As the Preamble to Agenda 21 (UNCED, 1992) states: Humankind stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the eco- systems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own, but together we can form a global partnership for sustainable development.

The concept of sustainable development requires further elucidation, for it is shrouded in complexity. The Brundtland Report (1987) defines sustainable development as development that meets the needs of the present without compromising the ability to meet their own needs. This immediately raises other questions and concerns around the concept of sustainable development. The key issue is "needs of the present", which implies that the focus must be on the now. Politics demand as poverty is the critical issue to be addressed in sustainable development. To work meaningfully on environmental problems means taking dealing with poverty at the same time. This is the challenge of most governments

Underlying the Agenda 21 programme is the assumption that sustainable development can only be achieved through the integration of environmental and development issues. First and foremost the programme action emphasises that the implementation of Agenda 21 is the responsibility of governments, be it at the international, regional, national or local levels.

2.2 LOCAL AGENDA 21

Cities are the engines of economic development. Over the last decade or so cities all over South Africa have experienced rapid urbanization. By 1996 about 54% of the South African population was urbanized (South African Institute of Race Relations, 1999/2000 Survey). The following table provides a breakdown of the urban population by province:

Table 2.1: Urban population distribution by province

Source : (S.A. Institute of Race Relations:1999/2000 Survey)

Province	Urban	Proportion of total (%)
Eastern Cape	2 304 378	36.6
Free State	1 806 651	68.6
Gauteng	7 130 277	97.0
KwaZulu-Natal	3 628 268	43.1
Mpumalanga	1 094 287	39.1
North West	1 171 734	34.9
Northern Cape	588 906	70.1
Northern Province	541 301	11.0
Western Cape	3 516 007	88.9
Total	21 781 807	53.7%

Urbanization has been paralleled by environmental degradation, which include, amongst others, air pollution, green house gas emission and waste. Increased urbanization, associated with complex rural migration patterns and natural growth in metropolitan areas, is increasing the stress placed on the urban environment.(Ramphela and McDowell, 1991: 91 ; Posnik and Vogel, 1992 in Lemon, 1995). Urban 'brown' environmental problems such as inadequate waste management, poor water quality, shortage of existing services are now assuming a higher place on local environmental agendas.

According to Nath *et al.* (1998:26), "... urban living and its associated activities can be destructive to the environment, ...built environments where residential, commercial and industrial areas and communications infrastructure either obliterate or radically change the existing landscape and ecosystem". An expansion in numbers can increase the pressure on resources and slow the rise in living standards in areas where poverty is widespread. In this way overexploitation of resources compromises a society's ability to meet the essential needs of

its present and future generations. This is the dilemma of poverty versus the environment, and by implication, development versus environment.

There is a growing realization that humans can, and do, harvest renewable resources faster than they can be regenerated ; they discharge wastes at rates above the assimilative capacity of the environment and procreate at rates that, if sustained, threaten the environmental support systems necessary to maintain life (Sexton *et al.*, 1999) . Moreover, the maintenance of urban environmental quality requires that problems caused by excessive use of energy and resources in production and consumption, along with the resultant air and water pollution and waste, need to be tackled. In short, urban environmental quality is adversely affected by economic development.

Therefore, in line with what Agenda 21 advocates, local authorities in their attempts to foster sustainable development in cities and towns, should minimize environmental degradation and foster environmental protection. Local Agenda 21 recognizes that local governments should be at the forefront in protecting and securing better and healthy environments for their communities. However, as Sexton *et al.* (1999) contend, environmental protection and progress does not depend exclusively on government action. They are advocating for greater integration among three prominent and consequential participants that are at the centre of many important environmental issues, namely, government, businesses and communities (ibid). At local level, therefore, local governments are called upon to facilitate this integration to ensure more sustainable development. Critical in this whole scenario is effective environmental management.

2.3 ENVIRONMENTAL MANAGEMENT

As already stated above, for most of human history our attitude to the environment has been purely exploitative. Nature was there to be conquered and the resource endowment to be used in the furtherance of human development (ibid.). Consequently, human activities had and continue to have detrimental environmental impacts.

For a better understanding of the concept of environmental management, the term should be broken down into its component part i.e “environment” and “management”. To the question: What is ‘environment’?, Fuggle, *et al.* (1992) define the environment as a relational concept,

denoting an interrelationship between man (sic) and his surroundings. He further includes a typology of environments: the natural environment (air, water, soil, plants and animals); spatial environments (mountains, wetlands, river, sea shore, forest etc) and social environment (other people, such as in the urban environment, including the built environment (residential, commercial and industrial areas and communications infrastructure)).

The White Paper on Environmental Management (Department of Environmental Affairs and Tourism, 1997:5) refers to the concept of environment as the “conditions and influences under which any individual or thing exists, lives or develops”. These conditions and influences include:

- ▶ the natural environment including renewable and non-renewable natural resources such as air, water, land and all forms of life;
- ▶ the social, political, cultural, economic, working and other factors that determine people's place in and influence on the environment; and
- ▶ natural and constructed spatial surroundings, including urban and rural landscapes and places of cultural significance, ecosystems and the qualities that contribute to their value.

The need for human beings to be conscious of the effects of their activities on the environment is crucial. To minimize negative impacts of human activities on the environment, these activities must be controlled. This notion gives rise to the concept of “management” to protect the environment. According to Fuggle *et al.* (1992:3), management is “the execution of planned controls so as to achieve a desired outcome”. And when management skills and techniques are applied to care for the earth, one is dealing with environmental management “Environmental Management is a tool for an organization to keep aware of the interactions that (its) activities have with the environment and to continuously improve the desired level of environmental performance” (Fredericks *et al.*, 1995).

The concept of environmental management as a tool for achieving sustainable development is a complex and elusive one. It raises the most pertinent question: who or what is managed?

The United Nations Conference on Environment and Development (1992) rightly stressed that human beings are at the centre of development. People's interactions with the environment is the primary cause of environmental problems. Issues such as tropical deforestation, ozone depletion, global warming, to mention a few, are a true and significant indicator of how human beings misuse the environment. Environmental management, therefore, must focus on the control of human actions in relation to the environment. It is all about managing human activities.

2.3.1 ENVIRONMENTAL MANAGEMENT WITHIN A GLOBAL CONTEXT

Environmental issues at global, national and local levels cannot be tackled in isolation. Rather, they form part of the global concept of sustainable development. As already mentioned earlier in the chapter, the Conference on Environment and Development placed great significant emphasis on the need for the integration between environmental and developmental issues. As the Report by the Commonwealth Secretary-General stresses:

"...it is in the common interest of all humanity to ensure that developmental and environmental goals are achieved in a harmonious way, and particularly that the solution of global environmental problems demands global co-operation. International negotiations on environmental problems are not a zero sum game, with winners and losers. All nations stand to gain from effective and equitable agreements to protect the world's climate, its forests, its rich biological diversity, its soils and its oceans" (From the Foreword by the Commonwealth Secretary-General, August 1991:iii in Graham *et al.*, 1993).

The adoption of Agenda 21 by the participating countries at the UNCED (1992) implicitly committed those countries to new developmental pathways that would not undermine the environment. Agenda 21 provided the "basic framework and instrumentality which would guide the world community on an ongoing basis in its decisions on the goals, targets, priorities, allocation of responsibilities and resources in respect of the many environmental and issues which will determine the future of our planet" (Graham *et al.*, 1993:125).

It is important to note that Agenda 21 built on the Action Plan for the Human Environment which was adopted in Stockholm in June 1972 covered three broad categories viz.

- ▶ The global environmental assessment programme
- ▶ Environmental management activities
- ▶ International supporting measures (*ibid.*)

Admittedly, UNCED essentially dealt with environmental and developmental matters to achieve sustainable development. But, for the purposes of this thesis, Section II of Agenda 21 is of particular interest and relevance. It forms the basis for environmental management, since it deals with environmental issues of major concern in maintaining the quality of the earth's environment and especially in achieving environmentally sound and sustainable development in all countries. In essence Agenda 21 provides guidelines for good practice in terms of the environment, social and economic development and underpins all environmental management practices.

2.3.2. NATIONAL CONTEXT: SOUTH AFRICA

As a participant at UNCED and a signatory to Agenda 21, South Africa committed itself to promoting and enhancing environmental quality. As a result, various laws, policies and regulations have been enacted by the South African government to ensure that the principles and agreements reached at UNCED become operational reality. Of relevance for the discussion on environmental management are the following policies and regulations:

- ▶ The Constitution of South Africa - Section 24
- ▶ White Paper on Environmental Management Policy (1997)
- ▶ National Environmental Management Act (1998)

2.3.2.1 SOUTH AFRICAN CONSTITUTION

In response to Agenda 21's call to countries for environmental protection, the South African Constitution guarantees its citizens environmental rights by creating the right to the environment as a fundamental right. Section 24 of the Constitution guarantees that:

- ▶ everyone has the right to an environment that is not harmful to his/her health or well being
- ▶ the environment is protected, for the benefit of present and future generations through reasonable legislative measures

2.3.2.2 WHITE PAPER ON ENVIRONMENTAL MANAGEMENT POLICY (1997)

The White Paper states that at Rio (UNCED, 1992) South Africa affirmed the reality and truth that developmental and environmental issues and goals are one; that sustainable development depends on good environmental management just as good environmental management depends on sustainable development. It further emphasises that integrated and sustainable management of the environment is the basis of sustainable development in all areas of human activity. The White Paper on Environmental Management Policy itself lays the foundation for environmental management systems that could be adopted by national and local government in their mandate to manage the environment; for it serves as an enabling framework for the realisation of a vision of a society in harmony with its environment. It sets out the vision, principles, strategic goals and objectives and regulatory approaches that government will use for environmental management (ibid.).

2.3.2.3 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA) (1998)

NEMA is the overriding national environmental legislation in terms of giving effect to :

- < Section 24 of the Constitution
- < The framework for co-operative governance of environmental issues
- < Environmental principles in the White Paper on Environmental Management Policy (Department of Environmental Affairs and Tourism, 9 May 2000)

NEMA further spells out the following environmental principles with regard to environmental management:

- < Integrated Environmental Management (IEM)
- < Environmental Impact Assessment (EIA)
- < Environmental Implementation and Management Plans (EI&MP's)

All the above-mentioned are environmental management tools that emphasise different aspects of environmental management." Integrated Environmental Management, for example, focuses on a holistic and goal-oriented approach to environmental management that addresses interconnections through a strategic approach. Stakeholder collaboration and public participation are central to making IEM operational (Margerum, Environmental Management Vol.24 no.2 p.152). IEM emphasises the need for local interests and needs to be the driving force behind environmental management.

In terms of Environmental Impact Assessment Regulations under sections 21, 22 and 26 of the Environment Conservation Act 73 of 1989 and Principle 17 of the Rio Declaration on Environment and Development, Environmental Impact Assessments as a national instrument, shall be undertaken for proposed activities that are likely to have a significant or adverse impact on the environment and are subject to a decision of a competent national authority (Graham, *et al.*, 1993:120). Also, Environmental Management Plans, required by NEMA, co-ordinate environmental policies, plans, programmes and decisions of the various departments at national, provincial and local, levels, with regard to the environment and the management thereof.

2.3.2.4. LOCAL GOVERNMENT AND LOCAL AGENDA

Environmental management at a local level should be understood within the context of Local Agenda 21 and its overarching goal, that is, sustainable development. Local authorities as the facilitators of Local Agenda 21 in their municipalities, are the vital organs of government that are directly responsible for the design, implementation and evaluation of environmental management systems.

Any Environmental Management System, therefore, will take cognisance of the guiding principles of NEMA, as entrenched in IEM and EIA, in decision-making on environmental matters. Within the framework of LA21, environmental management is a vital tool towards sustainable development, as it focuses on local assets and allows for locally-specific solutions within a global framework.

2.4 ENVIRONMENTAL MANAGEMENT SYSTEM

An Environmental Management System is defined by Frederick *et al.* (1995) as a management structure that allows an organization to assess and control the environmental impact of its activities, process or services. In short, it is a systematic approach to dealing with the environmental aspects of an organization.

The British Standards Institutions (BSI, 1994) in Nath *et al.* (1998) sees an environmental management system as "the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing policy" (Nath *et al.*, 1998 : 265). Although the two definitions have relevance for environmental management systems within

companies, they are equally applicable to other types of organizations, such as local governments which are at issue here.

The following environmental management system adapted from the Canadian Standard CSA in (1994) and Gilbert (1993) in Nath, *et al.* (1998) is proposed for a local authority in the management of its environment. Such an environmental system will comprise the following components:

- ▶ An environment policy in which in the organisation states its intentions and commitment to environmental performance.
- ▶ A set of plans and programmes to implement policy within and outside the organisational culture
- ▶ Implementation and operation which are the development of and putting into practice the processes that will achieve environmental goals and objectives.
- ▶ Monitoring and evaluation of environmental indicators to ensure the objectives are met.
- ▶ Auditing and Reviewing of the environmental management performance of the organisation against the policy, plans and programmes to ensure its continuing suitability, adequacy and effectiveness.
- ▶ Environmental reporting which involves the publication of information on the environmental performance of the organisation.

