

**ANALYSIS OF HAZARDOUS WASTE MANAGEMENT
POLICY AND ITS IMPLEMENTATION IN SOUTH AFRICA:**

**A CASE STUDY OF POLLUTION IN THE SOUTH
DURBAN BASIN**

ZANDILE FAITHFULL MASEKO

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OF POLLUTION IN THE SOUTH DURBAN BASIN**

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Abstract

The primary aim of the research study was to investigate the regulation and implementation of Hazardous Waste Management policy in South Africa, with particular focus in policy implementation problems in the South Durban Basin of the eThekweni Municipality.

The South Durban Basin is a geographical area in the eThekweni Municipality in KwaZulu-Natal where communities live in close proximity to one of South Africa's busiest intense industrial base. The findings revealed that communities in the South Durban Basin face harmful public and environmental health impacts which have been proven to be caused by polluted air as a result of weak hazardous waste management policy implementation. The study demonstrates that the implementation of hazardous waste management policy in the South Durban Basin is characterized by policy gaps, lack of enforcement capacity and resources of local government to effectively implement the policy. The lack of capacity and resources has made compliance on environmental regulations insignificant. Current compliance on hazardous waste management and environmental policy regulations is happening on a purely voluntary and self-regulatory basis and it proven to be ineffective


The study also showed that to realise efficacy in the management of hazardous waste management, a combination of both top-down and bottom-up approaches to policy implementation is crucial. The reason being that a top-down national framework ensures consistency in a national policy framework while the bottom-up approach promotes elements of community participation and empowerment as is evident in the South Durban communities. A key finding of the study is the significance of community activity and pressure in the making and implementation of hazardous waste management policy. It illustrates the

significance of networks in the policymaking and implementation process. The involvement and partnerships formed by different environmental justice organizations availed operational capacity and resources to engage the eThekweni Municipality to take action on issues of hazardous air pollution. The challenge remains for the eThekweni Municipality to find methods to attain economic development and simultaneously protect its citizens and the environment. This raises a question, whether sustainable development can be a reality where there is lack of capacity and resources to actualize it. Does economic development have to be achieved at the expense of the general public and the environment?

Declaration

I, the undersigned, hereby declare that the content of this research study is my own original work. This project has not been submitted to any other university for similar or any other examination.

Zandile Faithfull Maseko

Signed: 

Date: 5/4/2009

Dedication

I dedicate this work to my daughter Hafisa Andile Maseko and my Eternal Father:
A drop of water has all the qualities of an ocean so Am I of You Daddy. You are
indeed the centre of my existence.

Acknowledgements

I would like to extend my profound gratitude to my supervisor Mrs Anne Stanton, for her proficient academic guidance and support that led to the successful completion of this research project.

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To my family, especially my daughter and my mother, thank you, patience is really a virtue.

Abbreviations

APPA:	Atmospheric Pollution Prevention Act
EIA:	Environmental Impact Assessment
EMA:	EThekweni Municipal Area
DAET:	Department of Agriculture and Environmental Affairs
DEAT:	Department of Environmental Affairs and Tourism
DNF:	Danish Nature Foundation
DME:	Department of Minerals and Energy
DoH:	Department of Health
DTI:	Department of Trade and Industry
DWAF:	Department of Water Affairs and Forestry
GIS:	Geographical Information System
IDPs:	Integrated Developmental Plans
IP&WM:	Integrated Pollution and Waste Management Policy
IUCN:	International Union for Conservation of Nature and Natural Resources
LED:	Local Economic Development
MNCs:	Multi – National Corporations
NEMA:	National Environment Management Act
NEMP:	National Environment Management Policy
NWMS:	National Waste Management Strategy
PITF:	Policy Implementation Task Framework
QOLS:	Quality Of Life Survey
SAPREF:	South African Petroleum Refinery
SDB – MPP:	South Durban Basin – Multipoint Plan
SDCEA:	South Durban Community Environmental Alliance
UNEP:	United Nations Environmental Programme
WSSD:	World Summit on Sustainable Development

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RESEARCH METHODOLOGY

This research project will consist of four parts allocated as follows:

- Part One is a literature review of theories on public policy and policy implementation. This part constitutes the theoretical framework for the study. In addition, attention is paid to policy instruments available to government to implement public policy such as regulation and policy networks.
- Part Two comprises a literature and policy review on what constitutes hazardous waste. It determines what the hazardous waste management policy is in South Africa. It also examines the implications of this policy across the three spheres of government.
- Part Three is a case-study of hazardous waste management issues currently experienced by local communities in the Durban South Basin. It also identifies the various government structures in place to address this policy problem as well as the various non-governmental organisations and outside agencies which are active in the Durban South Basin. It also looks at the eThekweni's metropolitan council's response to this policy problem.
- Part Four is the conclusion to the study. It is an analysis of the research project's findings, and attempts to make recommendations based on the research findings.

Research Method

In order to best accomplish the objectives of the study and to provide a well-versed and critical policy analysis on the implementation of hazardous waste management policy in the Durban South Basin, the qualitative research method was deemed more appropriate as compared

to the quantitative research approach. This is in view of the fact that qualitative research assumes a naturalistic approach that aims to construct meaning from the social environment, while gaining information about the social setting without altering the environment (Baker, 1992:242).

Moreover, the qualitative method can be defined as a set of methods for organizing, displaying, processing, summarizing and interpreting words and image-based information. It involves the analyses of data collected in variety of forms for example, observation notes, interview transcriptions and historical documents. Data must reflect a profound and holistic interpretation of a specific phenomenon.

Research Instruments and Data Collection

The research instruments that were employed in this project constituted of a thorough review of the literature on policy and public policy implementation. The literature review on hazardous waste management involved substantial desk-top reviews of various international and national policies as well as in-depth interviews conducted with key people involved in hazardous waste management at the eThekweni Municipality. Representatives of communities at the Durban South Basin, and environmental networks such as South Durban Community Environmental Alliance were interviewed and consulted to attain their opinions and experiences around hazardous waste and its management by the eThekweni Municipality.

Primary data was collected through the use of face-to-face semi-structured interviews with representatives from the South Durban Community Environmental Alliance and the eThekweni Municipality staff, and entailed a number of open-ended questions.

The benefits of using semi-structured interviews is that it allows for more flexibility, and provides the researcher the opportunity to probe for in-depth information relevant to the research study (Brewerton and Millward, 2002:70).

Sample, Sampling Procedure and Access

In order to narrow the project down and make it feasible to research in a period of three months, the decision was taken to focus on the Durban South Basin. The population represented consisted of the varied members of different organizations who fall within the scope of the topic. The individual experiences, status and areas of responsibility necessitated the use of non-probability sampling which involves the identification and questioning of respondents relevant to the research study.

The sample is constituted by representatives from South Durban Community Environmental Alliance and Groundwork (both non-governmental organizations) that are active in the area. The sample also constituted officials in the eThekweni municipality known for their expertise in hazardous waste management, and officials responsible for the implementation of hazardous waste management.

Patton (2002: 230) states that sampling within the qualitative paradigm is either purposive or judgemental whereas quantitative traditions rely on probabilistic sampling. In this study a purposive sampling technique was employed in view of the fact that purposive sampling allows the researcher to use his or her own judgement about which respondents are more appropriate and informed about the specific research topic. Initial contact made with community organizations and municipal staff indicated a willingness to participate in this research project.

Gaining information and access to big industry in the South Durban Basin proved difficult and the research was forced to represent the views of the community and local government authorities alone. Although their opinions would be worthwhile, the study's focus was on the power that communities and community organizations can muster to enforce local authorities to acknowledge their grievances and concerns which proved to be key in the policy agenda setting process.

Data Analysis Method

Data was subjected to content analysis which was regarded as a suitable data analysis technique for this research. Content analysis is collecting and organizing information systematically in a standard format that allows analysts to draw a conclusion about the characteristics and meaning of recorded material. According to Babbie and Mouton, (2003:491-494), and Neuman (1997) the content analysis method can be applied to any form of communication. For this research, data was systematically organized according to subject matters or themes which allowed conclusions to be drawn.

PART ONE: THEORETICAL FRAMEWORK

1. Introduction

Democracy is considered to be “the best form of government “ (Diamond, 1999:2). However, the best realizable form of government is constitutional, in which freedom is constrained by the rule of law and popular sovereignty is tempered by state institutions that produce order and stability. Liberal democracy is regarded as the pre-eminent type of government because it offers paramount prospects for good governance, accountability, responsiveness, predictability, and peace (Diamond, 1999: 2).

In the quest to attain good governance, public policy and political management domains have experienced public reforms. Over the last few decades the size, roles, and structures of the public sector in one way or the other has seen organizational change to fit changing policy or institutional values (Turner and Hulme, 1997). The policy management imperatives and tendencies today are said to gear towards a more responsive developmental management. In many instances the responsiveness of development calls for a reassessment of policy design, implementation, monitoring and evaluation. This emphasizes the importance of the role of government in policy design, formulation and implementation towards effective public management and service delivery.

This chapter outlines a theoretical framework which provides a review of the nature and role of public policy and policy implementation. In addition, attention will be paid to policy instruments available to government to implement public policy such as regulation and the significance of policy networks.

1.2 Defining Public Policy

It is crucial to understand what is meant by policy before it can be classified as public policy. Hill (1997: 6-7) defines policy to be a "course of action adopted and pursued by government, party, ruler, or statesman; any course of action adopted as advantageous or expedient." Hill (1997:7) further expresses that policy can be fundamentally seen as, *'[a] stance which, once articulated, contributes to the context within which a succession of future decisions will be made.'*

Cloete and Wissink (2000: 13) say that a policy is said to be public policy when it has been generated within the framework of governmental procedures, influence and / or organization and further states that public policy is purposive and expected at all times to be effective.

Jenkins (cited in Howlett and Ramesh, 1995: 5) offers a thorough definition of public policy which reflects most of the key elements expressed by others. He states that public policy is:

'[a] set of interrelated decisions taken by political actors or groups of actors concerning the selection of goals and means of achieving them within a specified situation where those decisions should, in principle, be within the power of those to achieve'.

Smith (1976: 13) asserts that the concept of public policy does not only manifest in the deliberate choice of action by government but can also involve inactions (or non-decisions) which influence the policymaking process and, as a result, resist policy endorsement.

In this case inaction(s) denotes a political activity that creates a platform whereby change is resisted through the assessment of non decision-making (Hill, 1997:8). It can be safely said that policy invariably evolves; and this recognizes the fact that the policy process is dynamic.

Kingdon (1995:196), in his framework that attempts to define what public policy is, describes a number of available theories, namely theories on: rationality, incrementalism and garbage-cans which he uses to define policy. According to Kingdon (1995:78), rationality theory in policymaking is evident when policymakers define goals, canvas and systematically compare alternatives using cost versus benefit analysis and consequently choose the least costly and most rational alternative. In contrast, incrementalism theory is founded on the premise that decision-makers "take what they are currently doing as given, and make small, incremental, marginal adjustments in that behaviour", (Kingdon, 1995: 79).

Incremental modifications to a policy may need to be made in its implementation. This requires that decision must be taken at the implementation stage, which attests to the dynamicity of policy. Lewis (1995) (cited in Hill, 1997: 9) supports this statement in his assertion that policy claims are rationalized based on outcomes and therefore actors do not always plan and control activities that arise.

The Garbage-Can-Model assumes that organizations are organized anarchies. The Garbage-Can-Model is characterized by four streams found in organizational settings, that is, the problems; solutions; participants; and choice opportunities (Kingdon, 1999: 84-86).

Kingdon (1995:3) further expresses that the policymaking process involves a sequence of events. These events are explained as:

“a set of processes, including at least the setting of the agenda, the specification of alternatives from which a choice is made, and authoritative choice from among those specified... and the implementation of the choice.”

Although policy theories are regarded as insufficient to adequately explain policy processes, they do render a theoretical framework by which the complex nature of policymaking can be understood and analyzed.

A number of authors, (such as Anderson, Dye, McCool, Howlett and Ramesh) summarize the policymaking process into what they commonly refer to as the policy cycle. In an attempt to understand and analyze the complex processes involved in public policymaking, the designed policy cycle gives a simplified model that identifies five distinctive phases in the policymaking. However, I would argue that the policy cycle is not as definitive and circular in the way that it is presented since it does not reflect or allow flexibility to accommodate corrective action during the policymaking process if necessary. Each stage of the policy process is more complex than the model which is illustrated in Figure 1.1. It also assumes that each phase follows on from the phase preceding it. Despite its shortcoming, it still remains a useful model in that it allows for analyzing the policymaking process in more manageable components.

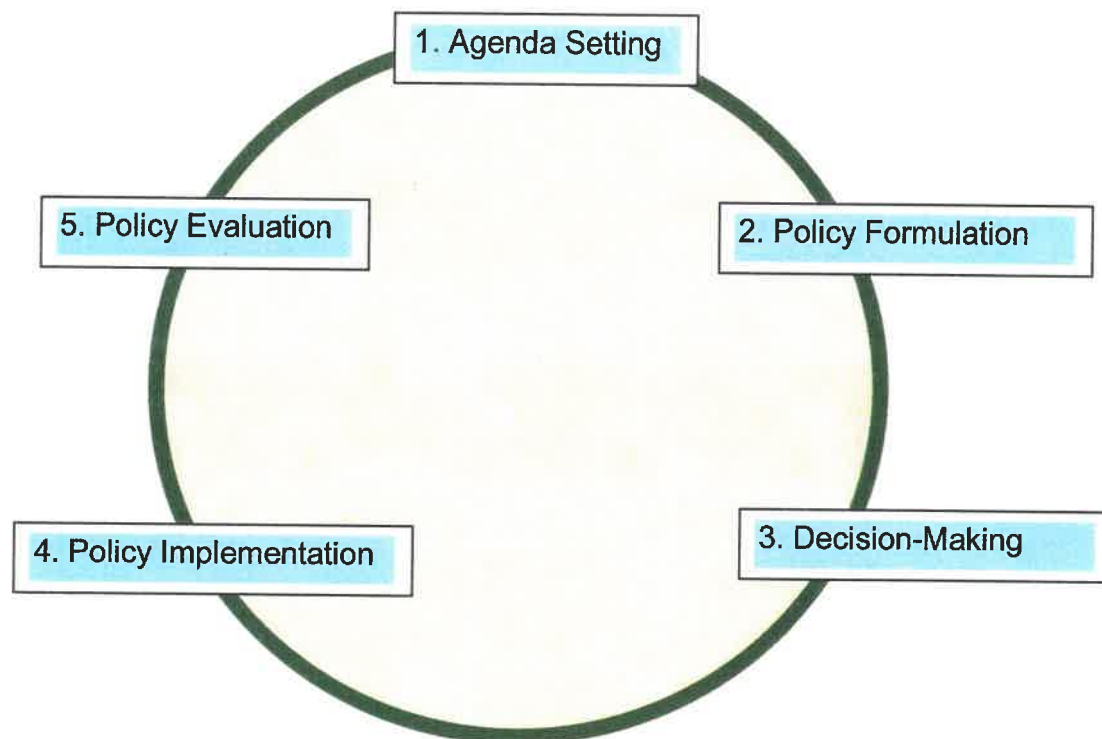


Figure 1.1: The Policymaking Cycle (*Howlett and Ramesh, 1995: 11*)

The Agenda Setting (phase 1) of the policy process as distinctly delineated by Howlett and Ramesh (1995:11) and McCool (1999: 157-159) involves a process by which issues that have been classified as problems come to the attention of government. However, it does not illustrate that not all problems or policy issues make it to the agenda setting phase. It does not show how a problem gets onto the policy agenda. It does not describe the process or influences active which have highlighted the policy problem through the use of different mechanisms. For example, indicators form part of the 'pushing' of a policy issue onto the policymaking agenda. Indicators can be indicative of statistical records, a crisis, a focusing event, or feedback from system generated information

about organizational performance (Kingdon, 1995: 90). There are two kinds of agendas that these problems are placed, namely the governmental agenda and the decision agenda. The governmental agenda is set to be "the list of subjects or problems to which governmental officials, and people outside of government closely associated with those officials, are paying some serious attention at any given time". Kingdon (1995: 3) differentiates a list of subjects from within this list, which are "up for an active decision", as the decision agenda.

