EFFECTIVENESS OF STATE OF THE ENVIRONMENT REPORTING (SOER) IN THE GAUTENG PROVINCE

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Abstract

The United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, and Agenda 21 called for improved environmental information for decision making. In response to this demand for information, State of the Environment (SoE) Reporting has since become the globally accepted means of reporting on environmental issues, and of measuring progress towards sustainable development in the countries which have adopted the principles contained in Agenda 21. However, although a wealth of knowledge has been developed in terms of conducting and preparing SoERs there is still very limited research on the actual effects SoE Reporting has had on decision making. The purpose of this mini-dissertation was to investigate the effectiveness of SoE Reporting within Category A, B and C Municipalities in the Gauteng Province. The research results suggest that notwithstanding the extensive time and resources spent on conducting SoERs, the overall effect has been limited within the selected Gauteng Municipalities.

Key Words: effectiveness of SoER; environmental decision-making; Gauteng Province; SoE Reporting in South Africa; environmental management.

Opsomming

Die Verenigde Nasies kongres oor die Omgewing en Ontwikkeling in Rio de Janeiro in 1992, sowel as Agenda 21 vereis beter kwaliteit omgewingsinligting vir besluitneming. In reaksie het die lande wat Agenda 21 onderskryf, omgewingsrapportering ontwikkel as die internationale erkende tegniek om verslag te doen rakende die toestand van die omgewing. Alhoewel goeie vordering gemaak is met die toepassing van omgewingsrapportering, is daar baie min navorsing oor die effek van omgewingsrapportering op besluitneming. The doel van hierdie skripsie was om die effek van omgewingsrapportering te bepaal vir Munisipaliteite in Gauteng. Die resultate wys dat nieteenstaande die tyd en energie spandeer op die toepassing van omgewingsrapportering, dit beperkte invloed om besluitneming het.

Sleutel woorde: effektiwiteit van omgewingsrapportering, omgewingsbesluitneming, Gauteng Provinsie, omgewingsrapportering in Suid Afrika, omgewingsbestuur.

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List of Acronyms

CEROI	Cities Environmental Reporting on the Internet
CoJ	City of Johannesburg
CoT	City of Tshwane
CSoEI	City State of the Environment on the Internet
DEAT	Department of Environmental Affairs and Tourism
DPSIR	Driving Force, Pressure, State, Impact, Response
ECA	Environment Conservation Act
EMM	Ekurhuleni Metropolitan Municipality
EU	European Union
GBRMPA	Great Barrier Reef Marine Park Authority
GIS	Geographic Information System
GRID	Global Resource Information Database
ICLEI	International Council for Local Environmental Initiatives
IDP	Integrated Development Plan
IEMF	Integrated Environmental Management Framework
LM	Local Municipality
NEMA	National Environmental Management Act
NEPAD	New Partnership for Africa's Development
NORAD	Norwegian Agency for Development Cooperation
MCLM	Mogale City Local Municipality
MSA	Municipal Systems Act
MSDF	Metropolitan Spatial Development Framework
MTEF	Medium Term Expenditure Framework
OECD	Organisation for Economic Co-operation and Development
PAIA	The Promotion of Access to Information Act
PSR	Pressure, State, Response

RoD	Record of Decision
SA	South Africa
SDF	Spatial Development Framework
SDM	Sedibeng District Municipality
SoER	State of the Environment Report
UAC	Utilities, Agencies and Corporatised Entities
UK	United Kingdom
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Commission for Sustainable Development
UNEP	United Nations Environment Programme
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development

CHAPTER 1

INTRODUCTION

This Chapter introduces the research by outlining the background to SoE Reporting internationally, as well as in South Africa (section 1.1), the problem statement (section 1.2), research aim and research questions (sections 1.3 and 1.4). The structure of the mini-dissertation is also outlined (section 1.5).

1.1 Background

Following the United Nations Conference on the Human Environment, held in Stockholm in 1972, which highlighted the urgent need for action against environmental deterioration, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, provided the *fundamental principles and the programme of action for achieving* sustainable development. The widely supported definition of sustainable development is: "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987). In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it (United Nations, 1992). In the past, however, social and economic development and environmental and natural resource management programmes have largely been undertaken in isolation. The concept of sustainable development integrates these three equally important and inter-dependent components, and strives for: (i) a healthy society; (ii) a stable economy; and (iii) healthy ecosystems and ecological processes.

Through the so-called New Partnership for Africa's Development (NEPAD), as well as at the World Summit on Sustainable Development (WSSD), held in Johannesburg in 2002, South Africa re-affirmed its commitment to sustainable development. Agenda 21, the action plan for achieving sustainable development which emanated from the Rio conference, calls for, amongst other things, the improvement in the availability, quality and

accessibility of information and data for decision-making, with particular reference to the developing world.

Agenda 21 clearly identifies the need for the monitoring of performance in the economic, social and environmental spheres at various levels, ranging from global to local. Furthermore it calls for the development of sustainable development indicators to provide a basis for decision-making, and performance monitoring. In response, international, national, provincial and local requirements for reporting have been developed, while public and private sectors worldwide have embarked on sustainability-related reporting initiatives. Hence, State of the Environment (SoE) Reporting has since become the globally accepted means of reporting on environmental issues, and of measuring progress towards sustainable development in the countries which have adopted the principles contained in Agenda 21.

Within the context of the public sector, SoE Reporting represents a management tool that enables all stakeholders to understand the working of the natural environment in relation to human activities, and how their activities impact on the natural environment. This understanding enables people to reduce their negative impacts through changed behaviour and practices that are normally manifested in the form of programmes, projects and strategies. Environmental reporting enables community leaders, members, and public and private sector stakeholders to identify ecological trends, thereby finding sustainable solutions to reduce their negative impacts and to prevent irretrievable damages to the natural environment (DEAT, 1999a).

The purpose of the SoER for a Municipality is to provide information with regard to the state of the environment or current situation in a municipal area in a user friendly format. The SoER aims at providing information, which will set the framework for policies and strategies to deal with environmental problems. It therefore, contains recent information to aid in the planning process. SoE Reporting is an important step in the essential process of refining the information and knowledge base on which decisions about the environment are made. The value of the State of the Environment Report

lies in the fact that it informs decision-makers, interested and affected parties and the general public on the most fundamental issues and challenges. It also helps to measure the progress of policy in affecting change (The City of Johannesburg SoER, 2003).

SoE Reporting in South Africa has grown in popularity since it began in 1992, and a great deal of learning and improvement has taken place in the SoE Programme. South Africa has been successful in conducting numerous SOER initiatives (Muller *et al*, 2006). However, despite its growing popularity, there is still lack of evidence on its effectiveness as an environmental management tool for different spheres of government.

1.2 Problem Statement

The rationale for the State of the Environment Reporting is widely documented both in South Africa and elsewhere in the world. Globally, Chapter 40 (Information for Decision Making) of Agenda 21 provides the basis for state of the environment reporting, and sets out two programme areas to ensure speeding up of reporting processes, namely:

- Bridging the data gap; and
- Improving information availability.

Following on the developments since the Rio Declaration on Environment and Development, the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters was concluded in June 1998. The Aarhus Convention calls for necessary legislative, regulatory and other measures to measure that the general public and decision-makers are afforded access to environmental information. In terms of the Convention, such information should be housed within relevant public authorities.

Translating the global environmental commitments into the South African context is section 24 of the Constitution of the Republic of South Africa that provides citizens with 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. For this right to be actualized, citizens

should have the right to information held by the state. The National Environmental Management Act (NEMA, Act 107 of 1998) (RSA, 1998) section 31 (a) states that every person is entitled to have access to information held by the state. NEMA section 31 (b) provides organs of state with the right to information on the state of the environment.

As highlighted in the previous section, SoE Reporting in South Africa has grown in popularity since it began in 1992, and a great deal of learning has taken place in the SoE Programme. However, there are still serious questions around the effectiveness of SoE Reporting and if it is reaching its objectives, as well as adding value to decision making in South Africa.