The interplay of the above-mentioned elements can be represented graphically as depicted in Fig. 2.1.

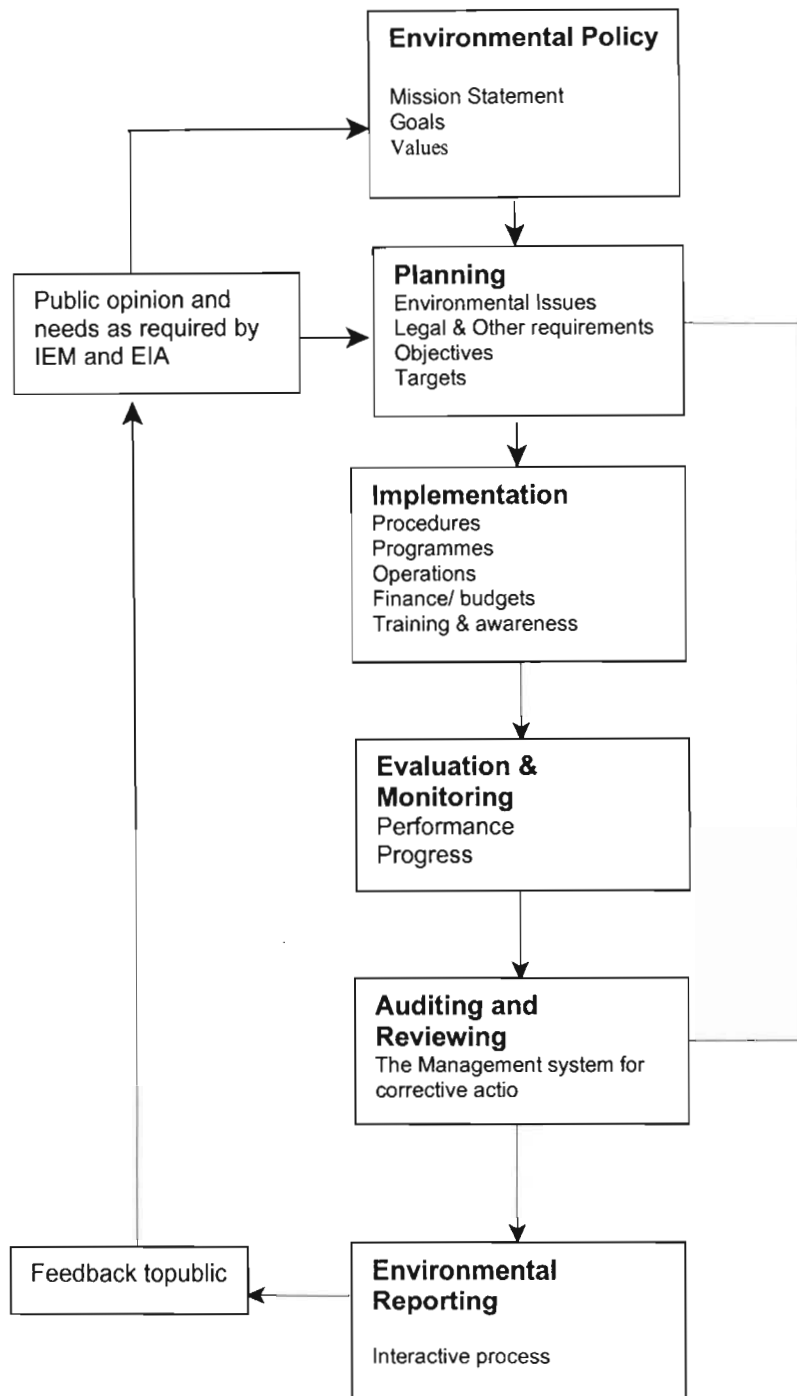


Figure 2.1: A Generic Model of an Environmental Management System
(Adapted from the Canadian Standard Association (CSA), 1994 and Gilbert, 1993.

The activities depicted in the above conceptual framework form an integral part of an effective environmental management system used by an organization such as a local government. Further, the activities should not be viewed in isolation, but as an integrated whole – if one part is missing, the whole system falls apart, with adverse consequences for environmental protection and quality.

CRITERIA FOR EVALUATING THE EFFECTIVENESS OF AN EMS

The effectiveness of any Environmental Management System can be assessed using the following criteria which can be broadly categorised into:

- ▶ components
- ▶ processes
- ▶ outcomes

These are presented in Table 2.2: **The Strategic Management Model**

Source: Wheeler and Hunger, 1995 in Nath *et al.* (1998)

COMPONENT	PROCESSES	OUTCOMES
1. Strategy Formulation	Environmental policy formulation Planning	Mission statement Goals Objectives Targets
2. Implementation	Programmes Budgets Training	Public participation Environmental awareness
3. Evaluation and Control	Monitoring Auditing Reviewing Environmental reporting	Audits Reviews Reports

Environmental Management Systems are recent instruments and experience with them is somewhat limited, especially in non-industrial organizations. "Even the recommendations of the United Nations Conference on Environment and Development (1992) to use such systems more widely is based on theoretical judgements and not on solid facts and figures relating to environmental effectiveness and efficiency" (Nath *et al.*, 1998: 268).

Any Environmental Management System must be integrated with the organization's other activities (Fredericks *et al.*, 1995). In the case of a local government, the environmental management system needs to be an integral element of the city's sustainable development. If it is seen as a separate programme, it will be difficult or impossible to implement and maintain. In essence, an effective action programme for the environment at local level requires an Environmental Management System to sustain it.

2.4 INTEGRATION OF EMS INTO LOCAL GOVERNMENT'S OVERALL MANAGEMENT STRATEGY

"All organizational activities, products and services interact with, and have some effect upon the environment" (Spedding, 1996:120). As organizations such as business and local governments become increasingly aware of the need to improve their environmental performance, the use of environmental management systems is becoming more widespread.

Luthans (1998) sees the concept of integration as concerned with co-ordination and promotion of synergy between the various players and units in the organization in the quest for improved organizational performance. Applied to environmental management, it means that, since organizations have other management systems already existing, environmental management should be incorporated into the organization's overall management strategy.

One common factor, according to Netherwood (1996), determining the success of an EMS, seems to be the degree of integration of environmental responsibilities into the organization's existing management structure. In this respect, environmental issues are incorporated into the organization's decision-making and thus resources will be allocated appropriately to environmental matters.

It is also suggested by Spedding (1993) that integration of EM into an organization's management structure will ensure that the 'environmental vision' of the organization will be integrated into the broader vision for the organization and shared widely by all employees, without a separate strategic plan for the environmental management function itself. This approach makes EMS an integral component of the organization's management strategy, not an afterthought. Many organizations still focus on environmental management as a functional

matter and have not taken the next step to fully integrate environmental concerns into the organization's management strategy.

It is, therefore, not adequate to advocate for the adoption and implementation of EMS by local governments. What is of paramount importance when local governments are undergoing transformation, is the incorporation of EMS into local government's management and developmental plans in order to achieve sustainable development.

2.5 CONCLUSION

Environmental management systems in any organization give impetus to effective performance in taking care of the environment and ensuring environmental quality. In the context of local governments they facilitate sustainable development, so that cities and towns grow and develop in a pathway that will ensure that future generations inherit them no less than they are at present. As such, environmental management systems should be integrated into the local government's development plans and strategies so that the ultimate goal of Agenda 21, that is, sustainable development is achieved.

CHAPTER 3

PIETERMARITZBURG IN CONTEXT

In terms of the Local Agenda 21, cities must endeavour to put in place Environmental Management Systems to ensure that sustainable development takes place. In other words a balance should be sought between developmental and environmental concerns. It is at this interface that local governments should play a critical role in marrying environmental and developmental issues to achieve the objectives of Agenda 21 namely, sustainable development.

This chapter provides a brief overview of the city of Pietermaritzburg, focussing on its location, demographics, governance and key developmental and environmental issues. These are essential factors that give the context in which the potential integration of the EMS into the local government's management plans can be understood. Furthermore, the development and environmental challenges that the Msunduzi encounter will be highlighted.

3.1 Locality

The city of Pietermaritzburg is located along the N3 at the junction of an industrial corridor from Durban to Pietermaritzburg and within an agro-industrial corridor stretching from Pietermaritzburg to Estcourt. It is only 80km by national road eastward to the city centre of Durban. At a regional scale, it is situated at the intersection of the N3 corridor and Greytown Road Corridor to the north; westwards, one moves towards the Midlands and the Drakensberg Mountains, both key tourist areas in the Province.

It is the second largest urban centre in KwaZulu-Natal, and a main economic hub within the Umgungundlovu District Municipality and shares capital city status with Ulundi. Its adjacent position to the farmlands has made it an ideal focal point for the agricultural industry, while its close proximity to the many scenic country routes which include the Midlands Meander, Boston Beat, Sakabula Circuit and Sani Saunter, make the city an ideal tourist base. Its several parks, game parks and reserves both in and around the city have earned the city its well-renowned name: City in the Country. It is a dynamic

agricultural, commercial, educational and industrial centre (Stanton, 2000). Despite this, the city faces key challenges. The provision of infrastructure for outlying areas of the city are but a few of these.

3.2. Population

The city of Pietermaritzburg, a formal settlement area within the Umgungundlovu District Municipality, accounts for 60% of the district's population (Rothaug and Urban-Econ, 2001). Sixty percent of the city's population live in Edendale and Vulindlela (Viljoen, 2001). The racial mix within the city has altered since the early 1990's, with more Blacks moving into formerly white residential areas. Table 3.1 provides a synopsis of key demographic conditions in the city.

Table 3.1 : Selected Population characteristics of the city of Pietermaritzburg

Source : (Viljoen, 2001)

Factor	Males	Females	<15	16 -65	65<	Total %
Gender composition	47	53	—	—	—	100
Age composition	—	—	32	64	4	100

Pietermaritzburg, where the economic activity of the Umgungundlovu District Council is focussed, has an unemployment rate of 39% (Viljoen, 2001). These figures serve to emphasize the need for the creation of employment opportunities. However, economic development should not supersede environmental protection. It is the of the Msunduzi Municipality to seek a balance between the two.

3.3 Governance

The governance of Pietermaritzburg and the whole of the Msunduzi Municipality should be understood within the context of the provincial and local spheres of government. KwaZulu-Natal in which Pietermaritzburg is located, is one of South Africa's nine provinces. The Premier heads the provincial government and appoints 10 Cabinet Ministers.

As a result of the demarcation process and the implementation of local government legislation, KwaZulu-Natal now comprises 10 District Municipalities, of which the Umgungundlovu District Municipality (DC22) is one (figure 3.1). The District Municipalities are primary local government structures. Each District Municipality is further made up of local municipalities.

3.3.1 Msunduzi Municipality

The Msunduzi Municipality (KZ225) (figure 3.2) is one of the seven local municipalities contained in the Umgungundlovu District Municipality (figure 3.1). In terms of the Local Government: Municipal Structures Act 117 of 1998, the Msunduzi Municipality is an Executive Committee System (National Business Initiative, December 2000). The Msunduzi Council comprises 73 Councillors of which 60% is elected by wards and the remaining 40% is proportional representation. The Council has adopted a committee system which underpins the democratic nature of the committees as well as accommodates public participation. The Committee structure is presented in figure 3.3. Key features of the Structure are:

- The position of the LA 21 Committee and the Environmental Forum in the structure;
both answer directly to the Executive Committee.
- A very powerful Exco comprising 10 members

The boundaries of the Msunduzi Council have been re-demarcated in terms of the Local Government: Municipal Demarcation Act No. 27 of 1998 with the following consequences for both the Msunduzi Municipality and Umgungundlovu District Council:

- The geographical area and population of the Msunduzi Municipality has increased as it now includes areas such as Ashburton , Sweetwaters and Vulindlela areas. This has implications for service delivery and administrative organisation (Brookes, March 2002 : Personal communication).
- One of the immediate challenges facing both the Msunduzi and the Umgungundlovu District Council is to integrate properly all aspects of the

municipalities, namely, the organisational structure, the placing of existing personnel, budgetary considerations and the review of by-laws (National Business Initiative, 2000).

- Another problem area is the relationship between the Umgungundlovu District Council and the Msunduzi Council in terms of power and functions, since the latter has greater service rendering capacity.
- Related to the above, capacity will need to be developed within the District Council to support the restructuring process within the various local councils (Rothaug *et al.*, 2001).
- The incorporation of Traditional Authority Areas has helped to eliminate conflicts between Traditional Authorities and the Umgungundllovu District Council (Brookes, March 2002: Personal Communication).
- According to Brookes (March, 2002: Personal Communication), the Demarcation Board has indicated that the Msunduzi Municipality has a potential to become a Metropolitan municipality. This has further implications for the powers and functions it could have.