The second phase of the policy cycle is policy formulation which refers to the course of action where different policy alternatives or proposals are formulated which are presented as potential solutions to the policy problem identified.

The third phase, decision-making is when government considers policy alternatives and proposals and decides or adopts a particular course of action or when government decides on non-action. In the fourth phase, the policy implementation phase, government puts their policy decision into effect by delegating responsibility for implementation to street-level bureaucrats. The fifth and final phase, which is policy evaluation, involves a process whereby the policy outcomes are monitored and evaluated whether by governmental institutions or societal actors and at this stage a redefinition of policy problems and solutions can occur demanding further decision-making as the circular policy cycle model suggest.

The policy phase which will be the main focus of this research study is policy implementation in the policy domain of environmental management.

The type of policy made impacts on the method or approach necessary for implementation. Before formulating, enacting and implementing a policy, it is vital to consider what form the policy decision should take. Dye (1984) and Anderson (1984) identify a number of different types of public policies.

1.3 Types of Public Policies

Anderson (1984: 14 - 18), identifies, among others, the different kinds of public policies that involve the state as a policy actor. These policy typologies involve the following:

- *Substantive and Procedural Policies*
- *Distributive Policies*
- *Redistributive Policies*
- *Regulatory Policies, and*
- *Self – Regulatory Policies*

Anderson (1984:14), states that all public policies can either be classified as substantive or procedural. In this case substantive policies are characteristic of the state's actions that are to be implemented. It refers to the aim or the essence of the particular policy. Procedural policies are concerned with how something is to be done, the systems and procedures necessary for policy implementation. Procedural policies also offer laws for the establishment of administrative agencies, containing explicit specified jurisdictions, processes and techniques to be employed in the implementation of programmes.

Procedural policies further elucidate operational powers of the presidential, judicial and other controls necessary for the efficacy needed to accomplish policy goals and objectives.

Between substantive and procedural policies there exists a interrelationship in terms of the influence one type of policy has over the other. In support of the above statement Dye argues that:

“Procedural policies may have important substantive consequences. That is, how something is done or who takes the action may help determine what is actually done.”

The type of policy, its design and formulation can (and most of the time does) contribute to the complexity of processes involved in policy endorsement and implementation.

The distributive, redistributive, regulatory and self-regulatory policies are characterized by their intent and the effect they have on society as well as the mechanism necessary to achieve the desired results.

Distributive policy involves the allocation of benefits or services to different sectors of the populace comprising of individuals, groups, corporations and communities. Distributive policies are further characterized by the use of public funds to provide services for the people considered as beneficiaries. Professor T. J Lowi (cited in Dye, 1984: 16) defined distributive policies as policies that:

“... are virtually not policies at all but are highly individualized decisions that only by accumulation can be called a policy.”

Conversely, redistributive policies are typically involved with the re-allocation or redistribution of resources or benefits amongst groups and

individuals, normally aimed at addressing inequality (Wissink, 1990:5). An example is the Reconstruction and Development Programme (RDP) in South Africa.

Regulatory policies mostly focus on the private or business segment of the state, and are aimed at controlling behaviour, for example, pollution regulations. Beside regulatory policies (such as those dealing with environmental management) there are other social regulatory policies that are concerned with other issues within the controlled powers of the state, such as crime and gun control. Regulatory policies are designed and formulated to enforce control, to impose restrictions or limitations on the behaviour of individuals and groups, thus limiting freedom in the interest of society at large.

Redistributive policies and regulatory policies are different from distributive policies by the fact that redistributive policies have well defined recipients which will benefit or be deprived (Wissink, 1990: 5).

Anderson (1984:17) states that the regulatory policy formation stage often features conflict between two groups or coalitions of groups, with one side seeking to impose some sort of control over the other segment which seeks to avoid being controlled or regulated.

Comparable to regulatory policies are self-regulatory policies which also aim to enforce and control behaviour, but the target is a selected category of the population. Although self-regulatory policies can be overseen by the state, they are different from regulatory policies for the reason that they are "sought and supported by the regulated group as a means of protecting or promoting the interests of its members" Anderson (1984:17-18). Occupational and professional licensing institutions are a case in point to illustrate the formation and use of self-regulatory policies.

To effectively implement the above mentioned types of policies, an appropriate policy implementation approach and the policy instruments must be decided upon. However, the literature provides no clear description of what the available approaches or strategies are. This causes difficulties for policy implementation.

This study looks at hazardous waste management and its implementation. The nature of these types of policies compare to regulatory policies. Hence, a brief summary is provided on regulation and compliance.

1.4 Regulations

Regulatory policies as instruments to implements policies form part of public policy. Marc et al (2000:5) supports the above statement in their definition of regulation by defining it as;

“Any attempt by government to control behaviour of citizens, corporations, or subgovernments.” This is done to further public interest, by providing safety that could be secured effectively through regulations.”

Regulations are said to control public behaviour. For example, environmental management regulations hold industrial corporations to account by coercing them to accept responsibility for environmental degradation and holistically potential hazardous consumer products. The most common approach in forcing regulations is by punishing offenders by, for example, awarding fines or withdrawing operating permits.

The compliance of the actors regulated depends much on patterns of the relationship between governmental authority and the target group. Interconnectedness and cohesion becomes crucial in terms of what government should do to facilitate compliance with implemented policies. Bresser and O'Toole (1998:91) emphasize the importance of networks in achieving positive compliance from regulatory policies.

According to Bresser and O'Toole (1998), it is highly likely that the same network participating or have participated in policy and instruments formulation that are the outcome of the process, will be the same network involved in the implementation of the policy thus motivating for greater compliance to regulatory policies. The successful implementation of regulatory policies in part, lies with compliance. Regulations are meaningless if they cannot force compliance.

1.5 Compliance

Anderson (1984: 257) argues that there are many reasons behind compliance and non-compliance. He further states that the prominent basis for compliance comes from the fear of punishment or a conscious acceptance of policy as rational and essential, even when there is conflict between policy objectives and self-interests. Moreover, compliance can be achieved through respect for authority, status, the law, and governmental officials considered legitimate and morally just. Compliance to environmental management policies tends to rely on the implementation of regulatory policies. Often because of 'a fear of punishment', as opposed to their 'conscious of policy as essential'.

Regulation cannot guarantee total compliance. This statement supports Anderson's argument on non-compliance. He argues that not all target groups identified by public policies will adhere or conform to the enacted policies. Numerous factors contribute to non-compliance to public policies. For example, when an adopted policy either demands a radical change in current behaviour; is not cost-effective; or presents difficulties in achieving compliance. Anderson (1984:260), further states that non-compliance also arises as a result of laws or public policies that conflict with existing values and beliefs of citizens and civil society in a specific era. The importance of compliance in policy implementation necessitate control. Anderson (1984:245) recognizes this fact when he asserts that

"Policies are designed to cause people to do things, refrain from doing things, or continue doing things that they would not otherwise do."

1.6 Policy Implementation

Policy implementation is often described as the actions that take place after a public problem has been identified and various options proposed and considered, and a policy decision is made. Policy implementation is the phase where this policy decision is put into practice. This is described by Pressman and Wildavsky (cited in Howlett et al., 1995:153) in their definition of policy implementation as a "process of interaction between the settings of goals and actions geared to achieved them".

For the purpose of this study it is important to understand the concept and application of policy implementation, as well as some of its challenges and shortcomings.

Anderson (1984:260) defines policy implementation, as "what happens after bills becomes law". He argues that implementation consists of those players, organization, procedures, technique and target groups that are involved in putting policies into effect with the aim of accomplishing their goals.

In the early 1970's, policy implementation was considered as unproblematic in a policy sense. There was an assumption that once a policy was made, it would simply be carried out. According to Howlett and Ramesh (1995:6), this view was flawed and has changed. Pressman and Wildavsky (1973:99) undertook a thorough study of federal employment programs in the United States, and discovered that there was a missing link between the aims and objectives of the employment policy and with its actual outcomes, raised a number of questions on the assumptions around policy and policy implementation.

Pressman and Wildavsky (1973:99) present some explanations as to why certain policy decisions do not get effectively implemented. It was found that those who were accountable for policy implementation were not always capable of working effectively because they had other commitments. They further argued that the participants in the implementation of policy may sometimes have the ability or expertise to implement, but due to their attendance of many other programs, they had to commit themselves to a number of other projects concurrently, making implementation difficult. Sometimes policy implementers do lack adequate powers and autonomy to carry out their responsibilities. The major reason identified by them is that when there is no clear definition of roles as to who is responsible for what, nobody takes on the responsibility for overseeing the implementation of the programme.

There is typically uncertainty as to whether or not a policy will accomplish what it aims to accomplish, and what the consequences will be for society. There are many factors that could be attributed to the failure of policy implementation. These include a lack of political will, insufficient capacity, resource scarcity or defects in policy design which could steer towards imprecise targeting of policy programmes (Cloete and Wissink, 2000:249).

Such failure could result in the infringement of human rights, poor service delivery and sometimes could even threaten the consolidation of democracy. Policy and the process of policy implementation is hence not an easily predictable process. The approaches employed in implementing policies have been identified as a key influence in the nature of policy implementation.

1.6.1. Approaches to policy implementation

Policy implementation has different approaches. According to Anderson (1984:215 -216) approaches to policy implementation can be seen to be either a top-down or bottom-up approach (also known as forward-mapping or backward-mapping respectively). These approaches have been the most used models adopted in policy implementation.

Anderson defines the top-down approach as “focusing on the actions of top level officials, the factors affecting their behaviour, whether policy was reformulated on the basis of experience” (Anderson, 1984:215-216). The predominance of clear structures of hierarchy, control, planning, responsibility and accomplishment of goals distinguish top-down from the bottom-up approach.

The bottom-up approach is characterized by elements of decentralization. It is not dominated by hierarchy and power, but allows for flexibility in the chain of command. For example street-level bureaucrats reformulate and routinize policy implementation through interpretation and modification of policy to enable implementation. The strengths and weakness of this approach lies in the functions and actions of the street-level bureaucrats.

Lipsky (1980:3) defines a street-level bureaucrat as public worker who in their jurisdiction of employment, interact directly with citizens and have considerable discretion in the execution of their work.

Lipsky (1980:13), states that street-level bureaucrats "have considerable discretion in determining the nature, amount and quality of benefits and sanctions provided by their agencies." Primarily, they are policy entrepreneurs, political and administrative officials who shape major dimensions of public policy and its implementation. Street-level bureaucrats reformulate policies through choices made by their incorporation of occupational and community norms. This approach further emphasizes the importance of context specificity, consensus, networks and collaboration amongst stakeholders in the process of implementation. Trust, spontaneity, learning and adaptation among participants are important elements in the bottom-up approach (and absent in the top-down approach). Accountability is achieved from implementers because everyone is affected by policy; therefore performers mobilize support through the creation of an environment that encourages innovation, collaboration and creativity. Implementation structures are formed within a pool of organizations (Hill and Hupe, 2002:54-60).

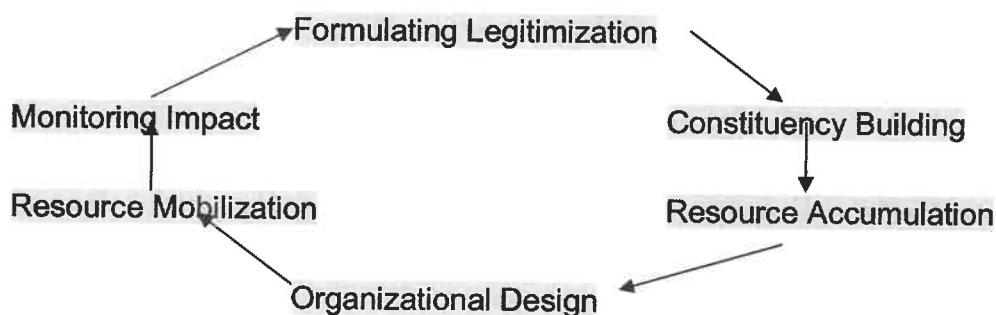
The bottom-up approach gives room for community or public participation. According to Brinkerhoff (1999:127), participation leads to better policy targeting and can also build ownership for policy solutions among beneficiaries and implementers. However, there remains a great need for a top-down national framework in ensuring consistency and equality in policy implementation across society.

Brinkerhoff and Crosby (2002: 16-17) established a framework called the Policy Implementation Task Framework (PITF) which they propose as being able to address challenges of the policy implementation process. The framework breaks down the implementation process into the various stages of policy implementation and provides for a breakdown and assessment of progress made at various stages.

Their Policy Implementation Task Framework (PITF) seeks to give direction as to how implementation could be achieved for the implementation process to effect positive change. Brinkerhoff and Crosby (2002:17) argue that the Policy Implementation Task Framework (PITF) is a mechanism that can be utilized since it can help assess where the policy implementation process stands at any given point. It can also provide a more accurate perspective as what to do next and the period it will take for a certain programme or project to reach completion. Besides the two reasons mentioned above, the Policy Implementation Task Framework (PITF), can also assist in terms of being used as a diagnostic tool for the identification of potential and existing trouble spots or problems facing the policy reform which becomes more explicit during the implementation stage. This would enable amendments or a change in policy implementation strategy possible if the need occurs.