This dissertation aims to investigate and determine the effectiveness of SoE Reporting within the Gauteng Province Municipalities in terms of the accomplishment or achievement of its expected benefits or functions and/or objectives, the reasons for non-achievement thereof, as well as to explore the recommendations to enable SoERs to become more effective in contributing to decision-making processes.

1.3 Research Aim

The intent of this dissertation is:

Research Aim

To determine the effectiveness of State of the Environment Reporting within selected Category A (Metropolitan), B (Local) and C (District) municipalities in the Gauteng Province.

1.4 Research Question

The overall research question that needs to be answered and which gives effect to the overall research aim is:

Whether State of the Environment Reporting (SoER) is an effective environmental management tool within *Category A (Metropolitan), B (Local) and C (District) municipalities* in the Gauteng Province?

To address the above-mentioned research question, the following sub-questions should first be answered:

1. What is the International and South African context of SoE Reporting?
2. What is the legislative framework related to SoE Reporting, internationally and in South Africa?
3. What is the International and South African view on the effectiveness of SoE Reporting?
4. What is the current status of SoE Reporting in the Gauteng Province?
5. What are the views of the various officials within the 5 selected Gauteng Municipalities on the effectiveness of their respective SoERs?

1.5 Structure of the dissertation

In order to ensure that the research aim was achieved and the research questions were answered, a structured research process was followed which also guided the eventual structure of the dissertation – see Table 1.1. In this regard the research can be divided into the following four phases which also relate to the different research questions, methodologies to answer those questions and finally the different chapters and sections of the dissertation.

Phase 1: Introduction and Methodology

In phase 1, the research is introduced and the methodology adopted for the research is also presented. Phase 1 comprises of the following chapters:

- **Chapter 1**: Introduction – introduces the research by providing the background to the research, presents the problem statement, research aim and research questions. It concludes by providing the structure of the mini-dissertation; and

- **Chapter 2**: Research design and Methodology – outlines the research methodology that was adopted to address the research questions.

Phase 2: Define and Prepare

Phase 2 of the research addresses sub-questions 1, 2 and 3, and aims to define the research in terms of the International and South African context of SoE Reporting, the legislative framework related to SoE Reporting internationally as well as in South Africa, as well as the International and South African view on the effectiveness of SoE Reporting. The following chapters are included:

- **Chapter 3:** Literature Review – provides the outcome of the literature review on the International and South African context of SoE Reporting, the legislative framework related to SoE Reporting Internationally as well as in South Africa, as well as the International and South African view on the effectiveness of SoE Reporting, the South African approach to SoE Reporting. It concludes by providing a brief overview on the SoER in the Gauteng Province.

Phase 3: Collect and analyze

Phase 3 of the research addresses research sub-questions 4 and 5. In this phase data is collected and analyzed. Phase 3 consists of chapter 4:

- **Chapter 4:** Data Analysis – establishes the effectiveness of SoE Reporting for the selected municipalities in the Gauteng Province based on the questionnaire survey and one-on-one interviews.

Phase 4: Conclude and Recommend

Phase 4 consists of **Chapter 5**: Conclusion and Recommendations - where conclusions are drawn and recommendations made in terms of the research results.

A clear linkage between the set research questions, the methodology applied to address the questions, the phases in the research process and ultimately the chapters relating to each research question had to be provided to allow for easy interpretation of results – as illustrated in Table 1.1 below:

Table 1.1 Structure of the dissertation

RESEARCH QUESTION: WHETHER SOE REPORTING IS AN EFFECTIVE ENVIRONMENTAL MANAGEMENT TOOL WITHIN CATEGORY A, B AND C MUNICIPALITIES IN THE GAUTENG PROVINCE? (see chapter 1)				
RESEARCH QUESTIONS (see chapter 1, section 1.4)	**METHODS** (see chapter 2)		**CHAPTERS** (see section 1.5)	
1. What is the International and South African context of SoE Reporting?	**Literature review** (see section 2.4)	**Phase 2** Define and prepare	Chapter 3 Literature Review	**Phase 1** Introduction and Research Methodology (see Chapters 1 and 2)
2. What is the legislative framework related to SoE Reporting, Internationally and in South Africa?	**Literature review** (see section 2.4)			
3. What is the International and South African view on the effectiveness of SoE Reporting?	**Literature review** (see sections 2.4)			
4. What is the current status of SoE Reporting in the Gauteng Province?	**Literature review** (see section 2.4) **Questionnaires** **Interviews** (see section 2.5 and 2.6)	**Phase 3** Collect and analyze	Chapter 4 Data Analysis	
5. What are the views of the various officials within the 5 selected Gauteng Municipalities on the effectiveness of their respective SoERs?	**Questionnaires** **Interviews** (see sections 2.5 and 2.6)			
RESEARCH AIM (see section 1.3) To determine the effectiveness of the State of the Environment Reporting within selected Category A (Metropolitan), B (Local) and C (District) municipalities in the Gauteng Province.		**Phase 4** Conclude and Recommend	Chapter 5 Conclusion and Recommendations	

CHAPTER 2

RESEARCH DESIGN AND METHODOLOGY

This Chapter describes the research methodology applied to address the research question, namely:

Whether State of the Environment Reporting (SoER) is an effective environmental management tool within *Category A (Metropolitan), B (Local) and C (District) municipalities* in the Gauteng Province?

The outline of this chapter is as follows:

Section 2.1 outlines the research design, followed by dealing with terminology and the criteria for measuring effectiveness in Sections 2.2 & 2.3, respectively. The approach to the literature review, questionnaire and interview schedule is outlined in Sections 2.4 to 2.6. Finally challenges to the research are highlighted in Section 2.7.

2.1 Research Design

State of the Environment (SoE) Reporting is a well known tool in South Africa as well as Globally. However, it is still difficult to assess the effectiveness of SOE Reporting in South Africa, and more specifically in the Gauteng Province, mainly because of the serious methodological challenges such research faces. Due to the lack of systematic research on the evaluation of the effectiveness of the SoE Reporting in South Africa, and internationally, no specific method or blueprint exists in that regard. Hence, the research design and methodology applicable to address the research question, as presented in Section 1.4, as well as the overall research aim, proved to be challenging.

Peshkin (1993) states that qualitative research studies serve one or more of the following purposes:

- **Description** – where the nature of certain situations, settings, processes, relationships, systems, or people, can be revealed.

- **Interpretation** – whereby, the researcher could (i) gain new insights about a particular phenomenon, (ii) develop new concepts or theoretical perspectives about the phenomenon, and/or (iii) discover the problems that exist within a phenomenon.
- **Verification** – the validity of certain assumptions, claims, theories or generalizations within real-world contexts can be tested.
- **Evaluation** – the effectiveness of particular policies, practices, or innovations can be judged.

In terms of this research the purpose related to 'evaluation' has particular reference. Moreover, it can also be argued that the research aims to test and verify the assumption that SoER is a good thing and adds value. Qualitative research is "*typically used to answer questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participant's point of view*" (Leedy & Ormrod, 2005). Experience in evaluation research also suggests that a case study approach is particularly appropriate because it allows the researcher to consider the contextual factors that influences effectiveness. The five cases that form part of this research were selected because they were the only SOERs that have been conducted in the province at the time of the research. The particular province was selected merely considering the required scope of the research and the need to set particular boundaries within resource and time constraints.

2.2 Dealing with terminology

To clearly understand the overall research aim, it was important to clarify the term "*effectiveness*" versus other terms such as "*efficiency*", "*effectivity*", and "*efficacy*". According to Harvey (2004) effectiveness is "*the extent to which an activity fulfils its intended purpose or function*". The Oxford University Press (2008) clearly distinguishes effectiveness from efficiency and efficacy, i.e. efficiency is understood to be "*getting things done*", and efficacy is "*doing things right*". Effectiveness is "*doing the right things*", to achieve the intended objectives, purpose or function.