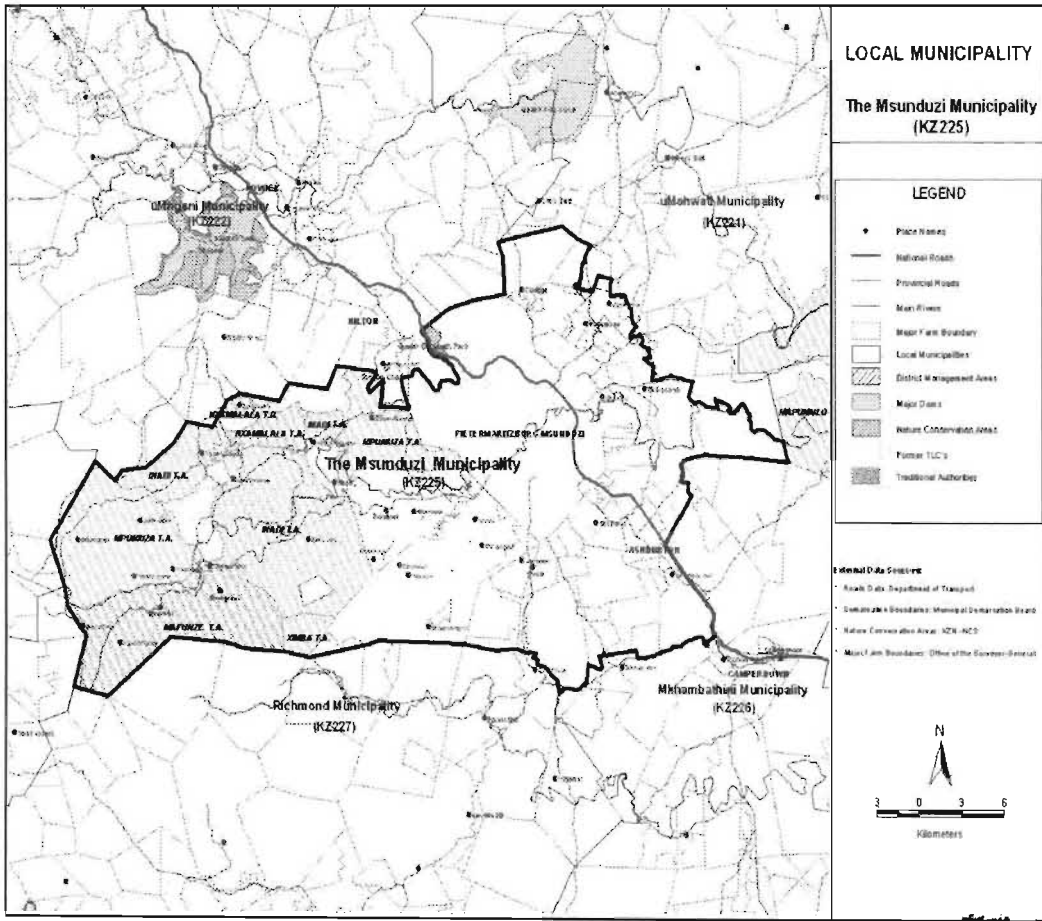
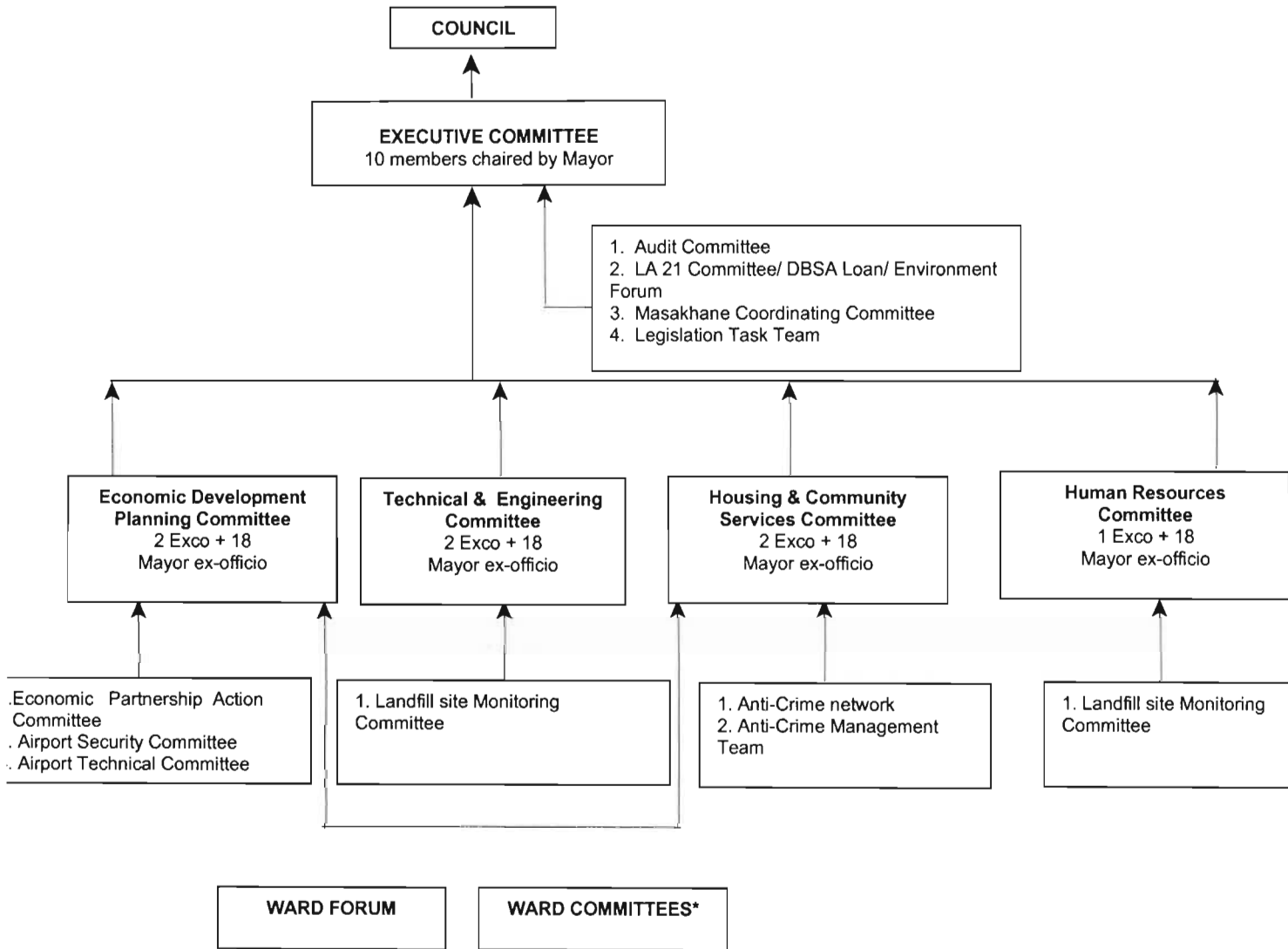


Figure 3.2: The Msunduzi Municipality



not yet in place

Figure 3.3 : Committee Structure for Msunduzi Council
Source: Workshop discussion on 14 June 2001

3.4 Socio-economic conditions

As far as the economic development of the city goes, the following sectors provide employment opportunities:

- Manufacturing

Manufacturing is the strongest sector of Pietermaritzburg and KwaZulu-Natal as a whole. Aluminium, footwear, leather, wood and furniture production, food and beverage and textile clothing contribute to the city 's gross manufacturing output. Pietermaritzburg is regarded as the epicentre of the growing timber industry in the surrounding Midlands area (Shabalala, 2001). However, the footwear industry is on the decline, due to competition from overseas countries such as Taiwan. Unfortunately, figures about the Rand value regarding the city's Gross Geographic Product (GGP) could not be obtained from the Council.

- Trade

This sector comprises wholesale and retail trade, with a relatively strong formal sector and a growing informal sector. The latter is made up of informal traders, operating as individuals struggling to survive. These occupy the streets, pavements and open spaces in the central area of the city, leading to problems of litter and waste (Appendix 1). A great amount of retail space is becoming vacant as a result of a steady decline in retail trade over the last few years (Shabalala, 2001)

- Government

Government provides employment to a relatively large section of the population, both at both provincial and local government levels, including hospitals, schools, the Police Force, the Correctional Services and the Municipality. "The salaries and wages index reveals that the Government Sector accounts for 45% of the total salaries and wages bill, indicating that, perhaps, our economy is overly dependent on employment in the public sector" (ibid.).

- Tourism

Pietermaritzburg is centrally located between the majestic Drakensberg Mountains and

the KwaZulu-Natal coastline, with the evergreen KwaZulu-Natal Midlands, abundant game reserves, hiking routes and trips to the battlefields of the Zulus and Anglo-Boer conflicts. Visitors can also explore the city's rich heritage and historic landmarks, such as the City Hall, the statues of Gandhi (outside the Old Colonial building) and the Voortrekker leaders in front of the Voortrekker Museum. The Natal Museum and the Art Gallery add to the city's cultural and historical heritage. Some of the city's church buildings represent historic church constructions, such as the St Mary's Catholic Church and the Hindu Temples (Stanton, 2000). All this make Pietermaritzburg an excellent tourist destination.

In spite of the above-mentioned sources of economic growth and employment opportunities, poverty is the most pressing developmental challenge the city faces. With more than 84 000 city residents (Natal Witness, 31 October 2001) being unemployed, job creation has become the highest priority for the Msunduzi Council. The greatest challenge is to seek and establish a balance between environmental and developmental issues in order to build a sustainable city.

3.5 Key Environmental Issues

3.5.1 Water Quality

Pietermaritzburg comprises a large diversified tract of land between 1200m and 1650m in altitude and is drained by a relatively dense network of streams, largely Umgeni and Msunduzi Rivers. Some of these run through densely settled areas and this raises a number of environmental concerns, namely:

- Flooding, particularly in the Edendale Valley and the Msunduzi flood plain, due to increased settlement and housing development up the valley slopes and on the flood plains of the tributary streams.
- Deterioration of water quality with adverse effect on the quality of the health both the people and the aquatic life. Those without potable water are at great risk of contacting gastro enteritis and diarrhoea.

The unsatisfactory state of river water in the Pietermaritzburg area is confirmed by the regular water sampling and stream monitoring done by Umgeni Water and the research

done by one of the Masters ' candidates at the Centre for Environment and Development (Adrian Pole, 2001).

3.5.2 Air Quality

The topography and climate of the area and the location of industry all contribute to air pollution which has become a contentious issue for both the Council and the community. Although Pietermaritzburg has few large industrial air pollution sources, compared with areas such as Gauteng, there are still many small sources such as industrial boilers, incinerators, motor vehicle and veld burning. These, combined with adverse air dispersion conditions, lead to relatively high ambient air pollution concentrations, especially during winter months.

An Air Pollution Monitoring Programme has been in place for about 26 years now. Control of atmospheric pollution in Pietermaritzburg is guided by the Atmospheric Pollution Prevention Act 45 of 1965 and by the considerations of the Pietermaritzburg Air Quality Forum (Slade, 1999). The Air Quality Forum brings together municipal officials, university researchers and representatives of the private sector. Although, largely funded by the private sector, it still needs financial and moral support from the Council in order to enforce pollution control and effective management of emissions, including the appropriate penalties on the polluter pays basis (*ibid.*).

3.5.3 Conservation

Pietermaritzburg has an abundance of game reserves, recreational parks and public open spaces. However a lack of formal integrated open space system as a significant feature linking conservation of parks, multi-functional spaces and heritage sources (section 3.4, Tourism).

3.5.4 Wetlands

Many of the original and existing wetland areas have been destroyed or reduced by industrial development and infrastructure encroaching on them. Even those that do remain are themselves under continuing threat as they are not formally recorded, mapped or zoned as protected wetland areas. For example, 32 wetlands have been identified in

the Cleland-Mkondeni Conservancy. This clearly shows the potential extent of the wetlands that should be protected and the priority status they should be given.

3.5.5 Waste Management

The following services are provided by the Msunduzi Municipality's Waste Management Department:

- Domestic refuse removal
- Commercial and industrial container service
- Street cleaning
- Landfill site Management

Since 1998 the Msunduzi Council has had to expand its service provision to include the Greater Edendale area. The management, removal and treatment of waste and sewerage has become one of the key environmental activities of the Council to ensure that a clean, healthy environment is provided to maintain acceptable hygienic standards for the entire population. Serious problems relating to waste management, however, have to be addressed by the Council viz.

- Illegal dumping and litter throughout the city
- Needs of the people living in informal settlements

The New England Road Landfill Site is the city's only permitted site for waste disposal, accepting both domestic waste and inert industrial waste. Currently, the site has to deal with a number of waste management related problems such as sawdust waste from the neighbouring industries, odour, scavengers and security problems.

3.6 Key Developmental Issues:

Like any other city and municipality, Pietermaritzburg is and should be a developmental institution that aims at service delivery as one of its priorities. Among its key developmental issues that the city has to tackle are the following:

- Infrastructure
- Land
- Housing
- Health Issues

Table 3.2: A synopsis of the Council's Key Developmental Issues.