Figure 1.2 below shows the sequential structure of the Policy Implementation Task Framework as proposed by Brinkerhoff and Crosby (2002:32).

Figure 1.2: The Sequence of the Policy Implementation Task Framework (*Brinkerhoff and Crosby, 2002:32*)



Petts (2001) believes that strengthening relations with citizens is a sound investment in policymaking and a core element of good governance. According to Petts (2001) one of the reasons for developing interest in, and use of, public participation is the increasing emphasis on decentralization and participatory democracy. Participative democracy, it is argued, is needed to support representative democracy, and the development of informed public preferences, knowledge and commitment to societal good. Turner and Hulme (1997:5) stress the role of ordinary citizens in making public decisions and solving problems in everyday environment.

Parsons (1995) argues that policy implementation success may to a large extent depend on the quality of interactions between the state and the elements in civil society.

Policy implementation is foreseen as operational governance entailing legitimate directive formulation and decision making on public duties, which means implementation encompasses day-to-day actions of both public and private organizations. This is validated by the processes evident in policy implementation which include organizational forms, policy networks, and public-private partnerships (Hill and Hupe, 2002:194). It is consequently important to address the issues of coordination and collaboration, and to be specific to the type of network desirable for implementation.

1.7 Policy Networks

Policy implementation as a goal oriented process, involves sharing and co-ordination between multiple components of government and civil society. O'Toole, and Hupe (1997: 136) argue that, although this is the case, it remains important that common objectives should also be sought and developed among participants outside of government. The emphasis is on the specification of actors necessary for the effective realization of the policy goals which is essentially linked to criteria of common purpose, preparedness and the extent and type of involvement. O'Toole et al (1997:137) state that networks are important socially constructed institutions which can best serve as purposeful mechanisms in bringing about public reform and actualize policy implementation. Mandell (2001:189) describes networks as a critical component in good governance, service delivery, inter-organizational relationships and intergovernmental relations. Evans cited in Mandell (2001: 168), further describes networks to be

“Cross-sectoral collaborations whose purpose is to achieve convergent objectives through the combined efforts of both sets of actors, but where the respective roles and responsibilities remain distinct.”

Managing interdependencies as in policy networks as well as enhancing mechanisms to increase characteristically important features to good governance such as participation, decentralization, and incentives is very important for a critical approach to implementation. Participation during the policy process is crucial because it improves the quality of policy formulation and implementation, as it leads to better policy intentions and design. These are similar sentiments expressed in the bottom-up approach. Participation is also imperative for its empowerment potential, which characterizes good governance and democracy actualization that in response emphasize accountability and responsiveness (Mandell, 2001: 170).

Decentralization redefines and reinforces the relationship between different participants of the network, for instance government and other non-governmental sectors (for example profit and / or non-profit organizations). This is so because decentralization promotes local autonomy and cross-sectoral collaborations which are easily formed and are operational under networks because of their informal nature. Kickert et al (1997: 169) suggest that there are several factors said to be important for the effective operation of networks. These include features such as:

- The specification of objectives and degrees of convergence
- Mechanisms for combining efforts and managing co-operation
- Determination of appropriate roles and responsibilities
- Capacity to fulfill the roles and responsibilities.

Specifying the objectives is crucial. Acknowledging the fact that the multiplicity of actors identified for the network (which Kickert terms activation stage) is coupled with a wide range of different interests, which if not strategically mobilized could hinder the progress of the network in achieving intended performance and results (Kickert et al., 1997: 169, and Mandell (2001: 170). The specification of objectives becomes more vital when taking into cognizance the ever changing nature of networks to achieve the intended results, which can result in the change of objectives by participants. At this moment, Kickert et al (1997:14) suggests a strategy of framing, which he describes as a way of effectively forming a network and managing it, at which some point operational rules should be influenced, thereby altering perceptions of participants to achieve collective action. One cannot deny the fact that networks are also driven by power and knowledge, which once integrated or combined, can become a powerful source for policymaking and implementation.

Managing interdependencies (as in networks), enhancing mechanisms to increase characteristically important features to good governance such as participation, decentralization, and incentives are very important to a critical approach to implementation. Mandell (2001: 170) argues that participation is crucial because it improves the quality of policy formulation and implementation, as it leads to better policy intentions and design.

As Mandell (2001:171), states "incentives are the essential lubricant that makes networks possible." In any organizational setting incentives are very important as they reinforce a sense of duty. In a network situation, incentives are said to strengthen identity and shared destiny and objectives among partners, and thus increase participation as more members of civil society tend to enter into networks.

The important challenge of defining and determining roles and responsibilities in networks are essential to address, since this is a contested platform where levels of trust are uncertain. Capacity building, be it technical or otherwise, becomes important at this stage since government needs both willingness and effectiveness to respond to demands of civil society.

Networks can offer such operational capacity resources. It also presents government with a challenge of capacitating itself with adequate managerial skills to be able regulate and monitor public-private partnership.

The challenges of conflicting objectives and seeking different benefits, decreases the harmony in networks. Also, intra-organizational control and the need for intra-organizational implementation of inter-organizational insecurities present another challenge to networks but Mandell suggests the use of synthesis, which is characterized by enhancing environmental conditions to be favourable and productive for interaction, thus blending participants (Mandell, 2001:15).

Conclusion

Different authors adopt assorted definitions of what is public policy. What is evident in all the definitions, is the emphasis on government as the fundamental and final decision-maker in the process of policy-making. To understand public policies and their administrative implementation, it becomes important to comprehend the fundamental concepts, assumptions, and circumstances.

The challenges facing the process of policy implementation show that the top-down and bottom-up approaches to policy implementation cannot singularly attain efficacy for any given policy.

Thus, the use of a mixed approach strategy coupled with appropriate policy instruments can to a large extent facilitate effective policy implementation. The case study on hazardous waste management will examine some of these policy issues.

PART TWO: LITERATURE REVIEW ON ENVIRONMENTAL FRAMEWORK

2. Introduction

In the previous chapter, it was acknowledged that policy is hardly a precise term. For the purpose of this study public policy is interpreted as “[a] set of interrelated decisions taken by political actors or groups of actors concerning the selection of goals and means of achieving them within a specified situation where those decisions should, in principle, be within the power of those to achieve” (Howlett and Ramesh, 1995: 5). This part of the research project aims to establish the policy framework for environmental management, more specifically hazardous waste management. Hazardous waste management or the lack thereof, affects all, from individuals, societies, and the international community as a whole.

Issues on environmental policy involve matters of choice and decision which necessarily become objects of governance at all sectors of society be it intergovernmental, national, provincial, local or non-governmental. Courses of action adopted by government consequently involve institutions and processes of political government by which societal decisions are made, and this does not exclude decisions influencing courses of action implemented to manage the environment (Caldwell and Bartlett, 1997: 1).

Various policy perspectives relating to the human environment and the biosphere have been explored since the 1972 United Nations Conference on Sustainable Development in Stockholm. Subsequent international forums have been held to redress and realize environmental protection objectives in time to prevent or limit irreversible degradation of environmental quality. It cannot be denied that the growth in economic development and science-based technology has to a large

extent caused catastrophic consequences to the environment (Caldwell and Bartlett, 1997: 2-3). This chapter will look at the relationship between development and the environment. It will establish the international and national policy framework that deal with environmental management issues, paying specific attention to hazardous waste management.

2.1 The Relationship between Development and the Environment

The scope of environmental management as a field of knowledge has expanded greatly in the recent years. The novelty, scope, and interactive complexity of environmental issues have become a problem for conventional public policy-making. It is important to recollect the history within which environmental laws and policies of both international and national domains have been established.

The term development presently has many different meanings. Moreover, the meaning depends on the context, but regardless of the connotation, people tend to assume or rather attach a positive change to the word. This change is often perceived to bring about a more affluent position to the way of life for humankind. From a sociological perspective development as a concept is described through the use of many presuppositions such as, social evolution, individualism, and economism (Rist, 1997:9). Development is also defined through normative or instrumental approaches. On development, Rist states that it is important to guard against pseudo- definitions that is defining development based upon a manner in which a few depict to be the ideal conditions for social existence (Rist, 1997: 10).

Rist describes development as consisting *"of a set of practices, sometimes appearing to conflict with one another which require - for the reproduction of society – the general transformation and destruction of the natural environment*

and of social relations. Its aims are to increase the production of commodities geared, by way of exchange, to effective demand" (Rist, 1997: 13).

Although this definition is not taken to be the ultimate, it remains popular and exist widely in the international community. Therefore according to Rist's definition of development, development is "a belief and a series of practices which form a single whole in spite of contradictions between them" (Rist, 1997:24). Defining the term development is subjective and depends on the norms and values of that particular system in place at that particular phase.

Many theories have been adopted in an attempt to define and achieve development. One of the most acknowledged theory by authors (such as Rist, and Webster) that posed a serious impact on the environment in the name of economic development is modernization theory. The ideological conceptions of modernization theory have for decades been entrenched in developmental programmes. The modernization theory states that development can only be actualized through economic development without taking into cognizance environmental impacts. Webster (1984: 60) critically argues against the notion of the modernization theory being the ultimate and permanent way to achieve development.

The 1972 Stockholm Declaration on Human Environment, the World Charter for Nature in 1982, the Bruntland Report (emanating from the 1997 World Summit on Sustainable Development) the Declaration on Environmental and Development in 1992 and the World Summit on Sustainable Development (WSSD) in 2002 have all attempted to set norms of international and national actions towards the management of natural resources and sustainable development. Although contributing to development and environmental conservation the weakness or rather the challenge about these declarations is that in essence, they remain what is known as 'soft laws'. In other words such declarations are not binding on nation-states and the international community

unless adopted as a treaty internationally and most importantly in the national laws of the countries involved. (IUCN-World Conservation Union, 2001).

There was a recognition by the International Union for Conservation of Nature and Natural Resources (IUCN) that the international community needs to move beyond declaratory norms (soft laws) to binding obligations (hard laws) if the quest for sustainable development at all levels was to become a reality. The IUCN - World Conservation Union initiated the drafting of a document known as the Draft of International Covenant on Environment and Development (hereafter referred as the Draft Covenant). It was launched in 1995, according to the Rio Declaration Agenda 21 principles adopted in 1992. This document serves another important function of assembling and codifying accepted norms and well-established principles on the conservation of the environment and sustainable development. The IUCN Commission on Environmental Law and the International Council of Environmental Law drafted this treaty as a model for an international framework agreement reinforcing existing legal principles related to the environment and development which is to serve as a possible basis for multilateral negotiations on the issues of environmental management and sustainable development (IUCN – World Conservation Union, 2001).

The Draft Covenant has undergone continual revision to consider best available practices. The Draft Covenant has been used by policymakers in many states as an authoritative reference, as well as a useful policy framework for national legislation designed to foster sustainable development; and as a guide to ensure consistency among treaty obligations for sustainable development and to coordinate their positions with respect to prospective multilateral agreements (Draft Covenant on Environment and Development, 1995).

The optimism about the continual initiatives driven by framework of the United Nations to strengthen international law; the Johannesburg Declaration and Plan

of Implementation adopted at the World Summit on Sustainable Development in 2002, further reaffirmed the international consensus on legal principles, rights and obligations for environmental conservation and sustainable development through a renewed pledge by states and governments to ensure implementation at global, regional and national levels. Taking into cognizance the expansion of industrialization, that is, the growing global trade, the mentioned legal frameworks become crucial in attempting to curb the effects of environmental pollution (<http://www.environmental-expert.com>).

2.2 International Legal Framework for Hazardous Waste Management

In the past 20 to 27 years increased attention has been paid to the environment and public health impacts posed by hazardous waste contaminants. Such attention results from actual and potential disasters attributed to uncontrolled dumping of hazardous waste that have had and continuously have undesirable health and environmental impacts. The global community (under the umbrella of the United Nations Environmental Program (UNEP)) is in a continuous process to address disasters and uncontrolled dumping or discharges of hazardous wastes into surface and ground water (Department of Water Affairs and Forestry: Waste Management Series, 1998: A1-1, 1-3).

A number of international conventions have produced soft laws, protocols and treaties on hazardous waste management. A Convention is an agreement between states, an acceptance of certain practices or attitudes. A protocol refers to the draft copy of a treaty before its ratification, and a Treaty is a formal agreement (or contract) between states. The different conventions in place have legally reaffirmed the importance of sustainable development in curbing the effects of environmental pollution. Hazardous waste is one form of pollution. The soft laws and treaties re-affirming the importance of sustainable development especially in the area of hazardous waste management include numerous

international legal precedents for pollution control. Table 2.1 shows the Conventions, Protocols and Treaties pertaining Hazardous Waste Management of which South Africa is a participant.

Table 2.1: List of Conventions, Protocols and Treaties of Hazardous Waste Management which South Africa is a participant.

Conventions	Purpose
Basel Convention	Control of Transboundary Movement of Hazardous Waste and their Disposal
Bamako Convention	Ban of the Import into Africa and Control of Transboundary Movement and Management of Hazardous Waste within Africa.
Protocols	Purpose
MARPOL (Marine Pollution) Protocol 1973/78/83	To preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances.
Kyoto Protocol – an amendment to the United Nations Framework Convention on Climate Change (UNFCCC)	Stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interferences with the climate system.
Treaties	Purpose
Draft Covenant on Environment and Development 1995/2004	To achieve environmental conservation as an indispensable component of sustainable development through establishing integrated rights and obligations

These conventions, protocols and treaties acknowledge the fact that in order to meet environmental and development challenges all states should first acknowledge the interdependence of the community of nations and engage in a constant and productive discourse concerning developmental matters. Secondly, to realize an efficient world economy, sustainable development has to be a priority on the international agenda. Thirdly, for sustainable practices to be effective international, national, local policies and multinational cooperation should thus be strengthened to adapt to new realities (Report of the Basel Convention, 1989).

For the 21st century specifically from 2000 – 2010, the goal is to have a complete and practical implementation and enforcement framework across nations, which comply with international agreements and treaty commitments. Among issues of priority, focus is on the minimization of hazardous waste generation, which involves strong controls from the generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal (<http://www.basel.int/pub/basics.html>).