2.3 Criteria for measuring effectiveness

Due to the lack of systematic research on the effectiveness of the SoE Reporting in South Africa, it is therefore challenging to identify criteria to measure effectiveness. Effectiveness is defined as the "*degree to which objectives are achieved and the extent to which targeted problems are resolved*" (Business Dictionary, 2007-2008).

For the purposes of this research, the criteria for measuring effectiveness relates to the views of the various officials within the five Gauteng Municipalities on whether State of the Environment Reporting within their respective contexts has informed decision-making. As a decision aiding / information tool the expectation is that SoER should inform decision making at all decision making tiers, i.e. policy, plans, programmes and projects.

It needs to be stressed that the results obtained from this research are based on the perceptions of key individuals within the organizations who are supposed to use the SoER. The conclusions therefore reflect perceived effectiveness. To determine the actual effectiveness will require a different methodology which would probably include environmental monitoring, content analysis of policies and reports, etc. However, it is the opinion of the researcher that the perceived effectiveness of the identified key individuals does reflect actual effectiveness, although such a hypothesis will need to be tested in follow-up research.

2.4 Literature Review

Literature related to State of the Environment Reporting in South Africa and internationally was collected and reviewed. The SOERs compiled within the selected Gauteng Municipalities were also collected and reviewed. Global trends in SoE Reporting, as well as the effectiveness of the state of the environment reporting as an environmental management tool in other countries were explored. This was to determine if the global environmental strategy for sustainable development (which resulted from the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, and Agenda 21, that called for improved environmental information for

decision-making) was being realized internationally, in South Africa, as well as within the Gauteng Province.

The literature review showed that a wealth of information exists on SoE Reporting methodologies as well as the reports themselves. Therefore the main debate emanating from the literature seems to be dealing with the question – 'how can we do SoE Reporting?' However there seems to be very limited debate asking - 'what are we achieving?' – and information on the effectiveness of SoE Reporting internationally and particularly within the South African context was hard to come by.

2.5 Questionnaires

In line with the qualitative research approach adopted for this research, a questionnaire with a list of open-ended questions that unpacks the research question was forwarded to officials in the Environmental Management departments within the five selected Gauteng Municipalities. These officials were either involved with the compilation of the individual SoE Reports, or they were not involved with the compilation of the individual SoE Reports as they were not yet employed within the respective Municipalities when the individual SoE Reports were compiled, however SoE Reporting falls within their area of responsibility, and are now responsible for their implementation.

A template of the questionnaire used in the data collection is attached as **Annexure A**.

2.5.1 Questionnaire to the five Gauteng Province Municipalities

A questionnaire with a list of open-ended questions that unpacks the research question: *"Whether State of the Environment Reporting is an effective environmental management tool within the five selected municipalities in the Gauteng Province"*, was developed and forwarded to the five Municipalities that formed part of this study.

The questionnaires were preceded by a telephone call to the respective officials prior to it being e-mailed, in order to introduce the research project, the data collection phases (i.e. questionnaires and one-on-one interviews) of the research project, to formally request assistance in completing the

questionnaire, and to seek assurance that the officials will further assist by availing themselves for the interviews in the second phase of data collection.

The questionnaire consisted of questions that wanted to establish, first and foremost, the respective officials' understanding of the SoER objectives and whether or not to their understanding, those objectives were being achieved within their Municipalities. The questionnaire also consisted of questions that aimed at establishing the following:

- Whether or not the Municipalities were using their SoERs as Management Tools, the benefits thereof or reasons for not using them as such, if not;
- The challenges in developing the SoERs;
- The reporting system used and reasons thereof;
- The role played by the officials in the SoER development process;
- Suggestions on how to improve the overall SoER process in future to ensure that it becomes an effective environmental management tool.

2.6 Interviews

One-on-one interviews were requested with all the five Municipalities involved in this study. However, the interviews were only conducted with those Municipal officials who were willing and able to assist within the various departments or sections of the Municipalities (Interview schedules are attached as **Annexure B**). The data was collected from the following sections or departments within the Municipalities:

- Environmental Management;
- Integrated Development Planning (IDP);
- Town Planning;
- Roads and Stormwater;
- Electricity;
- Water and Sanitation;
- Housing Development and Land;
- Engineering.

One-on-one interviews were secured and conducted with officials within the various departments or sections of Mogale City Local Municipality, City of Tshwane Metropolitan Municipality, and Ekurhuleni Metropolitan Municipality.

In addition to data collected by distributing questionnaires and conducting one-on-one interviews, additional data was collected via telephonic interviews as well as e-mail correspondence.

The details of the one-on-one interviews held with the various officials within the respective Municipalities are outlined in Sections 2.6.1 to 2.6.5 below.

2.6.1 Mogale City Local Municipality

The one-on-one interviews with Municipal officials from various departments within the Municipality, namely: (i) Roads; (ii) Urban Development; (iii) Environmental Management; (iv) Water and Sanitation; and (v) Housing, were conducted on the 05th September 2006, at the Municipal Offices. The interview schedule is attached as **Annexure B1**.

2.6.2 City of Tshwane Metropolitan Municipality

The one-on-one interview was held with Municipal officials from the Municipality's Environmental Management Division, as well as Water and Sanitation Planning. The interview was conducted on the 29th September 2006, at the Municipal Offices. Municipal officials from various divisions in the Municipality, i.e. (i) City Planning; (ii) IDP; (iii) Civil Engineering; (iv) Town Planning; and (v) Electricity; were also invited and questionnaires were forwarded to them for completion, however, not everyone responded or took part in the interview. The interview was conducted as part of an internal workshop that was arranged by the Chief Environmental Information officer responsible for SoE Reporting in the Municipality. The interview Schedule is attached as **Annexure B2.**

2.6.3 Ekurhuleni Metropolitan Municipality

The one-on-one interviews with Municipal officials from several departments within the Municipality, namely: (i) Town Planning; (ii) Environmental Planning and Coordination; (iii) Electricity; (iv) IDP; and (v) Housing and Land, were

conducted on the 19th June 2007, at the Municipal Offices. The interview Schedule is attached as **Annexure B3**.

2.6.4 City of Johannesburg Metropolitan Municipality

Several requests (via e-mail and telephone) for one-on-one interviews with Municipal officials from various Municipal departments, namely: (i) Water and Sanitation; (ii) IDP; (iii) Environmental Management; (iv) Land; (v) Housing; (vi) Town Planning; (vii) Civil Engineering; (viii) Roads; and (ix) Electricity were forwarded. However, the one-on-one interviews were not conducted, due to the lack of response from other Municipal officials to the request, and others' unavailability due to work commitments. A questionnaire was then forwarded to the respective officials for completion and not everyone responded. Responses were however received from the Municipal Planning and the Development Planning, Transportation and Environment Divisions. The questionnaire data collected was analysed and incorporated into Section 4.1, as part of the results obtained.

2.6.5 Sedibeng District Municipality

One-on-one interviews were arranged with Municipal officials from various Municipal departments, namely: (i) Water and Sanitation; (ii) IDP; (iii) Environmental Management; (iv) Housing; (v) Town Planning; (vi) Civil Engineering; (vii) Roads; and (viii) Electricity. However, the one-on-one interviews were not conducted, due to various reasons ranging from not being able to coordinate dates with various officials within the Municipality, their hectic work schedules, responsibilities, etc. A questionnaire with the interview questions was then forwarded to the respective officials to complete, however no responses were received. Therefore, apart from the environmental manager no other comments from Sedibeng were incorporated in the data analysis.

2.7 Limitations to the Research

The methodology designed for this research presented a number of challenges which need to be considered when interpreting the results. Firstly the lack of literature on the effectiveness of SoER meant that the research was essentially exploring uncharted waters, especially from a methodological

perspective. The wealth of literature on SoER generally added little towards assisting the particular research topic.

Secondly, securing information, feedback and one-on-one interviews with various officials within the selected Municipalities proved particularly challenging. Research of this nature needs to recognize these challenges early on to avoid unnecessary delays. The most important recommendation in this regard is to combine questionnaires with interviews. This provides a better success rate than using only one or the other. Therefore, although not all interviews with officials could be successfully arranged, the researcher still managed to cover three of the five municipalities extensively, and the environmental management sections of the other two provided sufficient data to complete the research and present valid conclusions.