Key Developmental Issue	Specific issues	Comments
Infrastructure	<ul style="list-style-type: none"> • Water • Sanitation • Stormwater • Electricity • Roads 	<ul style="list-style-type: none"> • Provision of basic water is regulated by the Water and Sanitation Policy and the Department of Water Affairs and Forestry • The incorporation of the Vulindlela area has meant the upgrading and expansion of the infrastructure.
Land	<ul style="list-style-type: none"> • Land release for development • Land claims • Land tenure 	Council does not support land invasions. The majority of claims are currently being investigated. A number of housing projects have been implemented to provide security of tenure.
Housing	<p>The geographic spread of current housing projects in the following areas:</p> <ul style="list-style-type: none"> • Central areas -176 units • Southern Areas -19 911 units • Northern Areas - 6 756 • eastern Areas -1 050 	<ul style="list-style-type: none"> • Housing is one of the priority issues for the Council. • Increase in population has resulted in an increase in the demand for houses, particularly amongst the low-income group. • The demand is more acute among the low income sector, hence the Council has embarked on a low cost housing project in the Greater Edendale and Northern areas.
Health	<ul style="list-style-type: none"> • HIV/AIDS • HIV-related diseases • Cholera 	HIV/AIDS is the city's enormous challenge affecting its economic growth. There are 50 000 to 100 000 orphans in the city (Natal Witness, October 29, 2001)

As a Local Authority, the Msunduzi Council is charged with the functions of development and implementation of Local Agenda 21, which is ensuring that the city develops in a sustainable manner and that development takes cognisance of environmental concerns. Local Agenda 21 recognises that many of the problems and solutions related to sustainable development have their roots in urban and settlements activities. It is these environmental and developmental concerns that pose a challenge to the Msunduzi Council.

The city of Pietermaritzburg, like any urban area in South Africa, experiences a number of social, economic and environmental problems, as the needs of the growing population place increasing pressure on limited resources. Some of the harsh socio-economic realities facing the Msunduzi Council are the high levels of poverty, large sections of population with poor or no services at all, high levels of unemployment, violence and crime. Inevitably, highest on the Council's agenda is the alleviation of poverty by creating job opportunities for its citizens.

3.7 Conclusion

The chapter has presented the study area to highlight those developmental and environmental issues that the Msunduzi Council, in its quest for sustainable development has to address. Linkages between issues of the environment, health, employment and economic development need to be sought in order to provide the people of Pietermaritzburg with a higher quality of life without damaging the environment.

CHAPTER 4

RESEARCH METHODOLOGY

Research, by its very nature, is a social process where the researcher interacts with the researched. This interaction will directly influence the kind of information gathered and, by implication, the type of techniques employed. Burgess (1984) asserts that doing research is not merely the use of uniform techniques, but depends on a complex interaction between the research problem, the researcher and those who are researched. This statement is particularly true in this thesis where the collection of data required the researcher to interact with a range of stakeholders in the quest for essentially qualitative data. This chapter will give an outline of the research methodology that was used. The research design, methods of data collection and data analysis will form an integral part of the chapter.

4.1 Literature Review

Relevant literature was reviewed by the researcher to gain insight in the past and present thinking surrounding the subject of study. Also, literature review provided a context within which the conceptual framework was developed, which informed subsequent stages of the investigation.

4.2 Research design

The research methodology was primarily qualitative. As Burgess (1984:3) states in his description of qualitative research:

"...Essentially their focus is the way in which different people experience, interpret and structure their lives. Accordingly, the methods of investigation that are used have been developed in relation to those theoretical perspectives or theoretical orientations that are concerned with the way in which the social world is structured by the participants... the focus is upon the way in which participants interpret their experience and construct reality. The ultimate aim is to study situations from the participants' point of view".

This kind of research, therefore, is underpinned by an interpretative epistemology and the interactionism perspective which emphasizes the subjective, experiential world of the respondents.

The research made use of the Msunduzi Council as the case study. The case study is a form of purposeful sampling, i.e. a case is selected because it serves the real purpose and objectives of the research: to discover, gain insight and understanding into a particularly chosen phenomenon (Burns, 2000). The participants of the investigation were drawn from the key officials in charge of the various departments that make up the components of the environment that the Msunduzi Council has to manage, and the Council members that are directly or indirectly involved with environmental and developmental issues.

4.3 Data Collection

Hammarseley (1993) states that methods should be selected according to purpose. To this end the methods used to gather data fell into the following two broad categories, namely:

1. Primary Data Collection
2. Secondary Data Collection

4.3.1 Primary data

This comprised a questionnaire, a workshop, interviews with key informants within the Msunduzi Council and a mini-case study of the New England Road Landfill Site as explained below.

The Questionnaire

This was a semi-structured interview guide (Appendix 2) based on the conceptual framework as outlined in chapter 2. The aim was to obtain reliable, comparable qualitative data with questions comprising closed and open-ended questions. The open-ended questions, in particular, would allow for a high degree of opinion and expression of attitudes towards the subject of study. Following the preliminary visit by the

researcher to the Msunduzi Council, it seemed the questionnaire was too long to provide the information that the investigation set out to obtain. The researcher took the questionnaire, which would take forty minutes to conduct, to the City Planner. Finding resistance because Councillors would not give that much of their time, the researcher, therefore, decided to run a workshop for the Council members and officials.

The Workshop

1. Rationale for using a workshop as a methodology

The researcher made a preliminary visit to the Msunduzi Municipal Council to make a follow-up on the telephonic request for permission to conduct interviews within the Council. The discussion she (the researcher) had with a key role-player within the Council highlighted the need for a workshop with key members, who are involved with environmental matters. It was suggested that, although some elements of the Environmental Management System as proposed by the conceptual framework were carried out, they were either known by other names or the Council members themselves were not aware that they were actually doing them. In other words, a structure that would guide the process of environmental protection was lacking.

In view of the fact that the Msunduzi Council as a Local Authority, is at the moment likely to be integrating developmental concerns in its management plans, environmental issues should be part and parcel of the process, to ensure that sustainable development is achieved by the city of Pietermaritzburg.

On the basis of the above, it became imperative that the researcher invite those council members to a working-session to re-think the concept of EMS within the context of the Council's environmental activities. The aim of the workshop, therefore, was to:

- Gain insight into the present status of the integration of environmental concerns into the Council's management plans.
- Provoke discussion on how environmental concerns could be meaningfully integrated into the management plans of the future.

- Use the workshop as a basis for further assessment of an Environmental Management System in the Msunduzi Council.

2. The Workshop as a Methodology

In order to understand the workshop methodology, it is important to note the elements that make it a workshop and not a lecture. According to Brooks-Harris *et al.* (1999), it is important for the presenter to act as a facilitator of experiential learning rather than merely as a teacher or instructor. A workshop involves participant interaction which promotes learning between and among the participants, as well as participatory experience.

In line with the above, the workshop provided an opportunity for the researcher to gain insight into the way the Council perceives EMS and its implication for environmental protection. She also acted as a facilitator in the experiential learning that was promoted by the workshop. This is crucial for the researcher in that the Council's perception of the concept of EMS provides a baseline on which to build her investigation.

3. Workshop Design

Participants:

Those who participated in the workshop were chosen and invited on the basis of their involvement in environmental protection and management within the Council and the contribution they would make to the overall environmental performance by the Msunduzi Council (Appendix 3). As mentioned earlier, the researcher took the role of a facilitator. Also participating were the Supervisor of the researcher and the Masters in Environment and Development (Environmental Management) Programme Director.

The content of the workshop:

This was divided into two sections :

1. Presentations on EMS by the researcher and a Councillor.

2. Discussion on EMS, with each of the participants giving his/her views on how environmental management is actually being handled in his/her respective departments. The following questions served as points of departure for the discussion.
- *Which key departments within the Council are in a position to take environmental management forward?*
 - *What key environmental issues need to be addressed by the departments in the Council?*
 - *What are the functions of these departments?*
 - *What programmes have been implemented in each department to achieve quality environmental performance?*
 - *How has the Council raised public awareness of environmental matters?*
 - *Is environmental management/ environmental performance being assessed on a continual basis?*

4. Outcome of the workshop

On the basis of the issues highlighted above, the researcher conducted her investigation in the form of interviews with other key role-players within the Msunduzi Council to establish how EMS can be used effectively to manage the impacts that the activities of the city have on the environment. The workshop information was used to design questions for the interviews as a follow-up to the workshop.

Interviews

The interview questions were based on the issues that emerged from the workshop (Appendix 4). It is important to note at this stage that one cannot manage the environment; one can only manage the actions of human beings who interact with the environment. As already stated in the preceding chapters, the study purports to establish how the Msunduzi Council's EMS, or elements thereof, directs human activities so as to promote environmental sustainability. The semi-structured and open-ended interview questions would provide the appropriate setting to encourage a free flow of reflection

and reflective meaning-making to take place (Locke *et al.*, 1993).

Importantly, the interviews would give the researcher an opportunity to probe for relevant information. Bernard (2000) describes probing as the key to successful interviewing; stimulating a respondent to produce more information without injecting oneself so much into the interaction that one merely gets a reflection of oneself in the data. Probing was used by the researcher to find out how the Council members and officials perceive and feel about the environment; environmental management; the implementation of an Environmental Management Framework; and the integration thereof into the Council's overall management strategy. More importantly, probing would enable the researcher to understand the challenges and complexities experienced in their environmental management initiatives.

Mini-case study of the New England Landfill Site

To obtain a microcosmic view of the components of an EMS at play, a study was made of the Local Landfill Site as chapter 4 will show. The aim of this exercise was to shed light on one of the issues that came out of the workshop, namely that EMS is not a new concept for the Council; it simply lacks structure and process. The New England Landfill Site illustrates that elements of the EMS are being practised, although not under the official banner of EMS. Interviews were conducted with the Manager of the Landfill Site, who also took the researcher on a guided tour of the Site.

4.3.2. Secondary Data

A variety of documents were used by the researcher as source for secondary data. These included the Council's Integrated Development Plan and Local Development Plan, minutes of meetings and the Landfill Site's Permit. Literature review formed the greatest part of secondary data, for it provided the theoretical foundation of the study.

4.4 Data Analysis

It was difficult to categorize the participants' responses into themes based on the criteria or components of an Environmental Management System as set out in the conceptual

framework (Fig.2.1). Based on the interview questions, the data collected was categorized and analysed according to the following themes:

- The concept of environment - local Government officials' views on the subject
- Environmental Management Framework - derived from the EMS and drawing upon what is happening with regard to EM within local government
- The integration of the Environmental Management Framework into the Msunduzi Council's management strategy - challenges experienced
- Environmental Legislation - awareness and enforcement thereof
- Public participation - to what extent local government engages the public in environmental management

The information gathered served to highlight the perceptions that the Council members and officials have about environmental management and EMS and the challenges that they face in ensuring environmental protection and sustainability. However, for the Landfill Site the criteria proposed in the conceptual framework were applicable as they are encapsulated in Table 2.2, chapter 2.

4.5 Benefits and Limitations of the Qualitative Research Methodology

Hammersley (1993) explains that the traditional focus on single case studies in qualitative research is obviously inconsistent with the requirements of statistical sampling procedures, which are usually seen as fundamental to generalizing the data gathered in a study to some larger population. This fact is often cited as a major weakness of the case study approach.

Bias is another concern around using a case study method and the qualitative methodology in general. According to Burns (2000), it is easy for the case study investigator to allow equivocal evidence or personal views to influence the direction of the findings and the conclusion.

On the other hand, qualitative research can make a significant contribution through its capacity to reflect the details of the situations in which policy-makers seek to intervene

and to reflect that from inside the situation (Finch, 1986). Through qualitative research, the researcher was able to uncover the feelings and perceptions of those who are dealing with environmental management on a daily basis, their concerns were also able to come to the fore. In other words, the subject of study, namely EMS and the Msunduzi Council is seen from the respondents' viewpoint, and not from the researcher's perspective.

Qualitative research is suited to the case study level, where it can assist change at the grassroots level, where policies are put into practice. In this respect, it is closely aligned to action research in the sense that it offers the opportunity for researchers to be directly involved in changing policy and practice at the local level.

4.6 Conclusion

The chapter has highlighted the different techniques used for data collection and the rationale behind using each method. It has also brought forth the necessary deviation from the conceptual framework, particularly with the introduction of a workshop as a research methodology, instead of simply basing the study on an extended questionnaire. What emerged from the workshop formed the building blocks which link theory and practice in this study.

CHAPTER 5

PRESENTATION OF FINDINGS

The Conceptual Model of an EMS, set out in chapter 2, section 2.3, served as the starting point in the sense that it represents the ideal situation i.e. what organisations should be doing to achieve quality environmental performance. Sometimes organisations incorporate some elements of an Environmental Management System without even being aware they are doing it. This is what the researcher discovered on her preliminary visit to the field. Hence, some deviation from the model has been inevitable and necessary. This chapter, therefore takes the premise that an EMS is inextricably linked to its organizational and situational operations. To this end the following Environmental Management Framework will attempt to explain and present the EM operations of the Msunduzi Council.