The Hazardous Waste Management agreements are in accordance to the Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes in 1987, the Basel Convention in 1989, and the Bamako Convention in 1991, stipulated in the Draft Covenant state that participating countries agreed that;

“The Parties shall take, individually or jointly, all appropriate measure to prevent, reduce, control, and eliminate, to the fullest extent possible, detrimental changes in the environment from all forms of pollution. For this purpose, they shall use the best practicable means at their disposal and shall endeavour to

harmonize their policies (Draft Covenant International Law on Environment and Development, 2004: 83)."

In this case pollution was defined as;

"the introduction by man, directly or indirectly, of substances or energy into harm to living resources, ecosystems, and other forms of life, hazards to human health, impairment or interference with amenities and legitimate uses of natural resources (Draft Covenant International Law on Environment and Development, 2004: 84)."

The emphasis in all agreements is on the importance of prevention. Reduction and control become complementary to the duty to prevent and it is stated that these become an option only if prevention is not possible. Aiding to the prevention duty is a comprehensive planning procedure involving the conduction of Environmental Impact Assessments (EIAs), licensing, compliance and consistent monitoring of the environmental quality, which includes effective integrated strategies for pollution regulatory measures. In each country the policy for toxic or hazardous waste management has to be consistent with that country's policies enacted to control the use of hazardous substances, to conserve resources, to preserve public health.

2.3. Hazardous Waste Management in South Africa

Different countries vary in their definition of what constitute hazardous waste. This can be attributed to the different methods used in interpretation and categorizing waste, but mostly it is the institutional and legal frameworks that differ in each country adopted. In South Africa the definition given to hazardous waste is based on the UNEP's definition. It states that;

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"Waste, other than radioactive waste, which is legally defined as hazardous in the state in which it is generated, transported, or disposed of. The definition is based on chemical reactivity or toxic, explosive, corrosive or other characteristics which cause, or are likely to cause, danger to health or the environment, whether alone or in contact with other waste (DWAF, Waste Management Series, 1998:A2-1)."

Simply put, hazardous waste is "an inorganic or organic element or compound that, because of its toxicological, physical, chemical or persistency properties may cause harmful acute or chronic influence on human health and the environment. This type of waste can be generated from a wide range of commercial, industrial, agricultural and domestic activities and can be experienced or take any form of liquid, sludge or solid", (DWAF, Waste Management Series, 1998:A2-4).

The Department of Water Affairs and Forestry in their definition of hazardous waste further states that hazardous waste is waste that directly or indirectly represents a threat to human health or the environment by introducing one or more of the following risks;

- Explosion or fire;
- Infections, pathogens, parasites or their vectors;
- Chemical instability, reactions or corrosion;
- Acute or chronic toxicity;
- Cancer, mutations or birth defects;
- Toxicity or damage to the ecosystems or natural resources (DWAF, Waste Management Series, 1998:A2-4)

In view of the extensiveness of the definition of hazardous waste which has its basis on its nature, composition, size, volume, appearance and measure of harmfulness; South Africa has categorized hazardous waste into four groups

of hazard ratings, that is, hazard extreme risk; hazard high risk; hazard moderate risk; and fourthly, hazard low risk. This is done as to facilitate coordination and effective management of hazardous waste (DWAF, Waste Management Series, 1998:A2-4).

DWAF identifies the objectives that govern the management of hazardous waste are to;

- Ensure the correct identification and classification of a Hazardous Waste;
- Keep Hazardous Waste from entering the environment illegally;
- Implement the “cradle to grave” principle by means of planned waste management strategies ;
- Control a Hazardous Waste until it is safely disposed of, by setting Minimum Requirement at crucial points in its management (DWAF, Waste Management Series, 1998:A2-1).

The Duty-for-Care Principle, the Polluters-Pays-Principle and the Precautionary Principle are three principles identified internationally as key to waste management.

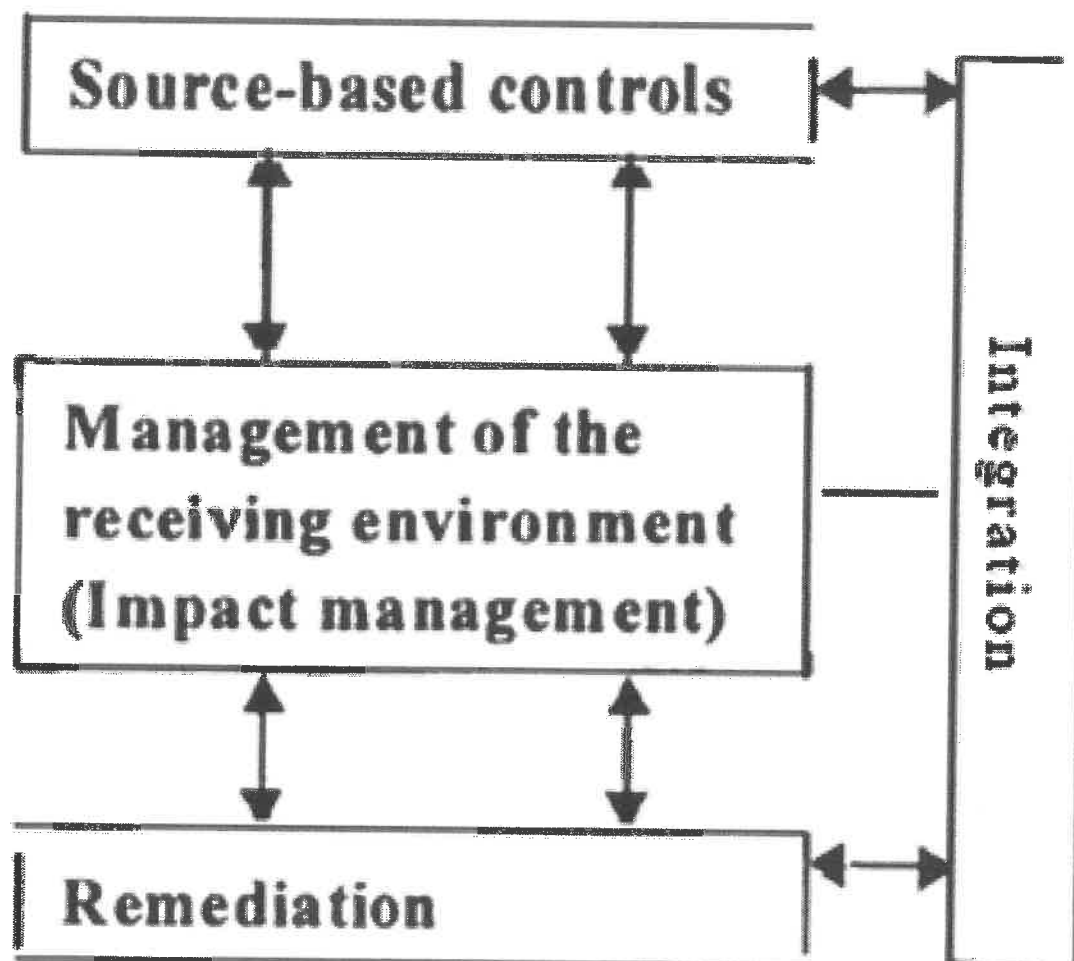
Duty-for-Care Principle, binds the individual or organization into the responsibility of ensuring that the waste generated is handled, stored, transported and disposed of according to the legislation and in healthy, environmentally sound and responsible manner.

Polluter-Pays-Principle stipulates that, the person or organization causing pollution is legally responsible for any costs involved in clean-up or rehabilitation of waste effects. The polluter may not necessarily be the generator, but could be a disposal site operator or a transporter. Based on the '*duty for care principle*' the generator is still accountable for pollution caused unless proof of transferal of management of waste can be shown.

Precautionary Principle holds that the waste generator has the responsibility of obtaining information to prove the measure hazardousness of the waste as this principle assumes that waste or an identified contaminant of waste is both highly hazardous and toxic until proven otherwise.

Figure 2.1 below shows the waste management model that influence the rigorous approach to integrated waste management strategies adopted as means to curb the effects of waste through its management at a national level.

Figure 2.1 A functional approach to integrating pollution and waste management (Adapted form IP&WM Policy, 2000: 29).



Based on international legal frameworks, such as the Kyoto Protocol, South Africa has developed its own national policies in line with international treaties. The frameworks among others include the Constitution of the Republic of South Africa (Act 108 of 1996), the National Environment Management Act 107 of 1998 (NEMA), National Environmental Management Policy for South Africa, (NEMP, 1998), and the White Paper on Integrated Pollution and Waste Management (IP&WM) of 2000

2.4 South Africa's Legal and Policy Framework on Environmental Hazardous Waste Management

South Africa, being one of the countries that ascribe to the international principles of sustainable development, is not left untouched by challenges of implementing a holistic approach to development. South Africa, as a developing country, aims to achieve the benefits of social or industrial development while conserving the environment. Agenda 21 (the international policy for sustainable development for practical results) was further disseminated to the lower levels of governance, that is, at local government, through a programme or policy called Local Agenda 21.

Local Agenda 21 emphasizes the importance of hazardous waste management for public health, environmental protection and sustainable development. It identifies that the generation of waste and emissions of pollutants or contaminants to soil, air, and water, continues to present major threats to the environment and people, especially poor communities who often have no proper infrastructure to deal with such health and environmental risks, or the option to avoid these risks. The problem is particularly acute in urban areas. Rapid industrialization coupled with increasing expansion of urban areas has had significant impact on the environment and urbanization. Unsound management or disposal of wastes including hazardous wastes has been recognized as being

among the most serious environmental problems because of the devastating impacts it has on public and environmental health.

The argument is that sustainability in the management of hazardous waste can only be achieved through good cooperation and relations between government, the private sector and civil society. In addition, the lack of co-operative governance that does not involve all three spheres of government and does not extend to co-operation with other sectors outside of government cannot lead to the sustainable management of hazardous wastes. This emphasizes the importance of intergovernmental relations in achieving coordination across the three spheres of government in the management of hazardous waste.

Protecting human health and the environment from dangers posed by hazardous wastes is a human rights issue as much as it is a constitutional right. There are various legislation, policies, strategies and priority action plans that South Africa has enacted and implemented to honour and comply with international standards to sustainable development. The most pertinent policy documents are the National Environment Management, Act 107 of 1998 known as NEMA, the National Environmental Management Policy for South Africa National Water Act 36 of 1998, and the Integrated Pollution and Waste Management Policy for South Africa of 2000 (IP&WM) (Department of Environmental Affairs and Tourism, 1999c and d:1).

According to the South African National Environment Management, Act 107 of 1998, to date there are 26 international agreements (17 conventions, 4 protocols, 3 treaties and 2 agreements) that pertain to integrated pollution and waste management, 19 of which have been acceded to or ratified by South Africa. The following South African legislation fully or partially covers 12 of these international agreements:

- The Prevention and Combating of Pollution of the Sea by Oil Act (No. 6 of 1981) and regulations
- The International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties Act (No. 64 of 1987)
- The Dumping at Sea Control Act (No. 73 of 1980)
- The Prevention of Pollution from Ships Act (No. 2 of 1986) and regulations
- The Conservation of Agricultural Resources Act (No. 43 of 1983)
- The Nature Conservation Ordinances of the various provinces
- Antarctic Treaty Act (No. 60 of 1996)
- The Nuclear Energy Act (No. 113 of 1994)
- The National Water Act (No. 36 of 1998),
- The Environment Conservation Act (No. 73 of 1989), and
- The National Environmental Management Act (No. 107 of 1998).

2.4.1. The Constitution of the Republic of South Africa (Act 108 of 1996)

In Chapter two of the constitution of South Africa (Act 108 of 1996), which encompasses the Bill of Rights, section 24(a) and (b) are relevant to environmental matters which include hazardous waste management. It states that;

“Everyone has the right:

to an environment that is not harmful to their health or well-being; and
to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that

- i. Prevent pollution and ecological degradation;
- ii. Secure ecologically sustainable development and use of natural

resources while promoting justifiable economic and social development,” (Constitution of South Africa Act 108 of 1996).

It is thus explicit that the supreme law places upon government the obligation to not only protect and provide a clean, safe and healthy environment for its citizens but further uphold and put into action the principles of sustainable development. Section 32 and 38 of the Bill of Rights further insist on the rights to access to information and enforcement of rights for the exercise and protection of such rights, through the use of endorsed national legislation containing reasonable and implementable procedures (Constitution of South Africa, Act 108 of 1996). This is an important right because it means that those who pollute can be held accountable.

2.4.2. The National Environment Management Act 107 of 1998 (NEMA)

The National Environment Management Act 107 of 1998 (NEMA) is a national legislative framework emanating from the Constitution of South Africa Act 108 of 1996, and seeks to redress the environmental injustices in South Africa especially the disadvantaged communities because of inequitable resource distribution imposed by the past regime. NEMA is supposed to be the enabling policy for environmental management. The unequal resource distribution of resources had a major role to play in the degradation of the environment. NEMA offers a systematic plan on co-operative environmental governance both interdepartmentally and with external entities of the State through the process of decision-making which is further expressed in the National Environmental Management Policy of 1998.

NEMA embraces the principles of sustainable development as set out in Agenda 21 and further provides guiding principles on decision-making procedures

regarding matters of relevance to the environment. It is important to note that the Act did not give a concise implementable framework to realize effective environmental hazardous waste management (South African National Environmental Management Act 107 of 1998). In light of the above setback South Africa has been under active appraisal of its National Environmental Management Policy and has also produced a White Paper on Integrated Pollution and Waste Management Policy of 2000. Such environmental laws demand that all three spheres of government have to collectively work together and ensure that legislation is implemented, regulations are met and compliance is achieved.

2.4.3. The National Environmental Management Policy for South Africa, (NEMP, 1998)

Since 1994, various governmental departments, namely: national Department of Environment Affairs and Tourism (DEAT), the Department of Minerals and Energy (DME), the Department of Health (DoH), the Department of Trade and Industry (DTI), and the Department of Water Affairs and Forestry (DWAF), have tirelessly been engaged in a continuous review of the environment policy and legislation which had to appeal in all field of government activities within and across departments (National Waste Management Strategy, 1999d:7).

In dealing with hazardous waste management, the reviewed National Environmental Management Policy has adopted a new paradigm which emphasizes the importance of prevention and disposal rather than controlling the end product of waste. As the policy is a subsidiary of international policies and legislation, it therefore adopts the sustainability approach and thus concentrates on resolutions that seek to achieve and promote environmental and economic gains predominantly in disadvantaged communities (DAEA, 1998).

The primary aims upheld by the National Environmental Management Policy for waste management incorporate the

- promotion of cleaner production and mechanism to ensure continuous improvement in best practices in all areas of environmental management;
- prevent, reduce and manage pollution of any part of the environment due to all forms of human activities; and
- ensure the protection and proactive management of human health related to the environment.