CHAPTER 3

LITERATURE REVIEW

This Chapter aims to address research sub-questions 1, 2 and 3, namely:

What is the International and South African context of SoE Reporting?

What is the legislative framework related to SoE Reporting, Internationally and in South Africa? and

What is the International and South African view of the effectiveness of SoE Reporting?

As mentioned in the previous Chapter, State of the Environment (SoE) Reporting is a well known tool in South Africa as well as Globally. However, the effectiveness of SoE Reporting has not been widely explored. The rationale behind SoE Reporting, the legal mandate internationally and in South Africa, as well as the effectiveness thereof, is presented in this chapter.

Sections 3.1 to 3.3 present the international context of SoE Reporting, the legal mandate of SoE Reporting internationally and the international view on the effectiveness of SoE Reporting, respectively. SoE Reporting in South Africa and the approach thereof, are presented in Sections 3.4 and 3.4.1. Sections 3.5 to 3.7 outline the legal mandate of SoE Reporting in South Africa, the South African view on the effectiveness of SoE Reporting and SoE Reporting in the Gauteng Province, respectively.

3.1 The International Context of State of the Environment Reporting

Following the United Nations Conference on the Human Environment, held in Stockholm in 1972, which highlighted the urgent need for action against environmental degradation, the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, and Agenda 21, the global environmental strategy for sustainable development which resulted

from the Conference, called for improved environmental information for decision-making. State of the Environment (SoE) Reporting has since become the globally accepted means of reporting on environmental issues, and of measuring progress towards sustainable development in the countries which have adopted the principles contained in Agenda 21 (State of the Environment, DEAT, 1999b).

Globally, Chapter 40 (Information for Decision Making) of Agenda 21 provides the basis for state of the environment reporting, and sets out two programme areas to ensure speeding up of reporting processes, namely:

- Bridging the data gap; and
- Improving information availability.

Following on the developments since the Rio Declaration on Environment and Development, the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters were concluded in June 1998. The Aarhus Convention calls for necessary legislative, regulatory and other measures to measure that the general public and decision-makers are afforded access to environmental information. In terms of the Convention, such information should be housed within relevant public authorities.

Many of the Organisation for Economic Co-operation and Development (OECD) countries provide a variety of SoE Reports specifically tailored to the environments and reporting requirements of the individual organisations (GBRMPA, 1996-2007). The OECD recommended in 1979 that member countries, i.e. listed in Table 3.1 below, intensify their efforts to improve scientific knowledge, information, statistics and indicators on the state of the environment in order to contribute to the evaluation of the state of the environment, and of activities that have an impact on the environment and of environmental policies themselves. The OECD also recommended that member countries prepare periodic national reports on the state of the environment and its changes over time (Department of the Environment, Water, Heritage & the Arts, 2006).

Table 3.1 OECD Member Countries (OECD, 2005)

OECD Member Countries	Dates on which the OECD Member Countries deposited their instruments of Ratification of the Convention on the OECD
Australia	**7 June 1971**
Austria	**29 September 1961**
Belgium	**13 September 1961**
Canada	**10 April 1961**
Czech Republic	**21 December 1995**
Denmark	**30 May 1961**
Finland	**28 January 1969**
France	**7 August 1961**
Germany	**27 September 1961**
Greece	**27 September 1961**
Hungary	**7 May 1996**
Iceland	**5 June 1961**
Ireland	**17 August 1961**
Italy	**29 March 1962**
Japan	**28 April 1964**
Korea	**12 December 1996**
Luxembourg	**7 December 1961**
Mexico	**18 May 1994**
Netherlands	**13 November 1961**
New Zealand	**29 May 1973**
Norway	**4 July 1961**
Poland	**22 November 1996**
Portugal	**4 August 1961**
Slovak Republic	**14 December 2000**

OECD Member Countries	Dates on which the OECD Member Countries deposited their instruments of Ratification of the Convention on the OECD
Spain	**3 August 1961**
Sweden	**28 September 1961**
Switzerland	**28 September 1961**
Turkey	**2 August 1961**
United Kingdom	**2 May 1961**
United States	**12 April 1961**

SoE Reporting practices within the OECD member countries are very diverse. The diversity reflects the institutional arrangements for SoE Reporting within those countries, the different legislative or policy requirements, and whether the countries have devolved systems of SoE Reporting (Department of the Environment, Water, Heritage & the Arts, 2006).

Table 3.2 below, outlines some of the OECD member countries that have been preparing their SoERs for a number of years.

Table 3.2 OECD Member Countries that have developed SoERs (Department of Environment, Water, Heritage & the Arts, 2006)

Events related to SoE Reporting in Some OECD Member Countries	Period
Japan has been producing SoERs annually.	**Since 1972**
The German SoER "Daten zur Umwelt" (Facts and Figures on the Environment) has been published every 4 years.	**Since 1997**
Mexico has been producing SoERs every 2 years.	**Since 1986**
Spain has produced SoERs annually.	**Since 1984**
Switzerland has prepared SoERs every 3-5 years.	**Since 1990**

Events related to SoE Reporting in Some OECD Member Countries	Period
Some OECD Member Countries that prepare SoERs at regular intervals	
Canada used to prepare full SoERs every 5 years, but smaller indicator-based reports are being produced regularly, i.e. every 2-3 years.	
Denmark prepares a SoER every 4 years, with the latest report published in 2005.	
The Flanders Region of Belgium prepares a state of nature and biodiversity report every 2 years.	
Finland's report on Natural Resources and the Environment is published in connection with the State Budget each year.	
The Spanish Statistical Office (Instituto Nancional de Estadistica) regularly publishes several statistics from six environmental surveys and a system environmental accounts.	
Korea publishes an Environmental White Paper annually, and the Environmental Statistics Yearbook is published as a separate report annually.	
The United States Environmental Protection Agency produced their first SoER in 2003, with a second report planned for 2007.	
The Italian Ministry of Environment, i.e. Istituto Nazionale di Statistica (National Statistic Institute) and Agenzia per la Protezione dell'Ambiente e per I Servizi Tecnici (National Environment Protection Agency and Technical Services) provide regular reports and Environmental Databooks.	

Some countries do not prepare a single SoE report as environmental reporting functions are split among a number of agencies. In the United Kingdom (UK) for example, the Department of Environment, Food and Rural Affairs produces "Environment in Your Pocket" which is a representation of key environmental statistics based on the UK's sustainability indicators while the Environment Agency prepared their National SoE report in 2005. The report was an overview of the state of the environment in England and Wales and was issues-based (Department of the Environment, Water, Heritage & the Arts, 2006).

A list of other Countries that have developed SoERs throughout the years is outlined in Table 3.3 below.

Table 3.3 International Countries that have developed SoERs (GBRMPA, 1996-2007)

Events related to SoE Reporting: Internationally	Year
Canada SoE Report	1996
State of Protected Heritage Areas (Parks Canada)	1999
Global Environmental Outlook Report	2000
New Zealand SoE Report	1997
Associated States Report	2002
Norway SoE Report	1992
State of the World	2003
SoE Report (Environment Australia, SoE Reporting from a National perspective)	1996 & 2001
State of the Queensland Environment	1999
SoE Report – Australian Capital Territory	1997
SoE Report – New South Wales	2000
SoE Report – South Australia	2003
SoE Report – Tasmania	1997
SoE Report – Western Australia	1998
State of the Parks (New South Wales National Parks and Wildlife Services)	2001

Internationally, the SoE Reports are usually formulated by various administrative agencies. In countries such as Canada, Italy, United Kingdom and France, the SoERs are developed by Ministries of Environment, whereas the National Agencies for Environment are responsible for the formulation of SoERs in the Netherlands, Germany, Switzerland, Japan and Finland. The Bureaus of National Statistics are responsible for these reports in countries such as Norway and Sweden. The responsibility of developing SoERs is sometimes shared amongst several agencies, e.g. in Portugal, the responsibility is shared between the Ministry of the Environment and the

Ministry of the Plan; in Finland with the Environmental Data Centre; and in Norway with the agency responsible for the network dealing with the assessment and control of the pollution. The United States delegates the publication of the SoE Report to the Council on Environmental Quality which is part of the Executive Office of the President of the United States (Comolet, 1990).