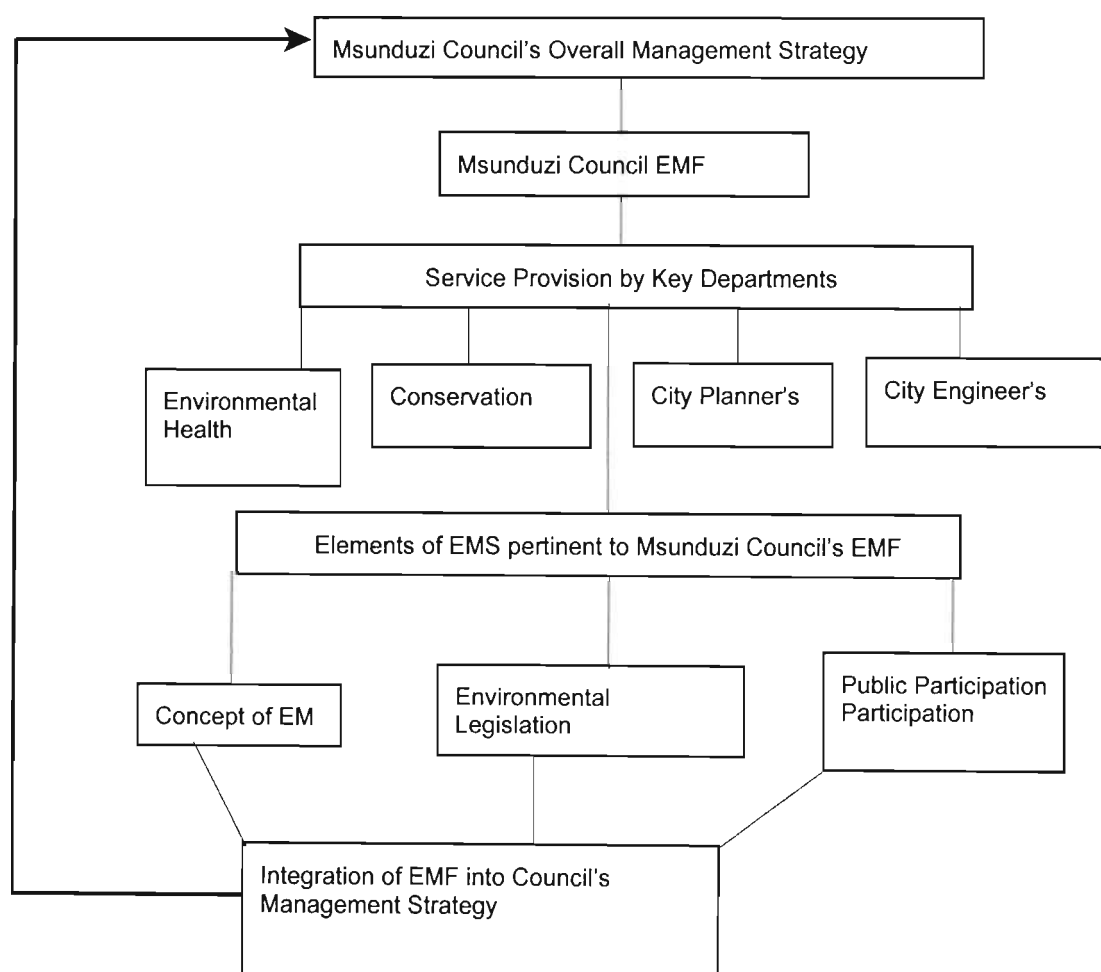


Fig.5.1: A Model illustrating the EMF of the Msunduzi Council as emerging from the workshop (chapter 4, section 4.3 - The Workshop)

The findings of the investigation will, therefore, be presented under the following themes as presented in figure 5.1, namely:

- The concept of Environmental Management
- Environmental Management Framework
- Environmental Legislation
- Public Participation
- Case study of the New England Road Landfill Site to bring all the above components together.

5.1 The Concept of Environmental Management

It is important to note that before the concept of environmental management could be explored, it was necessary to establish what the concept of “environment” represented to the respondents in their respective roles within the Council.

The study revealed that most officials in key departments (to be discussed later) felt strongly that the concept of environment must be inclusive. For far too long the environment has been viewed as being the ‘green’ environment. Too much attention has been given to the biophysical, ignoring the built and ‘brown’ environments, which encompass the social, economic and institutional aspects. Particularly, because the Council is dealing with the interface between the environment and development of the city, it has to incorporate both. Below is a synopsis of the views and perceptions of key players within the Msunduzi Council regarding the concept of environment and its facets.

Table 5.1: Views and Perceptions of Workshop Participants on Key Issues

Issue	Comment
<p>Environment</p> <p>It needs to be inclusive of the social, economic and institutional aspects.</p> <p>The built environment is also encompassed by the concept of environment.</p>	<p>Brown issues have now been recognized and included in the Council's operations For example, pollution problems. The City Planner's and City Engineer's Departments deal specifically with elements of the built environment.</p>
<p>EMS</p> <p>The concept is not new for the Council. Some components are being carried out, although under a different name.</p>	<p>However, environmental Management within the Council is not co-ordinated.</p>
<p>Environmental Policy</p> <p>There is no Environmental Policy for the City of Pietermaritzburg. Council officials respond to environmental concerns on the basis of individual and personal interest and feeling.</p>	<p>Respondents expressed an urgent need for an Environmental Policy to guide and direct the environmental process.</p>
<p>Response to Environmental Problems</p> <p>responses have always been reactive. EMS could promote proactive interaction with the environment</p>	<p>Council management of the environment appears to have many elements of reactive as opposed to proactive planning with its present make-up.</p>
<p>EMS Process</p> <p>the process of EMS is not linear as depicted in the conceptual framework. Rather, there is circular arrangement of elements, since reality is complex and there is interference from politics and other social dynamics</p>	<p>Respondents highlighted the fact of having experience of environmental problems and are reaching for a framework in which to address issues proactively.</p>
<p>Public Participation</p> <p>it is a crucial element in EMS, but presents logistical problems.</p>	<p>The LA 21 Committee and the Environmental Forum are possibilities to enhance public involvement in environmental management.</p>
<p>Environmental legislation</p> <p>Awareness by both the Council officials and the public is imperative.</p>	<p>Training of Council members and officials is underway. The role of the Development Bank and the W.B.B. Consortium in raising environmental awareness within the Council is acknowledged.</p>
<p>LA 21 Committee</p> <p>The LA 21 Committee, considered to be the ideal body to take EMS forward in the Council, has a frustrating existence as it is still grappling with the concept of local Agenda 21.</p>	<p>The LA 21 Committee is a potential key organ of environmental action, but it needs to be strengthened and show the way in proactive planning.</p>

The following questions, relating to environmental management were explored with the respondents:

- Which key departments within the Council are in position to take Environmental Management forward?
- What key environmental issues are being dealt with by the Council?
- How important is Environmental Management to the Council?

The following table depicts the responsibilities of the key departments in their goal to achieve environmental protection.

Table 5.2: Responsibilities of the Key Departments within the Msunduzi Council

Department	Responsibilities/Units	Outcomes
City Engineer's department	Waste Management in all its facets Sanitation, Water and Sewerage Crisis management e.g. spillages Catchment management and development controls	<ul style="list-style-type: none"> • Notable success in the management of the Landfill. • Litter and illegal dumping still an ongoing problem • Cleanup of the city's streams and watercourses a matter of priority
City Planner's Department	Disaster Management e.g. floods, fires, urban planning and development, building plan approval and monitoring of construction	Environmental impacts considered in the planning and developmental processes although the period between approval and the actual commencement of the development is unnecessarily long.
Environmental Health	Air Pollution Control Health and Safety	The Air Quality Forum needs financial and moral support from the Council to effectively carry out its functions.
Conservation: Parks and Recreation	Management and development of municipal parks, open spaces, conservation areas, vacant land and road ridges Sports and Recreation (swimming pools)	<ul style="list-style-type: none"> • There is at the moment no Metropolitan Open Space System(MOSS) and there is a need for one. The importance of conservancies has not been sufficiently recognised. • Much more could be done to enhance heritage and Tourism in the city.

The general impression was that, although the Council officials and members are aware of Local Agenda 21), and were striving for sustainable development, the situation left much to be desired. The dilemma facing the city of Pietermaritzburg is, as one official pointed out, that socio-economic considerations, such as poverty alleviation, needed the immediate and urgent attention of the council. However, a balance needs to be sought where job creation does not supercede environmental considerations and vice versa. The officials agreed on the fact that some departments were more vigorously taking care of the environment than others, due largely to the nature of their functions and responsibilities e.g. the Environmental Health Division.

In view of the fact that environmental practices within the Council are taking place on an *ad hoc basis*, environmental management does not take a significant and prominent role on the Council's agenda. The study suggests that co-ordination of the Council's environmental activities seems to be a major problem. It becomes apparent, therefore, that the two following components of Environmental Management need to become entrenched in the Council's way of thinking:

- Environmental awareness must pervade the whole hierarchy of the Council
- An Environmental Management Framework should be put in place and becomes operational.

5.2 An Environmental Management Framework

Environmental activities within the Council are not co-ordinated and therefore lack a structure according to which all environmental processes will be systemized. There is agreement amongst the respondents that there is a strong and definite need for a system within which environmental issues are dealt with. This would be provided by the Environmental Management Framework.

Respondents were mostly concerned with the absence of an Environmental Management Framework resulted in a weak implementation and enforcement of environmental legislation (section 5.4). Those officials whose line functions involved environmental protection had no

legal recourse for transgressors of environmental laws. This does not bode well for the Council's overall environmental performance and, consequently, for sustainable development of the city. In short, an environmental management framework is critical for the following purposes, amongst others:

- Co-ordination of the Council's environmental activities
- Compliance with environmental legislation

Based on the above perceptions of respondents on an Environmental Management Framework, it would essentially have the following elements and processes:

- An Environmental Policy that sets the intentions of the Council with regard to the environment
- Environmental planning incorporating the Council's objectives and targets.
- Implementation of the processes
- Monitoring and controlling of the above
- Auditing and reviewing of the Council's environmental performance for corrective action if necessary.

An Environmental Management Framework should not be seen as an isolated entity. On the contrary, one member of the LA 21 Committee stressed it must become an integral part of the Council's Integrated Developmental Plans (I.D.P.). Leaving it out to function independently would defeat the goal of Local Agenda 2, that is, sustainable development.

5.3 Integration of an Environmental Management Framework into the Council's Integrated Developmental Plans

The study revealed that the Council's restructuring process is documented at two levels,

namely:

- Integrated developmental Plans and
- Local Developmental Plans

It was suggested by most respondents that the environment features in the former. However, no mention was made by any respondent of the latter bearing environmental matters. A section on environmental sustainability appears in the I.D.P. and even this needs to be developed more comprehensively to incorporate all aspects of the environment. Furthermore, it must be integrated as a framework, not in its present form. Ideally, integration should take place at two levels:

- Integration of the EM framework into the Council's I.D.P. , which is currently being developed.
- Integration into the Council's everyday activities, so that officials take environmental considerations as naturally as they their line functions.

The latter is very crucial in that it involves acceptance and commitment on the part of the officials and council members to put into practice what is in the I.D.P. and this makes environmental education and awareness all the more critical and pressing. It should, nonetheless, be acknowledged and appreciated that the Msunduzi Council is at present in a transitional stage where change underlies every facet of the Council. Both the councillors and the officials are grappling with change and what it entails. It, therefore, becomes imperative that within the context of transition environmental considerations are taken to the fore - they have been ignored for far too long.

While the respondents recognised the significance of an EM framework for quality environmental performance and compliance with environmental legislation, and its integration into the Council's I.D.P. , the following pertinent issues were raised by most respondents:

- Who will co-ordinate and spearhead the integration?
- Who will monitor and ensure that things are done as laid down in the EM framework, and that councillors, officials of the Council and the wider communities comply with

environmental legislation?

In the discussions with the respondents with regard to the above, three options emerged, namely:

- The key departments that are already dealing with environmental issues
- Setting in place an Environmental Manager to drive the environmental process
- Local Agenda 21 Committee as an organ of environmental planning and action

The respondents' responses to each of the above varied. The majority rejected the key departments as vehicles to take EM forward in the basis that the activities will still be uncoordinated. In other words, the status quo will still be maintained, hence the feeling was that it is an undesirable option. On the question of an Environmental Manager, the respondents acknowledged that he/she would provide a focal point for the EM framework to accomplish its goal. However, the following concerns were raised:

- Where would he/sh be in the structure of the Council? In other words, to whom will he /she be accountable?
- Will he/she have the expertise that cuts across the spectrum of the Council?
- Based on the above, will he/she have the necessary ability to convince the Council of the importance of environmental considerations in their agenda?
- He/she should not be a political appointee.

On the other hand, a few argued that the LA21 Committee is ideally positioned to take the environmental agenda to the Council and officials of the Msunduzi Municipality, because:

- it is fully represented, as it cuts across the broad spectrum of the Council's functions (what the Environmental Manager would be lacking) and

- it answers directly to the Council's Executive Committee.

In view of the above, the LA 21 Committee would seem to have the capacity to take EM forward and facilitate its integration into the Council's I.D.P. Whilst the LA 21 Committee currently makes recommendations to the Executive Council, which in itself is not sufficiently environmentally aware, it needs to take a more prominent role and filter into decision-making to be able to effect change in the environmental sphere of the Council. However, one member of the LA 21 Committee was concerned about the validity of the facts, as he described the situation to be ideal. In reality, the LA 21 Committee did not have adequate capacity, as some members of the Committee were not adequately informed on environmental matters, particularly environmental legislation. As a result of the training sessions planned for the councillors and officials (section 5.4), the role of the LA 21 committee might change. This will have implications on whether EM issues are taken forward or remain in their present position on the Council's agenda.