These fundamental objectives of the National Environmental Management Policy are said to be implemented through the use of among others the National Waste Strategies and Action Plans which also put into effect the Integrated Pollution and Waste Management Policy of 2000 (DEAT,1998).

2.4.4. The White Paper on Integrated Pollution and Waste Management (IP&WM) of 2000

This IP&WM policy subscribes to the vision, principles, goals and regulatory approach set out in the environmental management policy and Act (NEMA) and details the government's specific policy for pollution and waste management. (IP&WM, 2000: 12). The IP&WM is precisely relevant to this research as it deals explicitly with hazardous waste management. This statement is firmly supported by the three adopted principles which deal with pollution and hazardous waste. The first principle is on transboundary movement of hazardous waste. This principle asserts that the "transboundary effect on human health and the environment should be taken into account." Duty-of-care is the second principle which declares that "any institution that generates waste is always accountable for the management and disposal of this waste and will be penalized appropriately for any and every transgression committed (IP&WM, 2000: 12-13)."

The third principle of the universal applicability of regulatory instruments affirms that "all industrial, agricultural, domestic/household and governmental operations in South Africa will be subject to the same integrated pollution and waste management regulatory system," (IP&WM, 2000:13). Before the drafting of the White Paper on Integrated Pollution and Waste Management Policy of 2000 (IP&WM), various legislative frameworks in forms of Acts and policies were adopted to respond to environmental problems. None of the previous environmental policies offered a non-fragmented and properly coordinated plan for the policy implementation of hazardous waste management.

Previously, government did not have a specific hazardous waste management policy to control waste from its generation to its disposal. Now the state has moved towards a more integrated approach that encompasses pollution prevention, waste minimization, cross-media integration, institutional integration of departments and intergovernmental relationship between the three spheres of government. The IP&WM also calls for the participation of all sectors of the society through education and training to attend to pollution and waste management matters (National Waste Management Strategy, 1999). The IP&WM policy extends over the entire waste cycle phenomena termed 'cradle to grave' which means that waste is dealt with from its generation, storage, collection, transportation, treatment and up to the final disposal stage of waste.

This IP&WM policy is part of the South African government's efforts to meet the goals of Agenda 21 and Local Agenda 21 which calls for the effective implementation of environmentally sound practices at local level. The mandatory National Waste Strategy, which includes Priority Action Plans are used as implementation tools for IP&WM policy.

The National Waste Management Strategy (NWMS) necessitates all nine provinces in South Africa to compile provincial policies, strategic plans and

implementation strategies (DEAT, 1999c). Chapter 3 of the Constitution of South Africa provides for co-operative governance among the three sphere of the country (that is national, provincial and local government). Chapter 6 and 7, Schedule 4 and 5 of the constitution further outline the competences and functions of provincial and local government. Schedule 4 Part A stipulates that environmental and pollution management are concurrent functional areas to national and provincial legislative competences. Part B of Schedule 4 states that local government is responsible for making regulations and the management of air quality. For local government to carry out these functions Section 155 (6) (a) and (7) states that;

6. "Each provincial government must establish municipalities in its province in a manner consistent with the legislation enacted in terms of subsections (2) and (3) and, by legislative or other measures, must
 - a. provide for the monitoring and support of local government in the province; and
 - b. promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs.
7. The national government, subject to section 44, and the provincial governments have the legislative and executive authority to see to the effective performance by municipalities of their functions in respect of matters listed in Schedules 4 and 5, by regulating the exercise by municipalities of their executive authority referred to in section 156(1)." (Constitution of South Africa Act 108 of 1996).

For a detailed list of functions of the three spheres in Schedule 4 and 5, with regard to hazardous waste and pollution management see Appendix 1.

2.4.5. Co-operative Governance with regards to the Management of Hazardous Wastes

The national policy on environmental management declares that government must recognize its shared responsibility and thus integrate environmental matters into the work of all government institutions and maintain effective co-operative governance (NEMP, 1998:69, 70). Chapter 3 (Section 41) of the Constitution, explicitly states that the three spheres of government are distinctive, interdependent, and interrelated. The principle behind having three distinctive governmental structures is as a result of an attempt by the government to decentralize authority. Decentralization through devolution of power is a process that necessitates the transfer of power complemented by resources and legally defined areas of competence from the central authority to the lower levels of government in South Africa, which are provincial and local government. For proper coordination and cooperation the IP&WM and the National Waste Management Strategy further outline the roles and responsibilities of the three spheres of governance concerning hazardous waste management.

The above discussion describes the environmental and waste management policy framework in South Africa. However, it can be concluded that waste management policy in South Africa is broad and offers very little detail on how policy is to be put into effect at local government level. It is crucial to note that South Africa does not have a policy that specifically deals with hazardous waste or pollution only. Hazardous waste management is included as a component in the general management of waste which again, indicates the vagueness of national policies. In the next section, a brief look will be taken at a case study on hazardous waste management specifically pollution in the Durban South Basin. The implementation of the above mentioned legal framework will be put to test with regard to sustainable practices towards the protection of public health and the environment.

PART THREE: THE CASE STUDY

3. Introduction

The case-study component of this research project focuses on issues of hazardous waste management in the eThekweni Metropolitan municipality. It will focus on the South Durban industrial area of Durban which is characterized by heavy industry and a highly affected community. A closer look at the eThekweni municipality will be taken, in order to illustrate some of the problems experienced by municipalities in their pursuit of economic development. The focus of this research project is on hazardous waste management and pollution in the eThekweni metropolitan municipality. Although generalizations cannot be made, it still offers an interesting insight into some of the socio-economic challenges which municipalities face. This chapter will highlight the significance of environmental coalitions and their impact on environmental policymaking and policy implementation.

In the Constitution of the Republic of South Africa (Act 108 of 1996) a provision is made for Local Government as a distinct, interdependent and interrelated sphere of government, unlike in the previous regime where local government was merely an extension of central government power. At present, local government has been given a new authority to create and sustain humane, equitable and viable human settlements. This new authority is constitutionally provided for in Chapter 7, Section 151 (3), which state that;

“A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation, as provided for in the Constitution.”

Concurrently, Section 152(1) (b) (c) (d) of Chapter 7 specifies the objects of local government which are;

- b. To ensure the provision of services to communities in a sustainable manner;
- c. To promote social and economic development;
- d. To promote a safe and healthy environment; (which is a right provided for in the Bill of Right Section 24 that stipulates that everyone has a right to a safe and health environment)

The White Paper on Local Government (1998) is a policy framework that was adopted to map out the transition phase to transform local government to be able to fulfill the above stated mandate. The White Paper on Local Government (1998) informed the drafting of core legal frameworks governing local government. These policy frameworks include the Municipal Demarcation Act (Act 27 of 1998); the Municipal Structures Act (Act 117 of 1998); the Municipal Systems Act (Act 32 of 2000) and the Municipal Finance Management Act (Act 56 of 2003). These legislation support the move towards the transformation, growth and consolidation of a democratic developmental local government (Local Government Bulletin, 2001).

Chapter 4 of the Municipal Systems Act emphasizes the importance of community participation and further outlines the structures, procedures and processes to be followed for such participatory local governance. The Municipal Systems Act highlights three crucial areas where communities and civil society organizations can engage with government and promote participation. These involve participation in;

- (a) the integrated development planning (IDP) process,
- (b) the evaluation of the municipal performance through performance management and;
- (c) the budget process and strategic decisions around service delivery.

The Act further emphasizes that in order for municipalities to promote participation, capacity-building for communities, staff and councillors is compulsory and municipalities must budget for such activities (Local Government Bulletin, 2001).

3.1. The eThekweni Municipality

The eThekweni Municipality (previously called the Durban Transitional Metropolitan Council) is situated on the eastern shores of KwaZulu-Natal. The eThekweni Municipality is one of the six metropolitan municipalities in South Africa established by the Municipal Demarcation Board. Metropoles fall under Category A type municipalities and according to the Municipal Structure's Act of 1998 a Category A municipality;

(a) can reasonably be regarded as

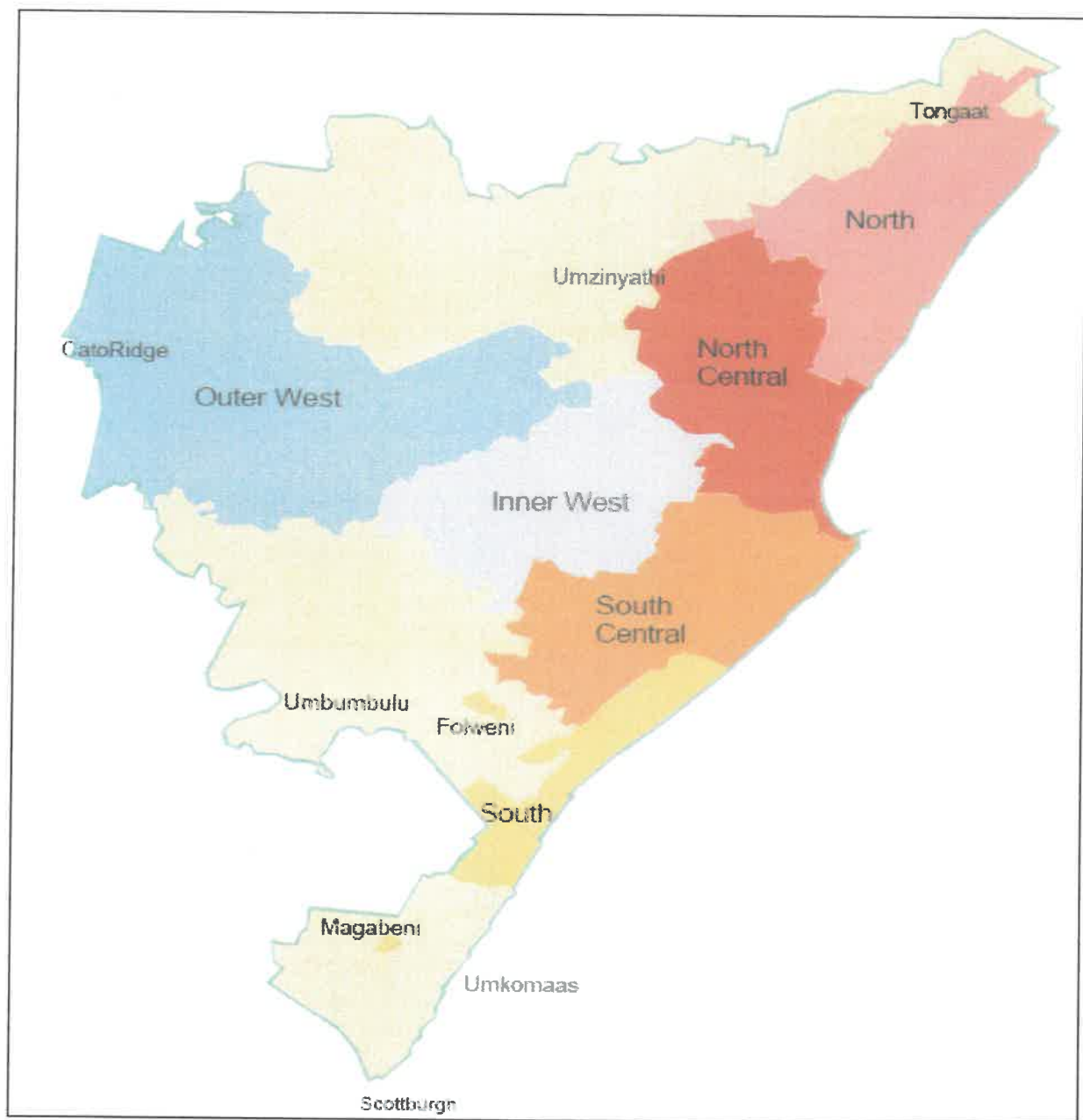
- (i) A conurbation;
- (ii) A functionally integrated area;
- (iii) A national centre of economic activity with a complex and diverse economy; and
- (iv) A single area for which integrated development planning is desirable; and

(b) is characterized by

- (i) Strong social and economic linkages between its constituent units; and
- (ii) a high population density.

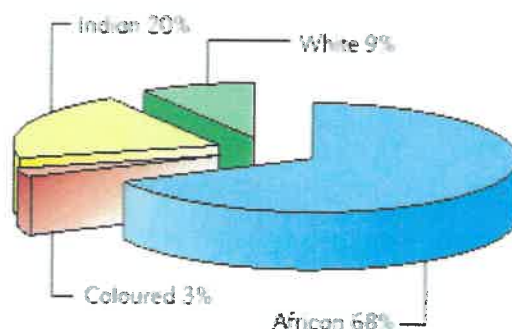
The eThekweni Municipality's geographical area is 2291.645460 square kilometers and has a population of approximately 3.1 million. The eThekweni Municipality consists of 100 wards and has 200 councillors. After the conclusion of the local government demarcation process in 2000, eThekweni's geographical area as well as its population size doubled.

Figure 3.1: The eThekweni Municipal Area (EMA)



The pie chart in Figure 3.2 below illustrates the four main race groups within eThekweni. The chart below indicates that the majority of residents (68%) are African (<http://www.demarcation.co.za>).