The most frequently used approach to SoE Reporting internationally is the Pressure State Response (PSR) reporting framework, developed by the OECD in 1993. The PSR reporting framework provides for the organisation of information on the state or condition of the environment, in regard to its quality and the functioning of natural processes, and on human pressures affecting the natural environment. It also captures information on the societal responses implemented through programs or legislation to address the pressures and environmental issues. Environmental Indicators are used in capturing the information used for reporting (McPhail, 2005).

According to Comolet, 1990, SoERs are required by law in some countries, e.g. in Canada the Canadian Environmental Protection Act, in the United States, the National Environmental Policy Act, provides the legal mandate for the compilation of the report. Japan, Italy and Portugal, are also some of the countries where SoE Reporting is required by law.

The role of the SoE Reports is often badly defined in some countries. In most cases the reports are administrative in their orientation and scarcely praise existing policies. However in countries such as Canada, the Netherlands, Germany, Japan and the United States, the SoE Reports are regarded as information and assessment tools used to assist decision-makers, as well as to raise public awareness on the state of the environment (Comolet, 1990).

3.2 Legal Mandate of SoE Reporting Internationally

There is currently no consistent legal framework for SoE Reporting internationally. However, a number of countries have made considerable progress in incorporating SoE Reporting into planning and decision-making

processes and legal arrangements have been established in some places such as New Zealand, Belgium and Uganda. Other countries such as Ghana, Vietnam and Sri Lanka have drawn on the requirement for "access to information" as the basis for SoE Reporting rather than trying to incorporate the reporting process into environmental planning and decision-making processes (Muller *et al.*, 2006).

Several OECD member countries such as Canada, Mexico, Austria, Japan, Germany and the Netherlands, have a legal basis for environmental reporting and assessment, whereas other European Union countries operate under the EU common environmental legislation that includes statutes of information gathering. Finland has a general obligation to gather and disseminate information, while some OECD member countries such as Norway and Sweden have no specific legal basis for reporting and assessment (Department of the Environment, Water, Heritage and the Arts, 2006).

Italy's Ministry of Environment has been obliged to present a two-yearly SoE Report to the Parliament, since 1986. The Spanish National Statistics Plan includes several statistical operations on environment and sustainable development that are the official basis for SoE regular reporting, even though there is no specific legislation that currently exists in Spain. Australia has had a legislative mandate for SoE Reporting since the Environment Protection and Biodiversity Conservation Act of 1999 came into force in 2000. Australia has since adopted the practice of having a five-yearly SoE Report prepared by an independent committee appointed by the Minister for the Environment and Heritage (Department of the Environment, Water, Heritage and the Arts, 2006).

3.3 International view on the Effectiveness of SoE Reporting

The role of the SoE Reporting is often badly defined in some countries. In most cases the reports are administrative in their orientation and scarcely praise existing policies. However in countries such as Canada, the Netherlands, Germany, Japan and the United States, the SoE Reports are regarded as information and assessment tools used to assist decision-

makers, as well as to raise public awareness on the state of the environment (Comolet, 1990).

The extent to which the aim of SoE Reporting is being achieved at present is not clear. Also the relationship between SoERs and policy practice remains vague and mysterious. The question that still needs to be answered is whether SoERs guide policy or whether they are merely serving to reflect policy concerns. Currently, little is known about how SoERs feed back into policy mechanisms, and there is also little evidence to suggest any detectable policy effect (Briggs, 1995).

Availability and quality of data are in most cases said to be the main limiting factors of SoE Reporting. Available data tend to be scattered across different departments or institutions, and vary in both quality and character and is often incomplete. Data availability tends to restrict both the content of SoERs and the depth at which specific problems can be considered and addressed. There is therefore, a great need to improve data availability, quality and consistency. This then calls for action to be taken at almost all points in the data stream (Briggs, 1995).

According to the recommendations made by the Council on Environmental Information (OECD Instruments, 1998), there are various issues that need to be addressed to ensure that SoE Reporting becomes an effective environmental management tool that contributes to policies and decision-making processes. Some of the recommendations outlined by the Council were as follows:

- Efforts to improve as far as necessary the quality and relevance for environmental policy of data and information systems on the environment and related economic variables should be intensified;
- Monitoring and data collection concerning environmental pressures, conditions and responses, including explanatory information about current environmental changes should be improved;

- All appropriate levels of government should be encouraged to collect environmental data in order to enable them to monitor progress in environmental policies which they implement;
- Co-operation on environmental data among different administrations and government levels should be promoted;
- Co-operation in sharing methodologies and improving data comparability and collection systems should be developed, drawing on work done in various countries and in the framework of international organisations;
- Periodic assessment by regional or local authorities of environmental situations in their jurisdiction should be promoted;
- Indicators should be developed to measure environmental performance;
- Effective mechanisms to better inform the public, decision-makers and the authorities on environmental and sustainable development conditions and issues should be established.

Therefore, based on these recommendations, it is clear that the science behind the SoE Reporting process needs to be improved in order to ensure that the reports have the greatest impact possible in decision-making processes.

3.4 State of the Environment Reporting in South Africa

In South Africa, State of the Environment Reporting is co-ordinated by the Department of Environmental Affairs and Tourism (DEAT), through the Directorate: State of the Environment Reporting. The aim of the Directorate is to: (i) promote and direct the state of the environment reporting in all spheres of government; (ii) develop appropriate indicators for the purpose of reporting on the state of the environment; and (iii) develop and maintain geographically referenced environmental information to support decision-making (Muller *et al*, 2006).

In addition to state of the environment reporting at a national government level, SoE Reporting is also undertaken at provincial and local government levels. The provincial government department responsible for environmental affairs is responsible for the compilation of a state of the environment report,

whereas at local government level, the environmental department within the municipality undertakes SoE Reporting, even though sometimes the department responsible for the compilation of the report within the municipality is not called the Environmental Department. In most cases, all three spheres of government sub-contract Environmental Consultants to compile their SoE Reports on their behalf (Muller *et al*, 2006).

The roles and responsibilities of each sphere of government in the SoE Reporting process can be interchanged depending on which sphere of government is undertaking the process. At a National level, DEAT is responsible for managing the process whilst Provincial and Local government are consulted as Stakeholders, and/or asked to provide data. At a Provincial level, the Provincial environmental government department becomes responsible for managing the process, whilst DEAT's role will be that of a funding agent or as a participant within the Project Steering Committee, whereas the Local government will be consulted as a Stakeholder. At a Local level, the local government environmental department or municipality will manage the process, whereas DEAT will be the funding agent, and the provincial government will be consulted as a stakeholder (Muller *at el*, 2006).

There are several role-players outside South Africa that have an influence on SoE Reporting within South Africa. Approximately half of DEAT's SoE Reporting budget is provided by the Norwegian Agency for Development Cooperation (NORAD), the other being provided by the DEAT Medium Term Expenditure Framework (MTEF). Funding for the compilation of the 1999 South African National SoE Report, as well as for the Cities Environmental Reporting on the Internet (CEROI) project, was provided by NORAD supplementing the MTEF funds allocated to the afore-mentioned initiatives (Muller *et al*, 2006).

The first attempt to produce a National SoE Report for South Africa was made in 1992, when a report was submitted to the United Nations Environment Programme at UNCED in Rio de Janeiro, describing the South African environment and resource base (although South Africa could not

participate fully in UNCED, but only had observer status). Following this, a prototype electronic NSoE Report was compiled by DEAT in 1995, but was not published. The report was therefore the first National SoE Report on the Internet for South Africa. Even though the Internet was chosen as the preferred medium for the report, an overview of the National SoE Report was made available in print format. The report was also made available in various languages, i.e. Afrikaans, IsiXhosa, IsiZulu and in SeTswana, in order to make the report useful to a wide audience (DEAT, 1999b).