5.4 Environmental Legislation

Good environmental practices are dependent on awareness and compliance with environmental legislation. Whilst each department within the Council has its own piece of environmental legislation to adhere to, the respondents acknowledged that an overall awareness of other environmental laws was critical for the system to work. For example, the main pieces of environmental legislation that governed the activities and functions of the City Engineer's department are the National Environmental Management Act (NEMA) and the National Water Act. In terms of the former Environmental Impact Assessments have to be carried out before any development can take place. Nonetheless, knowledge of other environmental legislation is essential for the individual departments to operate effectively within the Environmental Management Framework/System. Most respondents identified the following legal requirements as impacting directly on their line functions:

Table 5.3: Environmental legislation and the Key departments within the Msunduzi Council

Department	Legislation
City Engineer's	Provincial Planning and Development Bill Development Facilitation Act 67 of 1998
City Planner's	National Water Act 36 of 1998 White Paper on Integrated Waste Management
Conservation: Parks and Recreation	Environment Conservation Act 73 of 1989 National Parks Act 57 of 1976
Environmental Health	Air Quality Act Atmospheric Pollution Act 45 of 1965 Occupational Health and safety Act 85 of 1993

In spite of the existence of these legal requirements, implementation and enforcement are still problematic. What concerned most respondents who deal directly with environmental protection, such as the Environmental Health, is a lack of legal recourse against the transgressors of environmental legislation. Prosecution of offenders is either delayed or does not happen at all with dire consequences for the department concerned and the environment for the same transgression will be repeated.

The investigation revealed the need to train officials and Council members in environmental legislation. On the matter of training the respondents emphasized the importance of including the leadership of the Council, that is, the Mayor, the Deputy Mayor and other members of the Executive Council. To address this issue of lack of environmental awareness, a Consortium is embarking on a training programme. A report of 361 pages that explains the main environmental laws will be produced in an attempt to help the officials understand environmental legislation. It is hoped that environmental education will greatly facilitate the integration of the EM framework (section 5.3).

5.5 Public Participation

Public participation is one of the core elements of environmental management. One of the National Environmental Management principles is that Environmental Management must place people and their needs at the forefront of its concern. It thus becomes critical that the public becomes involved environmental matters that the Council deals with. Unless the communities out there are environmentally educated, given the opportunity to develop the

necessary understanding, skills and capacity, resulting in good environmental practices, efforts towards sustainable development are futile. Public involvement within the Council will find expression at two planes:

- Public environmental awareness
- Co-management of the environment

On the subject of providing environmental education for the public, the Council has not done much. However, they all conceded that environmental awareness and education were prerequisites for a meaningful public participation. The barriers to public participation are largely logistical :

- Lack of resources in terms of funds to run training programmes for the public.
- Lack of capacity on the part of the Council

Notwithstanding the above limitations, one department within the Council is currently developing a Waste Management Strategy, incorporating waste minimisation and recycling in which communities will be involved in an attempt to raise the people's awareness on these environmental issues. A case in point is the market gardening project that the Waste Management Department is championing in conjunction with the Sobantu Environmental Desk in Sobantu.

As one municipal official put it, a more co-operative approach between the council and non-governmental concerned with the environment is the route to take if public participation is to be enhanced and entrenched in the Council's Environmental Management Framework. Within the Council structure itself, the public is represented on the Environmental Forum, which acts as an environmental watchdog and an umbrella body for the LA 21 Committee. In addition the Environmental Forum plays a crucial role in providing a link between the Council and the public and thereby, a different perspective on environmental matters.

In terms of the Integrated Environmental Management (IEM) process, public participation is an integral part in the planning and assessment of developmental proposals. The study shows that the Council has an open system whereby the public is invited to make inputs. These supply the Council's Planners and Developers with an indication of the likely impacts of their decision.

Based on the above discussion on public participation the issues that emerged from the investigation are summarised in Table 5.4

Table 5.4: Public Participation within the Msunduzi Council

Issue	Comment
Environmental Awareness of the public	This is very minimal and is a priority issue and concern for the Council
Public involvement in environmental management (Co-management)	<p>The public is represented on the following fora within the Council:</p> <ul style="list-style-type: none"> • Environmental Forum(an umbrella body for the LA 21 Committee and an environmental watchdog) • Msunduzi Catchment Forum <p>Also working closely with the Council on environmental management matters are:</p> <ul style="list-style-type: none"> • Air Quality Forum • Sobantu Environmental Desk • Greater Edendale Environmental Network • Chamber of Commerce and Industry • Keep Pietermaritzburg Clean Association <p>Council should embark on more projects, like the Market gardening project championed by the Waste Management Division of the Council in conjunction with the Sobantu Environmental Desk, to engage the public in environmental management initiatives..</p>
Barriers to public participation	<p>They are largely logistical in nature</p> <ul style="list-style-type: none"> • Lack of resources in terms of funds to run training programmes for the public • Lack of capacity on the part of the Council

5.6 Case Study of the New England Road Landfill Site

EMS and the New England Road Landfill Site

The preceding section has served to illustrate the challenges that a local government such as the Msunduzi Council encounters in its environmental management initiatives. Some issues of environmental management viz. environmental management framework, the integration thereof into the Msunduzi Council's overall management strategies. Environmental legislation and public participation have been highlighted to bring to the fore the significance of putting an environmental management system in place for quality

environmental protection and performance. This is the macro-level.

At a micro-level, the New England Road Landfill Site has been chosen as a mini-case study to shed light on the practical operation of some elements of an EMS. This is not intended to be a checklist, but rather an attempt to show that a landfill can and does comply with the requirements of an EMS. The study of this particular landfill site revolved around the following issues:

- Is the concept of EMS recognized by the landfill management and staff?
- What components of EMS are actually in operation in the management of the site?
What gains does the adoption of and implementation of EMS present to the Landfill site?
- Priority issues with regard to EMS and the New England Road Landfill Site.

5.6.1 Background

The New England Road landfill site was developed as a municipal waste disposal site in 1952. It is located on the banks of the Msunduzi and Blackburrowspruit rivers. In terms of the Environmental Conservation Act 73 of 1989 the site has a class 2 permit, and is thereby allowed to accept domestic as well as inert industrial waste, but not toxic waste. It services Pietermaritzburg, Greater Edendale, Imbali, Sobantu and industry. With the incorporation of Vulindlela the area has expanded, which means that people living in the rural areas and informal settlements of the Greater Pietermaritzburg have access to a waste disposal service.



Plate 5.1: The location of the New England Road Landfill Site

Since the granting of the permit the landfill site has been rehabilitated and upgraded. The following table shows an indication of the present condition of the improvements, particularly at the time of the investigation:

Table 5.5: The present condition of the Landfill

Rehabilitation and Upgrading	Present condition	Comment
Site has been security-fenced	Poor	Scavengers are continually cutting through the fence to gain entry into the site
Access control and a weighbridge has been installed	Good	Access to the site is well maintained
Capping and doming of the existing site	Good	It is continually practised
The installation of a leachate control system and groundwater protection measures undertaken	Good	Sumps have been installed on the periphery of the site to discharge the leachate
Landfill Gas monitoring probes have been installed around the periphery of the site	Good	Methane gas is monitored well

Source: Townsend, October 2001: Personal Communication

5.6.2 The Landfill Site and Environmental Management

As a waste disposal site, the landfill site is one of many environmental management initiatives of the Waste Management Department of the Msunduzi Council. Its core function is to tackle in its environmental management efforts. The following table outlines the environmental issues and the related environmental management activity.

Table 5.6: Environmental Management Activities

Environmental Issue	Environmental Management Activity	Comment
Waste	General Impact Management	Compliance with the Permit is good.
Water Quality	Runoff Management Leachate Management Water Quality Monitoring	<ul style="list-style-type: none"> • Cut-off drains that encircle 75% of the site collect run-off. • Leachate drainage is controlled by a layer of clay and stone.
Air Quality	Air Quality and Gas Monitoring Landfill Gas Monitoring Air Quality and Dust Monitoring	<ul style="list-style-type: none"> • Gas monitoring probes have been installed to monitor methane gas • Sawdust, one of the most critical issue the landfill site is dealing with, affects the health of the residents and the aesthetics of the area.
Post-Closure	Post-closure Water Quality Monitoring Post-closure Air Quality Monitoring	A Closure plan has been prepared i.e. capping the site with clay and topsoil on closure.

Source: Townsend, October 2001: Personal Communication

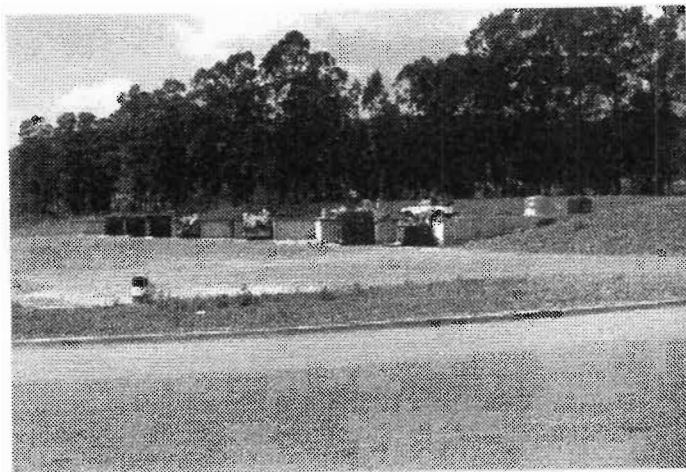


Plate 5.2: Recycling on site

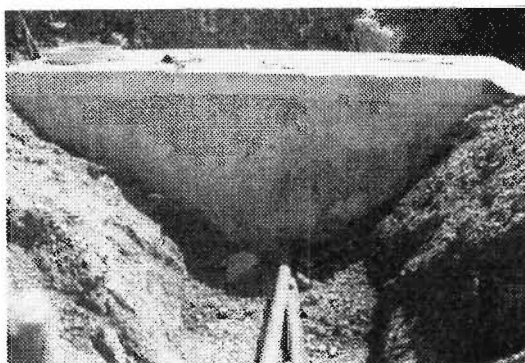


Plate 5.3: Sumps to manage the leachate

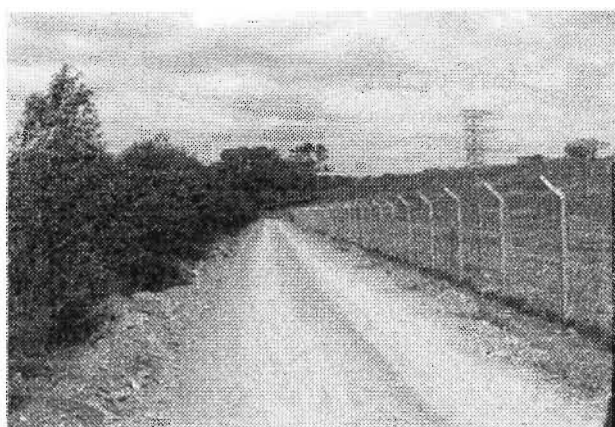


Plate 5.4: Security fencing around the site. Scavengers still cut through

There are common stages within an EMS that organizations use to try to ensure that the environment is considered in policy and processes. While in some the components of an EMS may be present in totality, in others only some elements may be operative. The investigation on the New England Road Landfill Site suggests that the management of the Landfill site is undertaken within an EMS framework as presented in Table 5.7:

Table 5.7 Components of EMS that are operating on the New England Road landfill site

Component of an EMS	What is happening
Policy statement	The Permit is the policy statement as it stipulates the procedure and processes of the landfill operation on a day to day basis. It also contains a commitment to comply with applicable laws and regulations.
Waste Management Programmes	The following programmes are being carried out : <ul style="list-style-type: none"> • Air quality Management • Water Quality Management • Gas Monitoring • Leachate Management • Runoff Management
Monitoring	The New England Road Landfill Site Monitoring Committee monitors the operation. The Committee is representative of interested and affected parties (IAP's), thus ensuring and enhancing public participation in the management of the site.
Auditing	Three types of audits are carried out in the New England Road Landfill Site viz.: <ul style="list-style-type: none"> • Quarterly Internal audits • Bi-annual audits • Departmental audits The findings are made available for scrutiny to the relevant authority.
Reporting	Reporting at the New England Landfill Site takes the following forms: <ul style="list-style-type: none"> • Reporting of incidents with negative impacts on the environment • Audit report as described above • Other reports regarding any deviation from plans, and/or operation procedures and analysis of samples

Sources: Townsend, October 2001: Personal Communication and Department of Water Affairs and Forestry (New England Road Landfill Site Permit)

5.6.3 Benefits of EMS for the New England Road Landfill Site

The following table depicts the benefits of the EMS for the New England Landfill Site according to Townsend, October 2001 (Personal Communication):

Table 5.8: Benefits of EMS for the New England Landfill Site

Benefits	How
Improves the management of the site	With data being collected, processed, reported and recorded in a systematic way ,the landfill site becomes easier to manage.
Enhances the landfill's public image	Through the Landfill Monitoring Committee, public participation is enhanced. Communication, transparency and openness are demonstrated and the IAP's feel part of the solution-seeking process.
Encourages innovation among the employees.	Employees are made aware of their responsibilities and they are trained to exercise care and accountability. Employees at ground level are able to identify problems and come up with strategies for improving the management of the site.
Market-related gains	Not only does an EMS prove to the customer conformance with customer and permit requirements, it also gives the operation a competitive edge to its competitors.