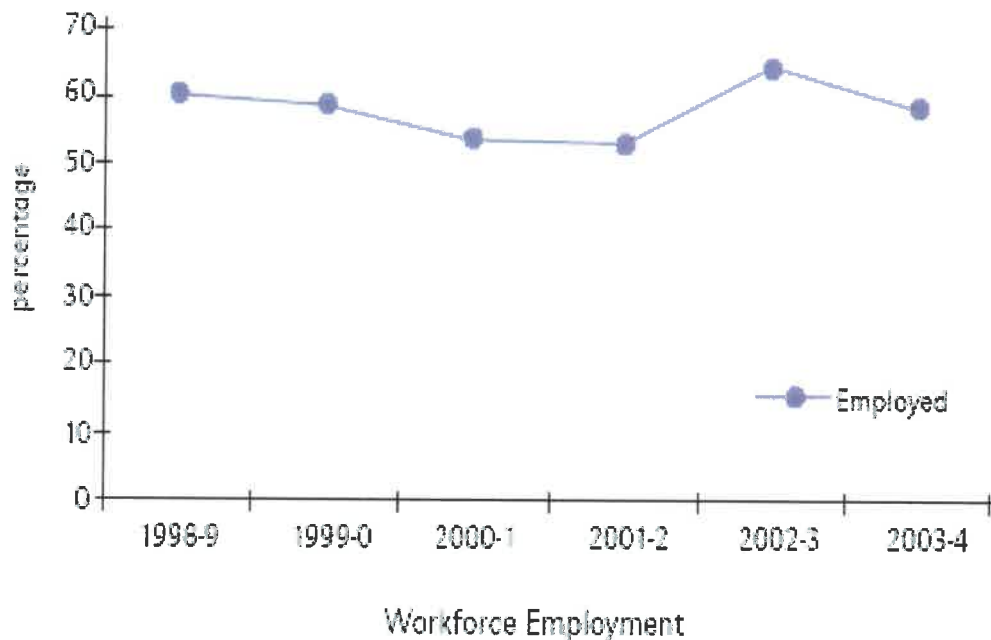
Figure 3.2: Racial breakdown of the population



The municipality claims that since 1998 there has been a continuous undertaking of research to improve the quality of life of their citizens. According to the eThekweni Quality of Life Survey (2005:4) the term quality of life refers to "good health, having reasonable standard of living, have a good relationship with family, colleagues and members of organizations that people belong to; and have access to basic services and community amenities." Durban is the second largest city in South Africa, and remains a rapidly growing urban area. It is Africa's busiest container port with a substantial industrial sector. Nevertheless, it is experiencing fluctuating employment and has a slow economic growth rate (eThekweni Municipality, Corporate Policy Unit: 2005: 2 - 4).

The graph in Figure 3.3 shows the fluctuating employment trends. The workforce employment dropped from 60% to 53% in 1998 to 2001-2002 it then rose to 64% in 2002-3, but fell to 58% in 2003-2004.

Figure 3.3: EThekweni Municipality's workforce employment trends from 1998 – 2004 (The Quality of Life Survey, 2005)



The Quality of Life Survey (2005: 4) claims that employment opportunities do not only increase economic growth of the municipality but it also improves the standard of living of citizens. An increase in the unemployment rate presents many challenges to both the municipality and the people with regard to the standard of living, health, social well-being and access to services.

The local government demarcation process (which took place from 1994 until 2000) has redefined local government boundaries and responsibilities. Local government is responsible for local economic development (LED) and is faced with the responsibility of alleviating poverty in their areas of jurisdiction.

The strategic planning process of local government is aimed to address these developmental challenges in a way which is environmentally sustainable. These responsibilities are said to be addressed through the preparation of statutory Integrated Development Plans (IDPs), which emphasize integrated and sustainable development. The IDP process aims to improve the quality of life of all citizens, to extend the provision of basic needs to all parts of the metropolitan area and to create opportunities for all economic, social and cultural initiatives.

3.1.1. The eThekweni Municipality and the Environmental Policy

All municipalities in South Africa are required to adhere to the national legislative framework for environmental management. A key philosophy of environmental policy in South Africa is that of sustainable development. Sustainable development is understood as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and further generations.

In 1994, in response to the call of sustainable development and the principles of Agenda 21, the municipality established an Environmental Division within its City Health Department and was the first municipality to develop a Local Agenda 21 developmental plan.

Local Agenda 21 is an internationally accepted policy framework that aims to accelerate the implementation of sustainable development. It promotes the participation of all sectors of the community at the local level. Moreover, it endorses the long term implementation of strategies that are socially, economically as well as environmentally sustainable.

Local Agenda 21 acknowledges that communities are unique; with their specific needs and that local authorities should therefore develop their Local Agenda 21 plans according to their exclusive priorities and available resources

The City Health Department in eThekweni is entrusted with the responsibility for the implementation of environmental management policy. The City Health Department has an Environmental Division which focuses purely on environmental management issues. This Division is also responsible for implementing hazardous waste management policy, which includes hazardous waste. Interviews with staff from the Environmental Division revealed that this department lacks operational capacity and resources especially human and technical resources which they feel weakens their ability to regulate and enforce compliance to hazardous waste management policy. One area identified by staff which faces serious and complicated hazardous waste and pollution management problem is the South Durban Basin.

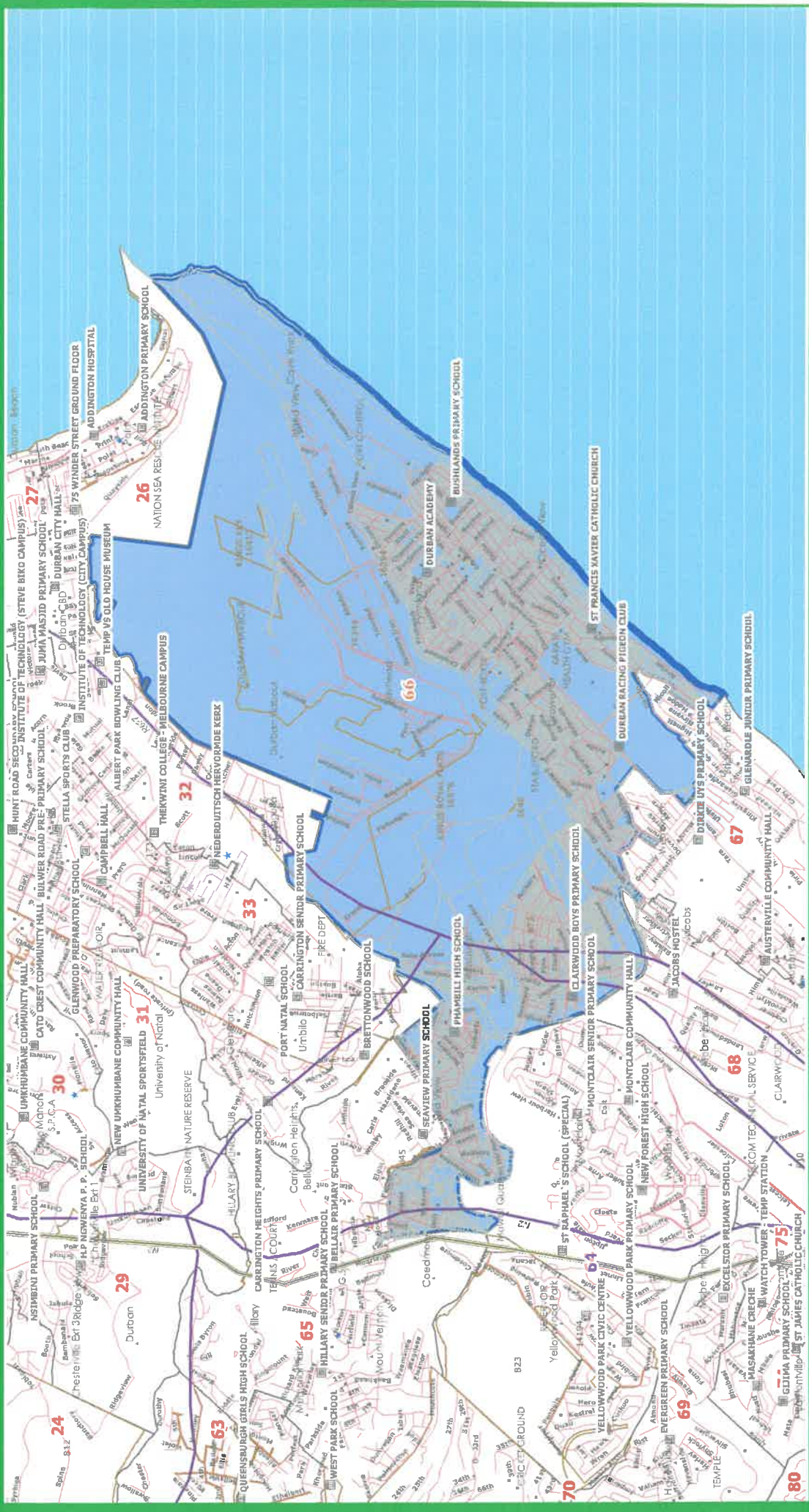
3.2. Description of the South Durban Basin

South Durban starts from the tip of the Durban Harbour and expands as far as Umkomaas in the south. In the South Durban Basin there are five industrial belts that include over 120 industrial plants. The socio-economic status of this area is characterized by multi-national corporations comprising major oil refineries (Engen and Sapref); an AECI Umbogintwini Industrial Complex comprising 15 companies; paper mills (Mondi and Sappi) as well as the Durban Airport which envelops the communities of South Durban Basin (SDCEA, 2005:2). Most of South Africa's oil is refined on the coast in South Durban which has positioned Durban to be Africa's busiest port. It is also the primary entry point for both imported crude oil and exported refined petroleum and petrochemical products.

The key problem is the close proximity of residential areas that are located between and adjacent to the industrial belts. The residential areas include Austerville, Wentworth, Merebank, Bluff, Umlazi, Isipingo, and Mobeni (Butler and Hallows, 2002:34). Figure 3.4 – Figure 3.6 below shows the maps of the South Durban Basin as better illustrated by wards 66 to ward 68.

There are approximately 285 000 people residing in and around the South Durban Basin. Although South Durban is largely a black dominated residential area. The impacts of the refineries are felt by all neighbouring suburban areas and across different racial groups.

The South Durban Communities are known for their robust activism against environmental degradation. Pre – 1994 community environmental protests were observed in the Durban South Basin but were regarded as political dissent and thus suppressed by the state. South African apartheid legislation (like the National Key Point Act and the Group Areas Act) allowed Multi-National Corporations (MNCs) the opportunity to dump thousands of tons of chemicals onto local communities. Such legislation allowed the MNCs to utilize community land and relocate people to other areas. Moreover, this legislative framework presented a platform where industrialists effectively exempted themselves from environmental and planning laws. As a consequence, the industries paid no or little consideration to environmental damage. (SDCEA, 2004:5; Butler and Hallows, 2002: 35 – 36; and Durning, 1990: 17).

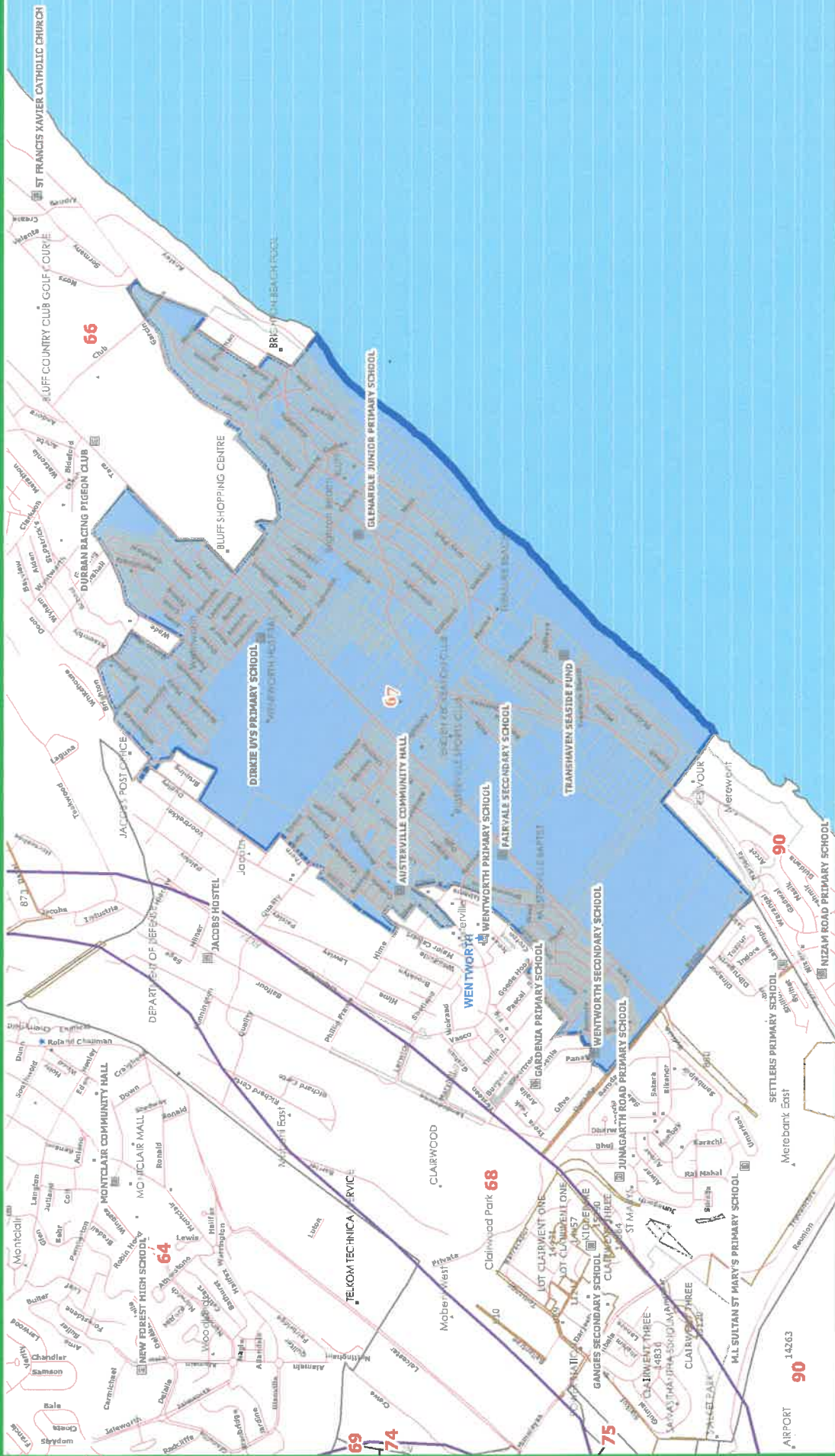


LOCAL ELECTIONS 2005 / 2006 WARDS

Total Voters	1375431
Min	11691
Norm	13754
Max	15817

- Place names
- Places of Interest
- Places of Worship
- Police Stations
- Voting Stations
- Parent Farm
- Gr
- IMA
- Ward





- Place Names
- Places of Interest
- Places of Worship
- Police Stations
- Voting Stations
- Patent Farm
- Est
- DMA
- Ward

Total Voters:	1375431
Min:	11691
Max:	13754
Avg:	15817



LOCAL ELECTIONS 2005 / 2006 WARDS





1 SEPTEMBER 2005

Figure 3.7: The proximity of the residential and industrial area at the South Durban Basin
(Courtesy of Groundwork: 2002).



However, despite a new democratic government being in place, Multi-National Corporations are still dumping tons of toxic chemicals into the immediate environment, impacting severely on local communities' air, water and land.