The electronic report was presented to the Director of UNEP GRID-Arendal (United Nations Environment Programme Global Resources Information Database, Arendal Office) during an official visit to South Africa in 1996. The Director of UNEP GRID-Arendal then encouraged the Norwegian Agency for Development Cooperation (NORAD) to provide financial support for a comprehensive National State of the Environment Report. The financial support was obtained between 1997 and 1998, and a comprehensive national assessment of the state of the environment in South Africa was initiated. The first South African National SoE Report was launched in 1999 by the Department of Environmental Affairs and Tourism (DEAT) and was made available on the Internet. This earmarked the start of many similar SoER initiatives in South Africa, i.e. Provincial, Local, Sector-specific reports (such as the State of Rivers – South African River Health Programme, 2004a) (Muller *et al*, 2006).

In 1998, the International Council for Local Environmental Initiatives (ICLEI) and the Global Resource Information Database (GRID)-Arendal, DEAT's Norwegian counterpart in Norway for the ICLEI pilot project, embarked on separate but related projects, focused on environmental information collected at the local level. The United Nations Environment Programme (UNEP) and GRID-Arendal's City State of the Environment on the Internet (CSoEI) project was a research project within the framework of Agenda 21 to facilitate access to environmental information for sound decision making and general awareness raising in Cities for sustainable development (Greater Pretoria Metropolitan Council, 2001).

This gave birth to the State of the Environment Reports for various South African Cities which were developed in parallel with the National report. The Cape Metropolitan area, Durban, Johannesburg Metropolitan area and Pretoria Metropolitan area, were among the first Cities to develop their SoE Reports. The purpose of the Cities' SoERs was to provide information on local environmental issues specific to each city, as well as to outline what needed to be done in order to enhance sustainable development and use of natural resources at a local level (DEAT, 1999c).

Preliminary SoE Reports for four South African Provinces, namely: North West, Gauteng, Mpumalanga and KwaZulu Natal, were developed as part of the State of the Environment Reporting Programme initiated by DEAT (DEAT, 1999a).

SoE Reporting has since become popular throughout South Africa and has been undertaken within the three spheres of government despite not having clear legal obligations to produce SoER in South Africa. Most environmental government departments throughout South Africa have embarked on developing and producing their own SoE Reports.

The timelines on SoE Reporting in South Africa between 1994 and 2004, are captured in "A Decade of State of the Environment Reporting in South Africa", (DEAT, 2004). Table 3.4 below, outlines various (but not all) State of the Environment Reports compiled between 1994 and 2004 (Muller *et al*, 2006):

Table 3.4 Timeline of SoE Reporting in South Africa (Muller *et al*, 2006)

Events related to SoE Reporting in South Africa	Year
Department of Water Affairs and Forestry initiates the concept of The River Health Programme.	**1994**
DEAT is mandated as the responsible body for SoER by the White Paper on Environmental Conservation.	
The unpublished prototype electronic State of the Environment Report for South Africa is produced.	**1995**

Events related to SoE Reporting in South Africa	Year
A paper on the use of Environmental Indicators in South Africa is Published by DEAT.	1996
South Africa participates in testing the United Nations Commission for Sustainable Development (UNCSD) indicators.	1997
The pilot State of Rivers Report for the Crocodile River, Mpumalanga, is released.	
The Cities Environment Reporting on the Internet (CEROI) initiative begins.	1998
Cape Town produces its 'Year1' SoE Report.	
The results of the UNCSD indicator testing are published.	
DEAT launches the first comprehensive National SoE Report on the Internet	
A preliminary report on the state of Human Settlements in South Africa is prepared.	1999
Cape Town produces its 'Year 2' SoE Report.	
SoE Reports for Johannesburg, Pretoria, Durban and Midrand are released.	
The State of South African Estuaries Report is released.	
The State of South Africa's Population Report is produced by the Department of Social Development.	
The State of Environment Reporting for schools is launched.	2000
The National SoER Overview is translated from English to Zulu, Xhosa, Tswana and Sotho.	
Cape Town produces its 'Year 3' SoE Report.	
An agreement between South Africa and Norway to support the SoE initiative is signed.	
The Provincial State of the Environment Reporting initiative is launched.	2001
The National Environmental Indicators Programme is launched.	
A State of Environment Reporting in South Africa Guideline Document is published to assist cities and provinces.	
The State of Rivers Reports for the Crocodile, Sabie-Sand, Olifants River Letaba and Levuvhu River Systems are released.	

Events related to SoE Reporting in South Africa	Year
Cape Town produces its 'Year 4' SoE Report.	
A Schools Competition on SoE Reporting is run by the City of Cape Town. A total of 28 schools participated in the competition.	
A Core Set of National Environmental Indicators for State of the Environment Reporting is published.	
The South African government hosts the World Summit on Sustainable Development in Johannesburg.	
The North West province releases its SoE Report.	
The State of Rivers Reports for the Umgeni River and neighbouring rivers and streams is released.	**2002**
Work on the development of an Environmental Sustainability Index for South Africa commences.	
Cape Town produces its 'Year 5' SoE Report.	
A State of Rivers poster on the Ecological State of the Gauteng Rivers is released.	
Limpopo, Mpumalanga, Mogale City and Mangaung release their SoERs.	
A project to develop environmental performance indicators for local authorities is launched.	
DEAT hosts the first SoE Reporting seminar, which was attended by over 50 participants.	
A three-day training workshop to teach Provincial representatives how to use the Publikit software is held in Pretoria.	**2003**
The State of Rivers Report for the Hartenbos and Klein Brak River Systems is released.	
First update of the National Environmental Indicators.	
More than 30 000 households are surveyed in the first Environmental Household Survey.	
The State of Rivers Reports for the Diep, Hout Bay, Lourens, Palmiet and the Free State Region River Systems are released.	**2004**
SoERs for the Eastern Cape, Gauteng and Western Cape are released.	
KwaZulu Natal, Northern Cape and Free State are in the process of releasing their SoERs.	

Events related to SoE Reporting in South Africa	Year
SoERs for Mbombela, Ekurhuleni and Johannesburg are released.	
The Publikit template for Provincial SoE Reporting is released.	
A Core Set of Environmental Performance Indicators for Local Authorities is released.	
The second SoE Reporting seminar is hosted by DEAT.	
DEAT assesses the impact of State of the State of the Environment Reporting in South Africa.	
A process to compile the comprehensive 2005/2006 National State of the Environment Report is initiated, and a national stakeholder workshop to determine issues for the 2005/2006 National SoE Report is held.	

In 2005, DEAT published the State of the Environment Reporting Guidelines for Municipalities. The purpose of the guideline was to assist municipalities in producing their own State of the environment (SoE) reports. Although DEAT acknowledged flexibility of SoE reporting to meet diverse objectives and user needs in South Africa, there was a realized need for greater harmonization of environmental information through development and encouragement of common approaches and practices. This would improve the quality and comparability of SoE information at municipal level. In addition to the guideline, DEAT also provides financial and technical support to selected municipalities in developing their SoE reports. DEAT is also concerned that the guideline should support, not only the production of technically sound SoE reports, but also the objective of influencing and informing decision-making through the effective communication of these data. The guideline is meant to be a valuable tool for municipalities embarking on SoE reporting process and for those developing subsequent SoE reports (DEAT, 2005).

3.4.1 Approach to SoE Reporting in South Africa

The approach to SoE Reporting can be defined by the reporting process, the reporting framework and the use of indicators in the report. The reporting process undertaken in South Africa, as with most environmental processes,

generally has a high degree of stakeholder participation. Stakeholders assist the project team in developing the reporting topics and identifying which indicators should be used in the report. As a result of stakeholder participation and the influence of local issues, provincial and local SoERs reflect some diversity in the reporting topics covered (Muller *et al*, 2006).