5.8 Conclusion

The investigation essentially highlighted the need and importance of an Environmental Management System to take a prominent role on the Council's agenda. An Environmental Management Framework within which all the Council's environmental activities could be coordinated was seen as the management tool to accomplish this. Furthermore, it is imperative that this EM framework be integrated into the Council's Integrated Developmental plans, particularly at this critical moment of transition so that the desired level of sustainable development is attained. The New England Road Landfill Site highlighted the notion that some components of EMS are already emerging in the Environmental management operation of the Council.

CHAPTER 6

ANALYSIS OF FINDINGS

Chapters 4 and 5 have served to give the context within which the Msunduzi Council operates in terms of managing the environment. Environmental and developmental issues with their inherent challenges have been discussed. The greatest challenge for the Council, therefore, is that, while going through transformation itself, it must take full cognisance of all the dynamics that are at play, both internally and externally, that would ultimately determine its environmental performance. This chapter aims to bring to the fore those environmental issues that the Council should regard as priorities and take up vigorously: discussing also the impediments that hamper the Council's efforts in managing the environment effectively. Those issues are:

- Environmental knowledge;
- Co-ordination of Environmental issues;
- Capacity;
- Enforcement of environmental legislation;
- Public Participation; and
- Environmental Management Framework and the integration thereof into the Msunduzi Council's management strategy.

6.1 Environmental knowledge

The findings have shown that environmental knowledge exists amongst the Council officials. The notion of what constitutes the environment is clearly embedded within the Council. What is lacking, however, is an integrated approach to viewing the environment. The inclusion of the social, economic and institutional aspects of the environment into the whole concept of environmental management seems to be a critical issue with the Council officials.

There are visible efforts at enhancing environmental awareness within the Council. Plans are underway to institute a training program in environmental legislation for the Council members and officials across the board. This is a step in the right direction, for without environmental knowledge, there can only be poor constitutional environmental

management.

6.2 Co-ordination of environmental issues

Environmental matters being dealt with within the Council, as it is evident in the key departments mentioned in Chapters 4 and 5. However, lack of co-ordination seems to be the overriding concern with regard to environmental management. According to Nath *et al.* (1998), the environment and environmental management should be understood as “organic whole”. Traditionally, environmental management has been compartmentalised and fragmented. The Msunduzi Council has no system within which environmental management is carried out. This highlights the need for an Environmental Management Framework and a person who will act as a focal point to integrate all environmental activities within the Council.

6.3 Capacity

Although efforts are being made by the key departments to protect the environment, a general lack of capacity has emerged as one of the limitations to environmental management. It manifests itself in the following manner:

- Insufficient funds allocated to promote environmental protection
- Inadequate environmental awareness within the Council

Baker *et al.* (1997) aptly assert that insufficient capacity can hamper any vision from becoming a reality. Different kinds of capacity must be taken into account, including administrative, institutional, technical, scientific and economic capacity. Furthermore, capacity is a relative and dynamic factor. In other words, it can be learned and improved over time.

Capacity must pervade the whole structure of the Msunduzi Council. In particular, the leadership which is in a better position to promote the environmental agenda, should be adequately educated in environmental matters. Political willingness without the accompanying capacity amounts to nothing.

6.4 Enforcement of environmental legislation

While awareness of environmental legislation is present among the Council officials, enforcement of these regulations is the greatest challenge for the Council. As chapter 5 has shown, enforcement of environmental legislation has more to do with lack of legal recourse for the departments charged with environmental protection. Environmental transgressors are either not prosecuted or the prosecution is so delayed that it does not have any effect on the offender and the department involved. Compliance is further undermined.

6.5 Public Participation

According to Dalal-Clayton, B. (1996), participation implies full involvement of relevant groups. Functioning as an environmental watchdog, the Environmental Forum serves to open up channels for public participation and ensuring that environmental matters are dealt with in an open and transparent manner, as members of the public are invited to committee meetings (chapter 4). However, public involvement in environmental management (co-management) outside the Council and in the communities is minimal.

6.6 Collaboration/Linkages with other non-governmental bodies in the management of the environment.

States are certainly not the only actors crucial to environmental management (Chasek, 2000:220). Industries, communities and non-governmental organizations have a vested interest in protecting the environment. This notion has given rise to the concept of co-management of the environment (chapter 5). There is now a recognized need to "enlist the co-operation of all sectors of society in addressing the complex problems posed by environmental change" (Fischer *et al.*, 1993 :222). The Msunduzi Council is no exception, particularly as it is going through change itself. Notable links have been established between the Council and the University of Natal's Centre for Environment and Development, the Chamber of Commerce and Industry, for example.

Fischer *et al.* (1993) further suggest one of the ways of strengthening collaboration is through networking or, rather, forming 'network organizations'. The aim of these network organizations would be to bring the different interests together, thus ensuring the

involvement of stakeholder groups in environmental management. Apart from facilitating the emergence of a shared frame of reference for dealing with environmental problems, network organizations provide a forum for the exchange of ideas and resources for better environmental practices.

6.7 The adoption and implementation of an Environmental Management Framework

Chapters 4 and 5 have outlined the key environmental and developmental concerns that the Council is facing. Challenges involved have been highlighted. The most effective way to deal with “the array of environmental issues is for the organization to develop a management system for environmental concern - a co-ordinated and disciplined approach by management” (Clements, 1996: 22). The following benefits may accrue from using an environmental management framework:

- Greater compliance with regulation; and
- Better communication and co-ordination of environmental matters amongst the key departments within the Council. A good management system relies on written policies and procedures. This includes lists of goals, targets and objectives each department and each employee is expected to achieve. When such a framework is well-documented, there is no room for uncertainty and confusion. The organization becomes more pro-active and preventative in its approach, rather than reactive and remedial.

According to Sexton *et al.* (1999:448), “it no longer makes sense to take the ‘we’ll learn from-our -mistakes’ approach to environmental decision-making; the stakes are too high and we have too little room for error”. Nath *et al.* (1998) regard managing uncertainties as the greatest challenge to environmental management. Therefore, an environmental management system or framework that details written policies, strategies and procedures not only gives direction, but is a valuable tool to pre-empt environmental threats, giving the organization some measure of control.

6.8 Integration of an Environmental Management Framework into the Council's management strategies and plans

Environmental problems are the product of several factors, like population growth, economic development and political conflict, and have several dimensions, including environmental economic, social, cultural and political. In light of the multi-faceted causes and dimensions, an integrated approach is critical. Environment must form an integral part of broader arrangements that are concerned with managing political, economic and security affairs in the region. Efforts must be made to incorporate environmental concerns into the agenda of these other bodies (Chasek, 2000).

6.9 Conclusion

This chapter has highlighted those issues that the Msunduzi Council should regard as priority in its environmental management efforts and by implication should form an integral part of the Council's Environmental Management Framework. The study has shown them to be critical challenges facing the Msunduzi Council, and the context of transformation they cannot but be addressed with vigour and commitment in order to achieve quality environmental performance.

CHAPTER 7

CONCLUSIONS

Local governments, by virtue of being the level of government closest to the people who in their daily lives interact with the environment, are the custodians of the environment. The study has shown what the concept of environment represents to different people, how people perceive the environment, and that it is man's interaction with his/her environment that needs to be controlled and managed. Environmental management has been shown to be complex and elusive. The need for human beings to continually be conscious of the effects of their activities on the environment has been crucial and central to the concept of environmental management. The context of environmental management has been traced both globally and locally, commencing at the Earth Summit (1987), through to Agenda 21 and Local Agenda 21, and finally locally. The aim has been to emphasize the importance and prominence given to the protection of the environment.

An Environmental Management Framework has been proposed, not as a solution, but as a management tool, to assist an organization to deal with its environmental concerns in a systematic way (chapter 2). As argued in the same chapter, an organization's adoption and implementation of an Environmental Management Framework is imperative. However, since reality is complex and there are quite a number of dynamics at play within an organization (chapters 4 and 5), the adoption thereof is not simplistic. Furthermore, for the Environmental Management Framework to be effective, its integration into the local government's management strategies and plans has been shown to be critical and imperative.

The Msunduzi Council, which has been chosen as a case study for this investigation, has highlighted the challenges that a local government faces in its efforts to take care of the environment. Many factors which play a critical role for the organization to achieve quality environmental protection have been identified as key issues (chapter 5):

- the adoption and implementation of an environmental management framework;

- the integration of such a framework into the Council's management strategies and plans;
- the appointment of an Environmental Manager /Environmental Committee to implement the environmental programme and ensure its integration into the Council's overall management plans; and
- Elements of an EM framework that need to be addressed are:
 - a. enforcement of environmental legislation
 - b. enhancing public participation

The above were shown to be strategic and critical in the attainment of quality environmental protection and performance by the Msunduzi Council.

Recommendations

1. Adoption and Implementation of an Environmental Management Framework or EMS

The absence of an EMF or EMS compromises the Council's ability to handle environmental considerations effectively. The result is an unco-ordinated and unsystematic way of dealing with environmental issues. The study suggests a strong and definite need for such a framework to be put in place and used to ensure quality environmental performance and protection.

2. Appointment of an Environmental Manager

Whilst research shows that respondents were divided on the question of who should drive the environmental process and spearhead the integration of the EMF into the Council's management strategies (chapter 5, section 5.3), it is the opinion of the researcher that a committed and adequately qualified individual would be the ideal. He/she would act as a focal point and co-ordinate all environmental matters, and thus ensure that the environment takes its rightful position on the Council's agenda. Ideally, he/she would be located in the same position as the LA 21 Committee and the Environmental Forum, and answer directly to the Executive Committee.

3. An Environmental Hotline

The study suggests that environmental awareness is not only an imperative, but also a basis for effective environmental management. Raising environmental awareness among both the Council members and the public, therefore, seems to be one of the Council's priority issues. To this end, an environmental hotline would serve to:

- provide an opportunity for an exchange of environmental information with the public; and
- enable the public to bring to the notice of the Council environmental concerns so that the latter would then take appropriate action.

4. Strengthen partnerships with outside environmental organizations

Although the investigation shows that some measure of collaboration with environmental bodies and institutions outside the Council has been achieved, more needs to be done. This partnership is particularly crucial for research purposes, exchange of information and resources, thus enhancing the Council's ability to manage the environment most effectively. The Environmental Forum could address this more vigorously than it has.

Research Needs

While the investigation has been limited in scope, it has helped to uncover areas for further research. The following research needs have been identified:

1. More in-depth research is needed to determine how local governments can successfully go through learning processes that will ultimately guarantee excellent environmental performance, such as adopting an environmental management system. Such research would be inspired by and employ the ideas and concepts developed within the framework of an Environmental Management System in this work.

2. The issue of whether an Environmental Manager or the LA 21 Committee should be the co-ordinating force for all environmental matters, implement the environmental programme and ensure that the environmental agenda occupies its rightful place within the Council, has not been resolved by this study. Therefore, more research is needed in this area to explore the dynamics and highlight the importance of creating capacity within Council that will empower such a person.
3. More work needs to be done on collaboration between the Council and the outside world on environmental matters, what Fischer *et al.* (1993) calls 'networking'. Such research would help explore the most viable networking channels and uncover the obstacles that hamper the much needed collaboration.
4. What is not as obvious as the aforementioned issues to be built upon, is the need for psychosocial research in support of environmental management initiatives. It would explore attitudes, beliefs, sources of information, emotional responses and personal variables and search for connections between emerging styles of leadership and institutional factors. Furthermore, it would include comparative studies of leaders who experienced major changes within their organizations that led to successful environmental initiatives. This would also involve examining actual organizational transformations in progress and working with the decision makers involved to test the emerging strategies for motivation and accountability.

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APPENDIX I

Problems of waste and litter on the streets of Pietermaritzburg

Anti-litter drive

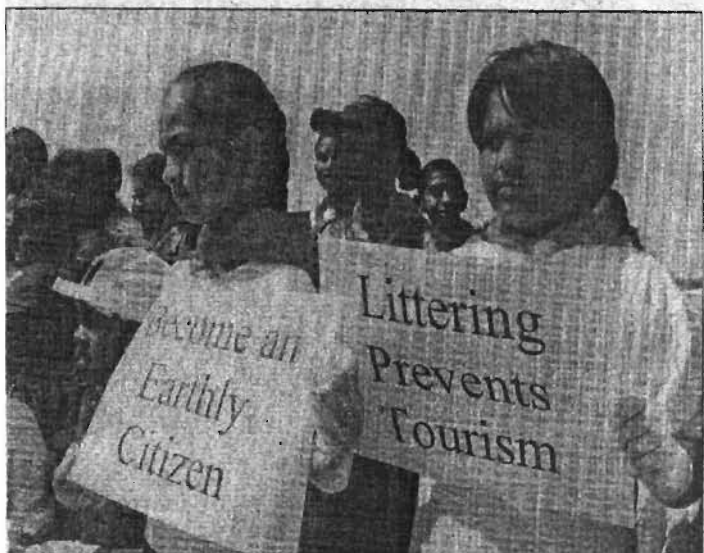


Photo: NASH NARRANDES

Children from various Sri Sathya Sai centres in Pietermaritzburg spent their Saturday picking up litter as part of an anti-litter campaign in Northdale. Avashnee Govender and Kerisha Soorajdin march with their placards to raise awareness.