Different communities and community organizations have protested in this area. Their main concerns centred around the excessive pollution emanating from industry; the lack of access to information from government and industry; the poor record of industrial operation and environmental management; the lack of a strong and enforceable regulatory framework for industry; and a lack of effective monitoring of industrial activities by government. Local environmental activists in the South Durban Basin acknowledged the need to combine their efforts and form a network. The network's objective was to organize themselves so as to exert more pressure on government and the business sector to curb and act on the effects of high amounts of hazardous waste such as air and water pollution experienced in the South Durban Basin.

In 1996, community-based organizations from different communities merged with local non-governmental organizations to form the South Durban Community Environmental Alliance (SDCEA) aimed at achieving environmental justice.

3.3. The South Durban Community Environmental Alliance (SDCEA)

The SDCEA as an environmental justice organization has been in operation since 1996. Mr. DS'a (chairperson of SDCEA) has acknowledged that the SDCEA's vocal and vigilant contribution to the fight against hazardous environmental pollution in the South Durban has been remarkable. This alliance comprises fourteen different community-based organizations and local non-governmental organizations. The affiliates include the Austerville Clinic Committee, Wentworth Development Forum (WDF), Treasure Beach

Environmental Forum (TBEF), Silverglen Civic Association (SCA), House of Worship, Merebank Clinic Committee (MCC), Isipingo Environmental Committee (IEC), Earthlife Africa (EA), Clairwood Ratepayers Association (CRA), Christ the King Church Group, Bluff Ridge Conservancy (BRC), Isipingo Ratepayers Association, Joint Action Committee of Isipingo (JACI) and Athlone Park Residents Association (SDCEA, 2004: 2).

The SDCEA has gained national and international recognition and has formed partnerships with national and intercontinental environmental justice organizations. At national and international levels SDCEA is in partnership with Groundwork, Friends of the Earth International and the Danish Nature Foundation (DNF). These environmental justice organizations are well known organizations that specialize in providing technical expertise and funding to local based environmental justice organizations, to enable informed engagement on issues of environmental management. They are well established and acclaimed for their vibrant involvement on global environmental management issues (SDCEA, 2004:1, 2 and <http://www.groundwork.org.za>).

The Danish Nature Foundation (DNF) has served as a source of funding for the SDCEA. In an interview, Mr. Desmond D'Sa (chairperson of SDCEA) stated that in 2004 the DNF funded a comparative study between oil refineries between Durban and Denmark. Through the DNF funding, a geographical information system (GIS) was installed at the SCDCEA office. The GIS is used for logging communities' pollution complaints. The GIS automatically maps complaints and thereafter the complaint is followed up with eThekweni Metro Emergency requesting a Pollution Officer to investigate the problem.

The mission of the SDCEA is to contribute rigorously and significantly against environmental racism for environmental justice and environmental health.

The SDCEA coordinates and leads community action and negotiations with industry. In actualizing this goal, the SDCEA is extensively involved in research and reporting of industrial incidents and accidents. This environmental justice organization further lobbies and advocate for better air quality in the locale. Moreover, it promotes;

- Community empowerment to be able to monitor environmental air pollution and incidents.
- Defends communities rights to a clean and healthy environment
- Ensure fair community participation in Environmental Impact Assessments (EIAs).
- Lobbies for community participation in industrial licensing processes
- Distribute newsletters to the community
- Facilitates workshops to listen to, inform and empower communities; above all encourages people to report incidents Durban Metropolitan.

The densely concentrated petrochemical and chemical industries in the South Durban Basin area may have brought about economic development, but it has posed severe degradation to the environment's air, water and land. Water and air are the most common types of hazardous pollution experienced by the communities located in the South Durban Basin. Most of the industrial sites emit large quantities of pollution into the air which has caused severe health problems to neighbouring communities. Furthermore, the old machinery and technology used in the refineries operate under poorly maintained and outdated infrastructure which do not comply with the principles of cleaner production. In previous studies conducted at the South Durban Basin by the University of Natal Faculty of Medicine, Department of Environmental Health and Durban Institute of Technology (2002), it was found that this industrial heartland is severely tied up with lethal chemicals and fumes that attack the brain, central nervous system, liver, kidneys and lungs.

The air quality analysis research results conducted by the SDCEA found that the air is polluted by 16 of the most dangerous chemicals, seven of which are known to cause cancer. Industries in the South Durban Basin blame one another for this pollution (SDCEA, 2004:5). Multi-National Corporations (such as the Shell Group which owns 50% of SAPREF and the British Petroleum which owns the remaining 50%, as well as Engen, Mondi and Sappi) are regarded by the communities in South Durban as the largest polluters of the environment. SAPREF is said to have the capacity to refine 180 000 barrels of crude oil a day. SAPREF employs about 580 workers and 600 contractors and its operations include the refinery through residential areas to the Island View tank terminal. The Island View has storage tanks situated at the Durban coast where crude oil is off loaded from tankers and pumped to the refinery (Butler and Hollowes, 2002:35).

Mr. D'Sa chairperson of the South Durban Community Environmental Alliance, (SDCEA) stated that besides the known major corporations operating in the South Durban there are approximately 300 other smaller industries, but there is no comprehensive list of each industry and its contribution to the toxicity mixture in the air (SDCEA, 2004: 1), which they stress is important information that the residents should have access to. The SDCEA has been very successful in collecting data on the impacts on the pollution in the South Durban Basin. This information has empowered the network to demand the eThekweni municipality to take their concerns seriously. Below is a summary of some of their key findings.

Table 3.1, below shows (among others), the most dangerous chemicals found in the Independent Bucket Brigade Analysis, which is a simple effective scientific technique employed by trained community members that entail collecting air samples that are analyzed to determine the level of air pollution. The Bucket Brigade was initially used in the United States and California in 1994. Groundwork, (a South African based environmental justice non-governmental

organization), introduced this method to the area as a strategy to develop a community-based air quality monitoring systems (SDCEA-DN, Local Action Project, 2004-2005: 5).

Table 3.1: Shows the most dangerous chemicals found through the Bucket Brigade Analysis in the South Durban Basin and the associated health risks (SDCEA, 2004:5).

CHEMICAL	HEALTH RISKS
Benzene	Leukaemia, anaemia, and immune system deficiency
Tetrachloride	Kidney and liver failure and cancer
Toluene	can cause permanent brain damage, kidney failure, tiredness and confusion
Carbon – disulfide (mostly found chemical in bucket brigade samples)	cause severe chest pains, brain damage, liver and eyes problems

Figure3.8 further shows the number of chemical and oil refinery incidents between the period of 1998 – 2002. Table 3.2 and figure 3.9 shows a more detailed description of incidents and accidents in the South Durban Basin from 2004 to 2005.

Figure 3.8: Graph showing the number of chemical and oil refineries incidents: 1998 to 2002 (Butler and Hollowes, 2002:38).

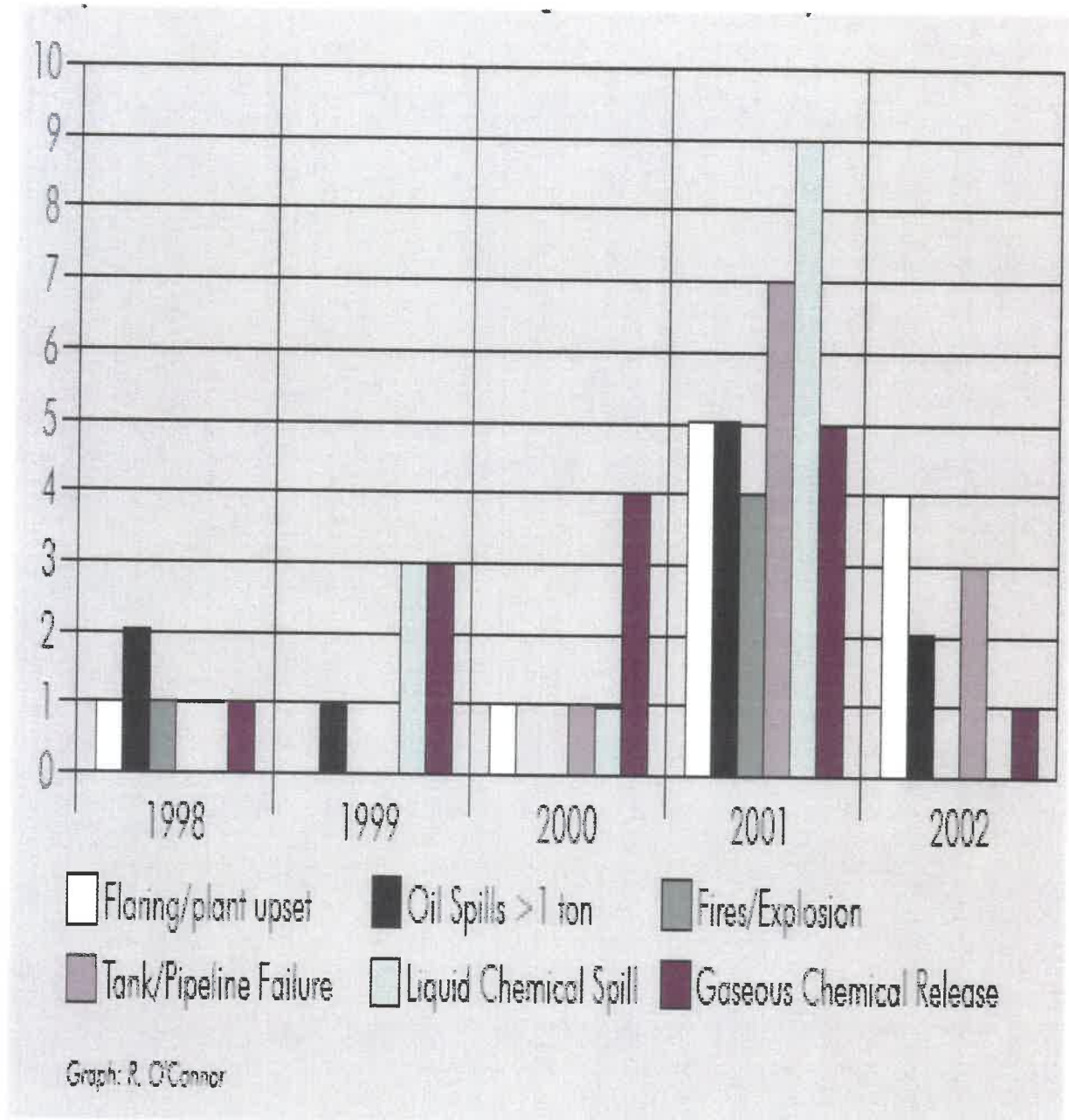


Table 3.2: A description of Industrial Pollution Incidents in 2001-2002, as recorded by SDCEA at the South Durban Basin (<http://www.groundwork.org.za>).

9 January 2001	Fire in the bitumen blending area. On the same day 6000 litres of solvent spilled from a faulty valve on a road tanker.
Jan 2001	Engen refinery spills 1000l oil into Badulla canal - claiming rain reason.
11 January 2001	Kynochem releases SO ₂ gas into the air resulted in 16 hospitalised.
23 January 2001	Fire at Shell/BP refinery in Crude Distillation Unit number. Also on this day 1000 litres of bunker fuel spilled into Durban Bay.
21 March 2001	Sapref tetra ethyl lead (TEL) tank failure resulting in 25 tons of TEL leaking out of tank. Incident continued for 4 days.
4 April 2001	Child at the Settlers Primary School in Merebank was hospitalized with severe respiratory problems after H ₂ S odorous emissions.
4 May 2001	2-ethyl-hexanol leak at Island View chemical storage area 50 tons.
16 May 2001	Island View Storage styrene leak - unknown quantity spilled.
28 May 2001	ENGEN worker T van der Schiff killed and another, E. Mlaba, seriously injured by hydrofluoric acid. No action taken against refinery
19 June 2001	SAPREF H ₂ S emission onto the community. Flare 'failure' at Sapref results in the release of unburnt gases which included a substantial amount of H ₂ S.
7 July 2001	SAPREF Pipeline petrol leak (1 million litres) discovered and reported by residents
14 July 2001	Sapref CD3 gasoil circulation pump fails releasing volatile cloud (due to operator negligence).
July 2001	Second leak on Sapref pipeline discovered. Residents demand pipeline be immediately inspected.
10 August 2001	4 km Traffic jam at Umbilo Road/Francois Road, Durban closed after toxic spill from a road tanker - chemical not identified.
15 August 2001	SAPREF (Shell/BP) Bitumen plant failure that which released smoke, soot and hydrocarbons.
August 2001	
27 August 2001	SAPREF pipeline leak reported Marine Fuel Oil (Lighthouse Road, Bluff)

14 September 2001	SAPREF flare failure
15 September 2001	Gas Leak Umbogintwini – 27 children hospitalized. confirmed that 3 children treated with gas inhalation by ambulance.
22 September 2001	Chemical warehouse in Mobeni burnt to the ground smouldered for two days.
27 September 2001	Shell/BP refinery third pipe leak reported (Lighthouse road - marine fuel oil)
14 October 2001	Island View - SAPREF spill of +/- 2 tons of Bunker fuel oil into Harbour Basin
25 October 2001	ENGEN reports underground pipe leak resulting in 25,000 litres of diesel being lost
22 November 2001	Engen flare problem results in massive flaring twice in one day
23 November 2001	
2 December 2001	Total tank storage leak 14000l fuel floods Isipingo residents' garden
24 December 2001	Tongaat Petronet pipeline explosion. Leakage of benzene.
30 December 2001	Sapref spilled 15 000 litres of marine fuel oil into Durban harbour.
24 January 2002	
17 February 2002	
21 February 2002	Engen - Safor Fire, Propane line rupture at Safor unit Engen refinery
21 February 2002	IOP Explosion -New boiler exploded having problems since commissioned three weeks ago one worker in critical condition and another minor injury.
22 February 2002	Engen refinery spills 3000 litres oil into Badulla canal and is fined R500. Claims caused by rain.
10 March 2002	
12 March 2002	Engen oil spill on Duranta Rd and Badulla Drive. Apparently the spill was covered with sand.
April 2002	Sapref discovers hole in pipeline - claims no product was lost.
29 April 2002	Power failure causes damage crude unit distillation tower, most of refinery shut down.
5 May 2002	Settlers School students taken ill after toxic emissions. Reference to Engen excessive flaring (Sunday Tribune Herald)
12 May 2002	Merebank community complaints of suffocating plume gases from Engen refinery as pilot flare fails on start up of refinery releasing raw VOCs.
9 July 2002	Sapref diesel pipeline leak, Tara and Bibeford Roads. 40 minute leak into ground.....
1 September 2002	Sapref- storage tank – sulphur pressure vessel exploded.
19 September 2002	Total – Grease reactor explosion
02 October 2002	
02 October 2002	Engen – Gas leak – community member called to say that everyone at the Merebank Shopping Centre were complaining about the strong

	smell.
09 October 2002	Bressman Bitumen And Paraffin Factory – Chemicals were being processed when explosion took place.
17 October 2002	Bressman Bitumen Factory – One worker dead, 7 injured – fuel storage tank exploded.
23 October 2002	Sapref – Power failure – Black smoke settled over communities- burning eyes, throat irritation etc.
24 October 2002	Engen – Gas – firefighters were sent to Durban Harbour. High security zone – leak discovered on an Engen Fuel storage tank.
15 November 2002	Michelle Footwear – 60 workers were overcovered – Gas leak reported – coming from a truck – SAP Metro Police, fire dept, contacted by SDCEA – reported by Tony Carnie
20 November 2002	Refinery – Industrial Oil Process – Toxic cloud let into the Air.
24 November 2002	
29 November 2002	
10 December 2002	Unknown tanker – spilled chemicals on Tara Road, Merebank
17 December 2002	
24 December 2002	Engen – 20 000lt of crude oil – spilled into the canal and moved into Harbour.
9 January 2001	Fire in the bitumen blending area. On the same day 6000 litres of solvent spilled from a faulty valve on a road tanker.
Jan 2001	Engen refinery spills 1000l oil into Badulla canal - claiming rain reason.
11 January 2001	Kynochem releases SO ₂ gas into the air resulted in 16 hospitalised.
23 January 2001	Fire at Shell/BP refinery in Crude Distillation Unit number. Also on this day 1000 litres of bunker fuel spilled into Durban Bay.