Methods for developing SoERs, i.e. for a City, Province, Country, etc., are similar. Usually the difference in these reports is with respect to the list of Environmental Indicators used for reporting. Although Provincial and Local government departments compile their own set of environmental indicators depending on the Province or Municipality's priority issues with respect to the environment, their environmental indicators lists have a link to the National State of the Environment Report indicators to ensure comparison nationally, as well as internationally. The set of environmental indicators developed by Provinces or Municipalities are based on the set of Environmental Indicators developed by the Department of Environmental Affairs and Tourism (DEAT) for the National State of the Environment Reporting, South Africa 2002.

The set of environmental indicators are divided into overarching environmental themes, which represent major groupings of subject matter or issues, which are closely related. Each theme addresses several issues for which indicators have been developed. The themes for both the Provinces and Municipalities are related to the National SoE Reporting themes, e.g.:

- Atmosphere and Climate;
- Inland Water Systems;
- Marine, Coastal & Estuarine environments;
- Biodiversity & Natural Heritage;
- Land Use;
- Waste Management;
- Human Well-being;
- Environmental Management.

A diagram illustrating how Environmental Indicators represent a powerful tool for communicating synoptic or summary information to the public and decision-makers is shown in Figure 3.1 below. Environmental Indicators focus and condense information about complex environments for management, monitoring and reporting purposes (DEAT, 2002).

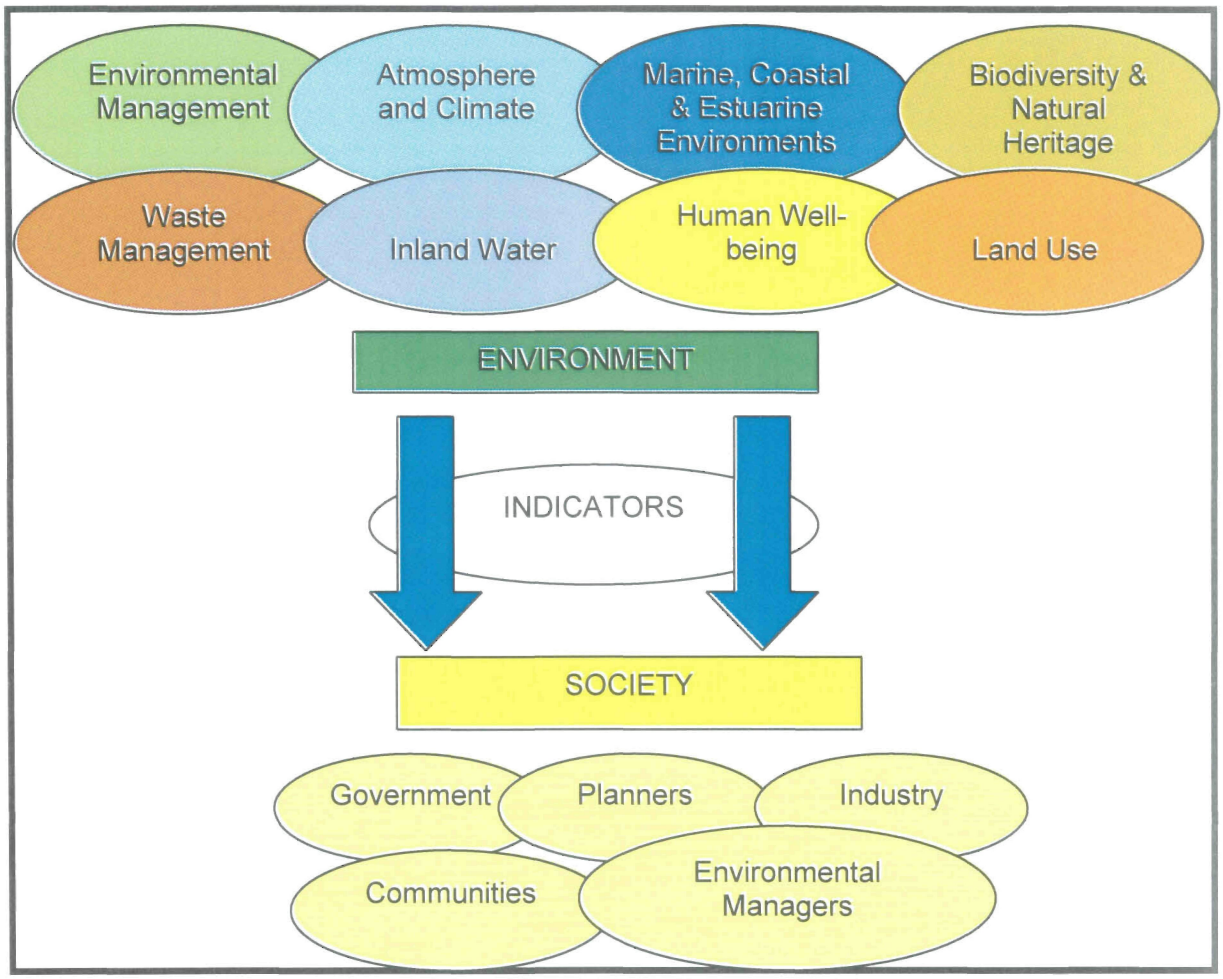

Figure 3.1 Selected SoER Indicator Themes (DEAT, 2002)

There are a number of reporting frameworks that are recognised in compiling SoERs, with some being more common than others. These include the Pressure, State, Response (PSR) framework developed by the Organisation for the Economic Co-operation and Development (OECD, 1993). The PSR framework was the initial basis for the further evolution of the framework, resulting in the so called Driving Force, Pressure, State, Impact, Response (DPSIR) framework, adopted by the European Environment Agency (1999), and the further development of the DPSIR has been outlined by Wieringa (1999).

In South Africa, as in many American and European countries, the Driving Forces, Pressures, State, Impacts and Responses (DPSIR) approach to the SoER has been adopted and used since the first SoERs. This approach represents a cycle that is used in identifying and addressing environmental issues around the world. It provides a robust framework through which issues and their related dimensions, impacts and effects are identified and addressed. However, the PSR framework has also been used in some SoERs developed in South Africa.

The DPSIR reporting system describes environmental issues in terms of the following (DEAT, 1999a):

Driving Forces These are the underlying human activities that lead to environmental change. They may be governmental activities, such as agricultural policies, or energy subsidization policies, corporate activities, such as irresponsible disposal of waste or inefficient use of raw materials, or they may be consumer activities, such as private vehicle use, or recreational activities.

Pressures These are the pressures that are exerted on resources and ecosystems, e.g. increased pollution of air, water and soil; or depletion of natural resources such as woody biomass. These indicators provide information regarding the causes of environmental problems, depletion of natural resources by extraction or over harvesting of natural resources, releases of wastes or pollutants into the environment or transformation of natural ecosystems to other uses. Measures of the magnitude or extent of such activities provide indicators of the stress or pressure on the environment.

State This assesses the state or condition of the resource or ecosystem as a result of the pressures. It describes the quality or "state" of the environment, particularly the decline

in the quality attributable to human activities. These include measures of urban air quality, water quality and soil and land quality.

Impact These are the consequences of the pressures on the environment, for example: reductions in biodiversity, soil degradation, poor human health, lack of clean and safe water, etc.

Responses This relates to the societal response to improve the environment or to lessen the degradation of the environment. Response describes policy decisions and their implementation in the form of treaty agreements, budget commitments, research effort, compliance with regulations, introduction of financial incentives or voluntary behavioural changes via policies, laws, programmes, research etc. It also highlights the recommendations for additional activities to alleviate environmental problems.

A diagram illustrating the DPSIR reporting system is shown as Figure 3.2 below.