CBD still filthy despite efforts of street cleaners

ZWELIHLE MEMELA
Municipal Affairs

EVEN after they introduced night-shift street cleaners to make sure the CBD is litter-free, the filth continues to baffle the city Waste Management Division.

About 70 street cleaners are currently employed to pick up between 15 to 20 tons of garbage every day.

Divisional manager Ramu Raghunandan said although the council has introduced day- and night-shift cleaners there is a "disregard of cleanliness by city residents". He said the problem is compounded by the CBD's informal traders.

"There is a lack of control of informal trade, and night cleaners collect piles of rubbish left on the streets everyday. Traders do not stick to cleanliness and they do not advise customers about the importance of making the city clean,"

Raghunandan said.

"In some instances you will see a street cleaner doing the job, but when the guy finishes, the area is back to where it was before. Some citizens have this irrational idea that by littering they are creating jobs for people. The city can only create jobs by ensuring the area is litter-free so that tourists and potential investors can see that local citizens are proud of their city ... A dirty city has never been a good reflection for city investment," he said.

Raghunandan further said his division has formulated a waste management strategy involving all divisions within the municipality. He said the strategy is largely based on educating people about cleanliness.

APPENDIX 2

Dear Respondent

I am Balungile Khumalo, a student at the University of Natal's Centre for environment and Development. The research I am conducting has been sanctioned by the Chief Executive Officer of the Pietermaritzburg-Msunduzi Transitional Local Council, Mr Haswell. The purpose of the study is to look into the challenges and constraints that Local Authorities have in drawing up and implementing Environmental Management Systems. It is not the intention to evaluate the Pietermaritzburg-Msunduzi TLC, but rather to use the investigation to gain insight into the feasibility of Environmental management as set out in the Local Agenda 21 Framework. Your co-operation in this regard will be highly appreciated. A copy of the research findings will be made available to your organisation and I hope that will assist you in environmental management.

Thank-you

Interview Schedule

Questionnaire

1. Environmental Management

1.1 How important do you feel EM is for your department or the TLC?

.....

.....

.....

.....

1.2 Which departments of the Local Council have activities which affect the environment?

.....

.....

.....

.....

1.3 What are the principal impacts which the TLC has to manage?

.....

.....

.....

.....

1.4 What is the organisational structure through which Environmental Management within the TLC occurs?

.....

.....

.....

.....

1.5 How is Environmental Management funded?

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.....
.....

1.6 How is co-ordination of the various environmental activities achieved?

.....
.....
.....
.....
.....

1.7 What are the impacts it does manage?

.....
.....
.....
.....
.....

1.8 Do you have budget for EM:

-in the TLC?

Y	N
---	---

-in your department

Y	N
---	---

1.9 How is the Environmental Management budget allocated?

.....
.....
.....
.....
.....

1.10 Are the various environmental activities co-ordinated?

Y	N
---	---

1.11 How effective is co-ordination?

Very effective	
fairly effective	
not very effective	
not effective at all	

1.12 Who is responsible for co-ordinating these activities?

-in the TLC

.....
.....
.....
.....

-in your department?

.....
.....
.....

1.13 What is the EM process?

.....
.....
.....
.....
.....

1.14 If there is not a process, what do you think the process should be?

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.....
.....
.....

1.15 In your opinion, what are the most important EM issues you have to deal with?

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.....
.....
.....
.....

1.16 Who brings EM issues to your attention?

.....
.....
.....

1.17 If an issue comes to your attention with whom do you raise it?

.....
.....
.....
.....

1.18 When last did such an issue arise?

.....
.....
.....
.....

2. Environmental Policy

2.1 Does the TLC have an Environmental Policy?

Y	N
---	---

2.2 If yes, is it available for public scrutiny?

Y	N
---	---

2.3 If no, why does it choose not to have such a policy?

.....
.....
.....
.....

2.4 Which of these terms best describe TLC's policy process?

highly participatory	
participatory	
consultative	
not involved	

2.5 Does the TLC engage public participation?

Y	N
---	---

2.6 If not, why does it choose not to?

.....
.....
.....
.....
.....

2.7 What procedures are invoked to engage public participation?

.....
.....
.....
.....
.....

2.8 Does the TLC/your department have EM goals?

Y	N
---	---

2.9 Are environmental goals used for measuring achievement?

Y	N
---	---

2.10 In your opinion, to what extent is environmental policy important in achieving environmental goals?

very important	
important	
least important	
do not know	

2.11 How would you rate your division's/ TLC's support of the environmental policy?

	TLC	Div.
very good		
good		
average		
poor		

2.12 Does the TLC use the term Environmental Management System?

Y	N
---	---

2.13 If no, what term is used?

.....

.....

.....

.....

2.14 Has TLC /your division set measurable environmental objectives?

Y	N
---	---

2.15 What are these environmental objectives?

.....

.....

.....

.....

2.16 Have these incorporated into EMS?

Y	N
---	---

2.17 What factors have helped you to achieve the environmental targets you have set for EM?

.....
.....
.....
.....
.....

2.18 What factors have impeded achieving your targets?

.....
.....
.....
.....

2.20 How urgent is it to address these impending factors?

very urgent	
urgent	
not urgent	
do not know	

2.21 How successful is your division in managing the impacts of the environmental issues?

very successful	
moderately successful	
successful	
not successful	

2.22 Do you experience restrictions in managing environmental impacts?

Y	N
---	---

2.23 What restrictions do you experience?

.....
.....
.....
.....

2.24 Does the TLC use a recognized system to measure environmental performance e.g. BSO, ISO?

Y	N
---	---

2.25 Are you aware of legal requirements for EM?

Y	N
---	---

2.26 What has been the implication of the following legal requirements for EM?

- National Environmental Management Act (1998)

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.....
.....

- Integrated Environmental Management

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.....
.....

- Environmental Impact Assessment

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.....
.....

- National Water Act (1998)

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.....
.....

- Air Quality Act

.....
.....
.....

2.27 How would you rate the incorporation of these legal requirements into EM?

very good	
good	
average	
poor	

2.28 What limits your ability to incorporate the above legal requirements?

.....
.....
.....
.....

3. Implementation

3.1 Is funding designated for environmental programmes?

Y	N
---	---

3.2 If not, why do you think this is so?

.....

.....

.....

.....

.....

3.3 How are the funds motivated and allocated?

.....

.....

.....

.....

.....

3.4 How well does the TLC meet your financial requirements for EMS?

very well	
well	
average	
poorly	
not at all	

3.5 If your answer is poor or no at all, how would you explain the inadequate support?

.....

.....

.....

.....

.....

.....

4. Political support

4.1 How would you rate councillor support for environmental management?

good	
average	
poor	
none	

4.2 If your answer is poor or none, how do you explain the low level of support?

.....

.....

.....

.....

.....

4.3 How do you rate councillor support for funding?

good	
average	
poor	
none	

4.4 If financial support is poor, to what do you attribute this?

.....

.....

.....

.....

5. Environmental Monitoring

5.1 Do you have an Environmental Monitoring system?

Y	N
---	---

5.2 If you do not have a monitoring system, explain why this is so?

.....

.....

.....

.....

5.3 How would you rate your department's/TLC's environmental monitoring system?

	TLC	Dept.
very good		
good		
average		
poor		
none		

5.4 Explain why you have rated it the way you did?

.....

.....

.....

.....

6. Auditing and Reviewing

6.1 What environmental audits and reviews does the TLC or your department conduct?

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.....
.....
.....
.....

6.2 What Key Performance Indices does your department/TLC use to evaluate environmental performance?

.....
.....
.....
.....
.....

6.3 How are the results of the audits communicated?

.....
.....
.....
.....
.....

6.4 To whom are the results communicated?

.....
.....
.....
.....

6.5 How do you rate the communication of the results of the audits to:

- your division

very good	
good	
average	
poor	
none	

- TLC employees

very good	
good	
average	
poor	
none	

- the public

very good	
good	
average	
poor	
none	

6.6 Is personal performance evaluated against environmental indicators?

Y	N
---	---

6.7 If yes, which indicators are used?

.....

.....

.....

.....

.....

7. Environmental Reporting

7.1 Does the TLC or your division report regularly on environmental issues?

Y	N
---	---

7.2 If it does not, explain why it chooses not to report?

.....

.....

.....

.....

7.3 How regularly does reporting occur?

every year	
most years	
occasionally	
seldom	
never	

7.4 Which term best describes the process for preparing environmental reports?

highly participatory	<input type="checkbox"/>
participatory	<input type="checkbox"/>
consultative	<input type="checkbox"/>
not involved	<input type="checkbox"/>

7.5 How are environmental reports prepared?

.....

.....

.....

.....

.....

7.6 Who prepares them?

.....

.....

.....

7.7 What process(es) is/are involved in environmental reporting?

Public forums	<input type="checkbox"/>
Internal forums	<input type="checkbox"/>
Written communication (internal)	<input type="checkbox"/>
Written communication (external)	<input type="checkbox"/>

7.8 Do you identify targets(people and subjects) for environmental reporting?

Y	N
---	---

7.9 Who are the targets?

.....

.....

.....

.....

7.10 Why are the above targets selected?

.....

.....

.....

.....

.....

.....

.....

.....

7.11 How would you rate the accessibility of environmental information to the targets you have identified?

Very accessible	
moderately accessible	
accessible	
not accessible	

7.12 Do you receive feedback?

Y	N
---	---

7.13 From whom?

.....

.....

.....

.....

.....

7.14 How would you rate the response to your reporting?

	Internal response	External response
very good		
good		
average		
poor		
none		

7.15 How would you describe the benefits you have experienced from environmental reporting?

	Political support	Financial support	Human resources	Other
very good				
good				
average				
poor				
none				

8. Other Pertinent Questions

8.1 Are you aware of Local Agenda 21?

Y	N
---	---

8.2 How would you rate your understanding of:

- Local Agenda 21

very good	
good	
average	
poor	

- Environmental Standards set by the International Organization for Standards?

very good	
good	
average	
poor	
none at all	

8.3 Do you attend Society meetings where EMS is discussed?

Y	N
---	---

8.3.1 If yes, which?

.....
.....
.....
.....

8.3.2 If no, why not?

.....
.....
.....
.....

8.4 Do you subscribe to publications on EMS?

Y	N
---	---

8.4.1 If yes, which?

.....
.....
.....
.....

8.4.2 If no, why not?

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.....
.....
.....
.....

8.5 How would you rate the usefulness of such discussions for your work?

very good	
good	
average	
poor	

8.6 How would you rate communication with the following on environmental matters affecting the TLC:

- National Government

very good	
good	
average	
poor	
none	

- Provincial Government?

very good	
good	
average	
poor	
none	

- Other Local Governments?

very good	
good	
average	
poor	
none	

- Environmental Organisations/Movements

very good	
good	
average	
poor	
none	

Thank-you

APPENDIX 3

Working- session on EMS- 14 June 2001

Participants:

Councillor Colin Gardner : Chairman of the LA 21 Committee

Gavin Holmes : City Planner's Department

Hilton Ryder : Environmental Health

Rod Bartholomew : Conservation and Recreation

Cynthia Mnguni : Community Services

Bill Townsend : Manager of the New England Road Landfill Site

Prof. Rob Fincham : Director of CEAD

Dr. Neville Quinn : Programme Director (Environmental Management)
CEAD

Lungi Khumalo : Master's Candidate (MenvDev) (Facilitator of the
workshop

APPENDIX 4

INTERVIEW SCHEDULE (Based on the Workshop)

1. The Concept of Environmental Management

1.1 What does the concept of environment represent to you?

1.2 How would you define “environment”?

1.3 How important do you feel EM is for your department and for the Msunduzi Council?

1.4 What are the most important EM issues you have to deal with in your department?

2. Environmental Management Framework

2.1 Which key departments within the Council are in a position to take Environmental issue forward?

2.2 In your opinion, to what extent is an environmental management framework important in achieving quality environmental performance and hence sustainable development?

2.3 How can this framework be incorporated into the day to day activities of the Council?

2.4 Could the integration of EM into the Council’s Developmental and Management Plans be achieved through:

- Key departments?
- Environmental Manager?
- LA 21 Committee?

3. Environmental Legislation

3.1 There is a great deal of environmental legislation going around. What do you consider to be the key environmental legislation for:

- Local government
- Your department

3.2 What legal requirements are you incorporating in your department?

3.3 Do you experience restrictions in incorporating these legal requirements?

3.4 If yes, what limits your ability to incorporate environmental legislation into your department’s activities?

4. Public participation

4.1 Does the Council/ your department engage public participation in environmental considerations?

4.2 If yes, what procedures are invoked to engage public participation?

4.3 What are the limitations in involving the public in environmental management?