A Community under siege

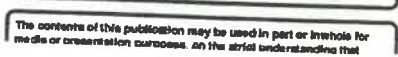


Figure 3.9 Pollution Incidents in the South Durban Basin

The SDCEA has forced the eThekweni Municipality's Environmental Division, to respond to the South Durban pollution challenges and health impacts. In response, the municipality established a Multipoint Plan known as the South Durban Basin Multipoint Plan (hereafter referred to as MPP). Recently the Environmental Division has introduced the eThekweni Municipality Environmental Policy Initiative (2005) which forms part of the amended Environmental Management Policy for the eThekweni Municipality. The programme was established towards the end of 2000. Its primary aim is to address industrial pollution by coordinating action with all three spheres of government with implementation being devolved to the local level (Butler and Hollowes, 2002:58,). The key purposes in the MPP include setting;

- national SO₂ standards aligned to World Health Organization standards,
- strengthening enforcement through the introduction of new legislation that will replace the Atmospheric Pollution Prevention Act (APPA)(Act No.45 of 1965), which has recently been replaced by National Environment Management: Air Quality Act (Act 39 of 2004)
- banning of the use of dirty fuel by industry in the South Durban Basin;
- Improving air pollution monitoring through the identification and minimisation of fugitive emissions; and
- assessing community health impacts.

According to the eThekweni's Municipal Manager Dr. Sutcliffe, the Multi-Point Plan

“is about changing the way government does business, creating a cleaner, greener and more modern industrial base through ensuring stronger political commitment, through frequent Inter-governmental co-operation and meetings, through establishing new policy and regulations (e.g. new local permitting and auditing system), through building capacity among all

stakeholders, through bringing business and communities into the decision-making process and through frequent public report-backs in the area. We continue to encourage all role players to be part of the South Durban Basin Multipoint Plan (SDP-MPP)."

This statement recognizes the significance of a relationship between community, business and government in effective environmental management. It also shows that there is commitment from the eThekweni Municipality to sustainable environmental management. However, this SDB-MPP programme did not originate from the eThekweni municipality but was a direct result of the continued pressure exerted by the SDCEA network on the municipality. This brings a number of key policymaking and policy implementation to the fore. The conclusion of this study will explore some of these implications.

PART FOUR: CONCLUSION

Cloete and Wissink (2000:249) articulate that policy implementation success or failure depends much on issues of capacity, resource scarcity, political will, or gaps in policy design. Authors like Cloete and Wissink (2000), Hill and Hupe (2002), argue that these challenges have the potential to infringe on human rights, environmental development issues, poor service delivery and can threaten the process of democratic consolidation.

The findings of this study, (which looked at the implementation of hazardous waste management policy in South Africa with a particular focus on the lack thereof in the South Durban Basin) conclude that a lack of policy design with specific measurable variables, capacity and resources deficiently impacts on policy implementation. This was the case with the eThekweni Municipality which did not only lack specific measurable outcomes on hazardous waste management, but also faced the shortcomings of the self regulation policy which industries were assumed to be practicing.

Although the introduction by the municipality of the Multipoint Plan attempted to address the issue pertaining to policy design, a lack of capacity and resources still presents and will continue to present a challenge for the eThekweni Municipality. The lack of capacity, technical and human resources to achieve efficacy in enforcing compliance makes policy implementation difficult to achieve. Such policy implementation obstacles threaten governance quality and question the reality of sustainable development on sound environmental management policies that promote economic development. This is so with the case of the South Durban Communities as their constitutional right to a clean and health environment is violated. The findings showed that the lack of proper implementation of hazardous waste management policy in South Durban is having devastating health consequences on these poor communities.

Residents in the South Durban Basin that were interviewed identified the lack of compliance and law enforcement by the eThekweni Metropolitan on the business sector. The community felt that there are no proper measures in place to enforce corporate accountability of their management of hazardous waste. Presently, industries are 'encouraged' to self-regulate. Based on the experiences of the South Durban communities, self-regulation has not been effective and should not be regarded as the policy implementation measure that will achieve efficacy on set policy objectives and community participation in its implementation. Consequently, policy implementation failure questions the practices employed by the municipality to achieve sustainable development in the area of hazardous waste management. This question arises as a result of a concern by the South Durban community, who feel that eThekweni Municipality economic development is the primary priority achieved at the cost of the citizens well being.

The findings of this research explicitly demonstrate the importance of a strong national framework in ensuring consistency especially on regulatory policy matters such as the environmental hazardous waste management. Parson (1995) argues earlier on that policy implementation success may to a large extent depend on the quality of interactions between the state and the elements in civil society. The involvement of civil society in the policymaking and implementation process is recommended by the bottom-up approach. In this case to achieve a consultative policy process as it was done with the eThekweni Municipality's Multipoint Plan and the National Environment Management: Air Quality Act, (Act 39 of 2004), it seems as if there is a need for a combination of the top-down and bottom-up approaches to policy implementation. The SDCEA and other local NGOs expressed a relief presented by the revised Air Quality Bill that is the National Environment: Air Quality Act, Act no.39 of 2004.

The SDCEA believes that through this Air quality Bill the South Durban communities can be protected. This relief is informed by the specific framework of norms and standards regulating air quality monitoring, management and control through explicit air quality measures (National Environment Management: Air Quality, Act 39: 2004).

Peters and Van Nispen (1998:85) state that policy implementation success can to a certain degree be accredited to the choice of policy instruments adopted. In this study policy networks played a crucial role in bringing attention to the issue of environmental hazardous waste management or the lack thereof, at the South Durban Basin.

The findings validated the importance of policy networks. In the first chapter of this paper, O'Toole et al (1997:137) stated that networks are important socially constructed institutions which can best serve as a purposeful mechanism in bringing about public reform and actualize policy implementation. Mandell (2001:189) too expresses that networks are a critical component in good governance, service delivery, inter-organizational relationships and intergovernmental relations.

This project has to a certain extent shown the significant influence of the different participants of the South Durban Community Environmental Alliance, which is a local based network of different Community-Based organizations, as well as its close collaboration with non-governmental organizations such as Groundwork, Friends of the Earth and the international Danish Nature Foundation.

It shows the diversity of interests that can be present in a network in civil society and their potential to collaborate and engage in the policymaking process and implementation thereof. Peters and Van Nispen (1998:85 -88), as well as Cloete and Wissink (2000:41) assert that networks do not consist of equal actors since they all have different access to resources, information and expertise as well as

differing objectives. They can be formal, informal or ad hoc. The authors further state that the intensity of their interactions and the actors' interconnectedness, compatible objectives, information sharing, and clear articulation and capacity to fulfil roles and responsibilities contribute to the cooperative and successful functioning of the network.

The findings of the study assent with the above stated theories, when one looks at the composition and activities of the South Durban Community Environmental Alliance. The network amalgamated and offered a resource pool, information sharing, shared values and solidarity among neighbouring communities and organizations (such as Groundwork and the DNF who offered technical expertise to SDCEA). As one united front, the SDCEA became a strong voice to be heard by the eThekweni municipal authorities. This facilitated the participation and inclusion of SDCEA into the drafting of the municipality's South Durban Basin Multipoint Plan Policy.

The SDCEA network achieved its primary goal of forcing the pollution problem in the South Durban Basin onto the eThekweni policy agenda. The SDCEA remains active and has established itself as a watchdog for community rights. It has expanded its purpose to encompass policy evaluation and monitoring of the municipality's implementation of hazardous waste management regulations within the South Durban area. It continues to interact and pressure the municipality to enforce its regulations and pressurize compliance of big industry operating in the area. Its collaboration with the municipality also empowers the municipality to take stronger action against polluting industries.

For the government the network offers operational capacity resources which is one of the challenges faced by the eThekweni Metropolitan. It also promotes sentiments expressed in the bottom-up approach with regards to its community participation and empowerment potential which characterizes good governance in the area of hazardous waste management.

Kickert et al., (1997: 14) expresses that networks can be used to motivate for greater compliance to regulatory policies only if operational rules are clear and actors' perceptions are geared towards collective action.

As networks involve managing interdependencies, to maintain a working relationship between the SDCEA and the eThekweni Municipality through the implementation of SDB-MPP programme, continuous participation and empowerment as well as balanced power relations is of prime importance.

In conclusion, the theoretical framework used for the analysis of hazardous waste management for the most part proved to be veritable. The implementation of hazardous waste management policy at the South Durban Basin has not been realized to the accepted standards, there is still much room for improvement on the part of the eThekweni Municipality. However, it is also crucial to note that the municipality itself faces major challenges as it lacks resources and capacity to effectively implement policies, monitor and evaluate compliance as well as promote and respect citizens' constitutional rights as required. Concurrently, having to achieve economic development to cater for a population of over 3.1 million of which the majority is poor, remains a challenge and a real problem for the eThekweni Municipality. It has to retain its strong economic base, and ensure that it creates a world class industrial zone for economic development while the same time, it has to ensure that public and environmental health are not compromised by the production activities of its main industries.

To achieve sound hazardous waste environmental management necessitates the creation of a cleaner, greener and more modern industrial base that use the best available technology for a cleaner production (Yap, 1999:170). For corporate environmental performance to be realized in the South Durban Basin specific regulations and law enforcement by the government remains important.

The lack of capacity and resources coupled with the urgency to enhance Local Economic Development (LED) and poverty alleviation shows the need for industries and the community by the Municipality for effective policy implementation. The continued existence and activities of the SDCEA network can assist the municipality in the implementation of their hazardous waste management policy. The SDCEA can act as a monitoring and evaluation body advising local government of weaknesses in their implementation. The SDCEA's research and data collection can be a useful resource for the municipality and can inform future policy decisions.

"We have to make people's constitutional right to live in a clean and safe environment a priority, and the shift towards alternative technology by industry is giving meaning to this constitutional right,"

Llewellyn Leonard, 2005. Groundwork

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Appendix 1

Schedule 4 - Functional areas of concurrent national and provincial legislative competence

Part A

- Administration of indigenous forests
- Agriculture
- Airports other than international and national airports
- Animal control and diseases
- Casinos, racing, gambling and wagering, excluding lotteries and sports pools
- Consumer protection
- Cultural matters
- Disaster management
- Education at all levels, excluding tertiary education
- **Environment**
- Health services
- Housing
- Indigenous law and customary law, subject to Chapter 12 of the Constitution
- Industrial promotion
- Language policy and the regulation of official languages to the extent that the provisions of section 6 of the Constitution expressly confer upon the provincial legislatures legislative competence
- Media services directly controlled or provided by the provincial government, subject to section 192
- Nature conservation, excluding national parks, national botanical gardens and marine resources
- Police to the extent that the provisions of Chapter 11 of the Constitution confer upon the provincial legislatures legislative competence
- **Pollution control**
- Population development
- Property transfer fees
- Provincial public enterprises in respect of the functional areas in this Schedule and Schedule 5
- Public transport
- Public works only in respect of the needs of provincial government departments in the discharge of their responsibilities to administer functions specifically assigned to them in terms of the Constitution or any other law
- Regional planning and development
- Road traffic regulation

- Soil conservation
- Tourism
- Trade
- Traditional leadership, subject to Chapter 12 of the Constitution
- Urban and rural development
- Vehicle licensing
- Welfare services

Part B

The following local government matters to the extent set out in section 155(6)(a) and (7):

- Air pollution
- Building regulations
- Child care facilities
- Electricity and gas reticulation
- Firefighting services
- Local tourism
- Municipal airports
- Municipal planning
- Municipal health services
- Municipal public transport
- Municipal public works only in respect of the needs of municipalities in the discharge of their responsibilities to administer functions specifically assigned to them under this Constitution or any other law
- Pontoons, ferries, jetties, piers and harbours, excluding the regulation of international and national shipping and matters related thereto
- Stormwater management systems in built-up areas
- Trading regulations
- Water and sanitation services limited to potable water supply systems and domestic waste-water and sewage disposal systems

Appendix 2:

Schedule 5 - Functional areas of exclusive provincial legislative competence

Part A

- Abattoirs
- Ambulance services
- Archives other than national archives
- Libraries other than national libraries
- Liquor licences
- Museums other than national museums
- Provincial planning
- Provincial cultural matters
- Provincial recreation and amenities
- Provincial sport
- Provincial roads and traffic
- Veterinary services, excluding regulation of the profession

Part B

The following local government matters to the extent set out for provinces in section 155(6)(a) and (7):

- Beaches and amusement facilities
- Billboards and the display of advertisements in public places
- Cemeteries, funeral parlours and crematoria
- Cleansing
- Control of public nuisances
- Control of undertakings that sell liquor to the public
- Facilities for the accommodation, care and burial of animals
- Fencing and fences
- Licensing of dogs
- Licensing and control of undertakings that sell food to the public
- Local amenities
- Local sport facilities
- Markets
- Municipal abattoirs
- Municipal parks and recreation
- Municipal roads
- Noise pollution

- Pounds
- Public places
- Refuse removal, refuse dumps and solid waste disposal
- Street trading
- Street lighting
- Traffic and parking