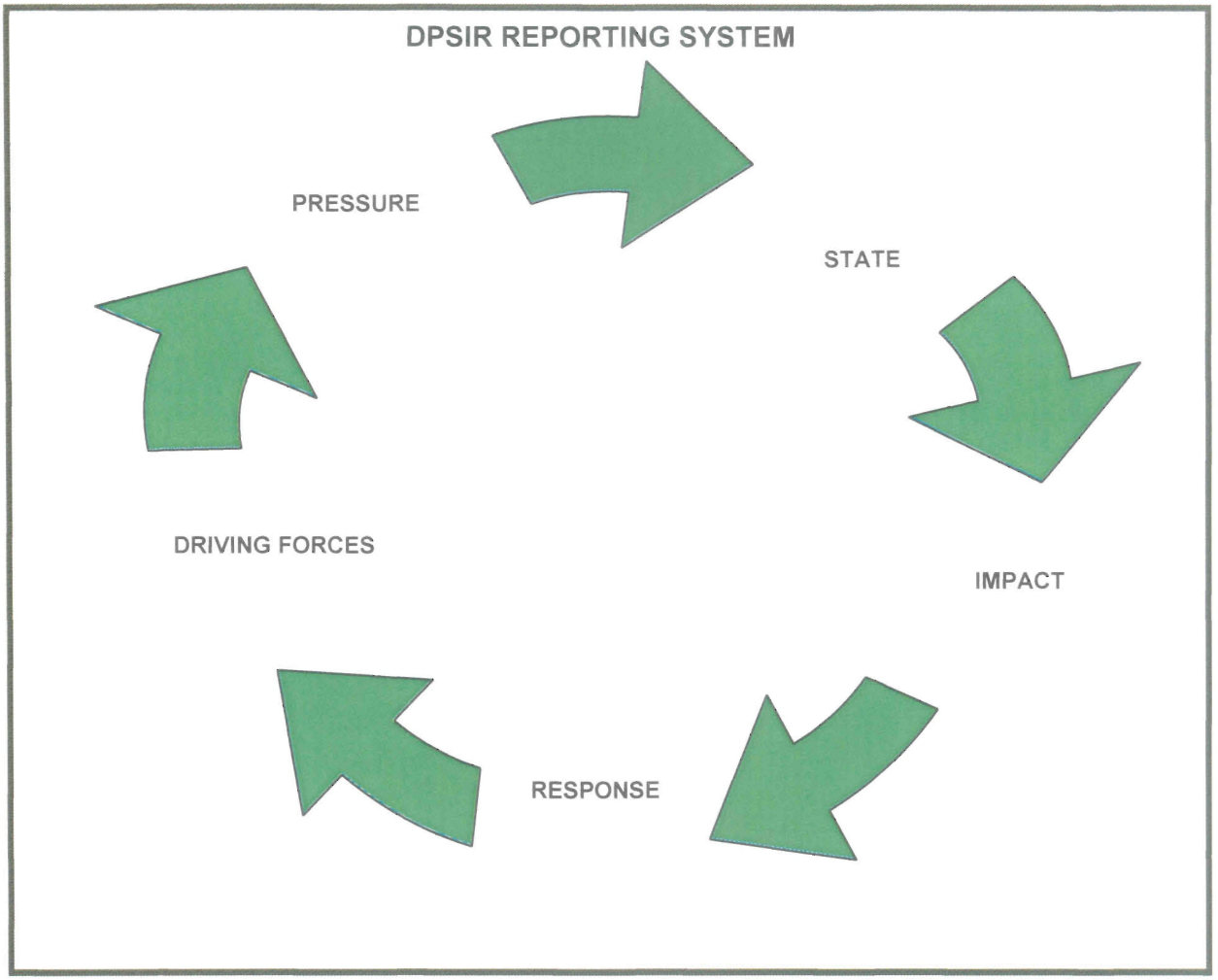

Figure 3.2 The DPSIR Reporting System (DEAT: SoE Report, South Africa, 1999b).

Each of the DPSIR reporting framework categories are described using environmental indicators. Environmental indicators are used to assess environmental conditions and trends on a national, regional and global scale, to compare countries and regions, to forecast project trends, to provide early warning information, and to assess conditions in relation to goals and targets. In this way, large amounts of information can be easily presented and understood, thus enhancing decision making (DEAT, 1999b).

Information on the Environment may be difficult to evaluate in isolation, therefore, environmental indicators are a useful means of bench-marking between countries, as it is important to be able to compare the situation and development of various countries. A list of environmental indicators proposed for use in the SoERs for both Provincial and Local government

usually have linkages to the list of environmental indicators used in National State of the Environment Reports, so as to ensure local relevance, but also international comparison (DEAT, 1999b).

An Environmental Indicator should (DEAT, 1999b):

- provide a representative picture of environmental conditions, pressures on the environment or society's response;
- be simple, easy to interpret and able to show trends over time;
- be responsive to changes in the environment and related human activities;
- provide a basis for international comparison;
- have a target or threshold against which to compare it so that users are able to assess the significance of the values associated with it;
- be theoretically well founded in technical and scientific terms;
- be based on international standards and international consensus about its validity; and
- lend itself to linkage with economic models, forecasting and information systems.

The Structure of the SoER

The SoERs developed in South Africa (i.e. National, Provincial, and Local) usually have three (3) main sections, amongst other sections, in which the themes are presented and described by the environmental indicators in a DPSIR or PSR reporting system. The main sections in an SoER are (DEAT, 1999b):

The Biophysical Environment (Natural Environment)

The Biophysical Environment includes atmospheric resources and climate change, terrestrial resources, freshwater resources, and marine and coastal resources. The situation in each case is reported in terms of cause and effect, i.e. what factors and influences are causing environmental problems, what the current status is, and what is being done or should be done to alleviate environmental problems which impact on human health and quality of life.

The Socio-Economic Environment (including Political)

The Socio-Economic environments are described in terms of historical and current influences on society, the economy, and legislation, and how these impact on the sustainability, integrity and use of natural resources in South Africa.

The Built Environment

The Built environments includes urban development, service delivery of basic needs to the communities (e.g. energy supply, water supply, sanitation, housing, waste services, etc.), as well as transport services and infrastructure. The situation in each case is reported in terms of the DPSIR reporting system or PSR (in other instances).

SoE Reporting in South Africa has grown in popularity since it began in 1992, and a great deal of learning and improvement has taken place in the SoE Programme. South Africa has been successful in implementing SoE Reporting (with international support), despite the absence of a legal mandate in South Africa (Muller *et al*, 2006).

3.5 Legal Mandate of SoE Reporting in South Africa

There is no clear legal obligation to produce SoERs in South Africa, however, there are many international agreements and pieces of South African legislation that can be interpreted in support of SoE Reporting (DEAT, 2005). Some of the legislation in support of SoE Reporting are outlined below:

- Section 24 of the Constitution of the Republic of South Africa, Act 108 of 1996, provides citizens with the right to an environment that is not harmful to their health and well-being, and to have the environment protected for the benefit of present and future generations. Section 32 states that citizens are entitled to information held by government. Schedules 4 and 5 give local authorities certain specific responsibilities for aspects of environmental management.
- Local Agenda 21: Agenda 21 is an internationally agreed commitment to sustainable development signed in Rio de Janeiro at the United Nations

Conference on Environment and Development (UNCED). Local Agenda 21 is the Chapter in Agenda 21 that describes the role of local government in the implementation of Agenda 21. The Constitution of South Africa incorporates the Local Agenda 21 requirements of co-operative governance and promotion of a safe and healthy environment (DEAT, 2005).

- The National Environmental Management Act (NEMA, Act 107 of 1998) is in support of SoE Reporting (DEAT, 2005 & Ekurhuleni SoER, 2003).
    - The principles of NEMA require that development must be conducted in a socially, environmentally and economically sustainable manner, and that decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.
    - Section 24(e) requires that all organs of state responsible for controlling new and existing activities consider the sensitivity, extent, interrelationship and significance of environmental attributes, and that the Minister may compile descriptions of the environment in this regard.
    - Section 26 of NEMA also requires that all spheres of government, including local government, should inform the Minister of Environmental Affairs and Tourism on their performance, specifically with respect to Agenda 21. SoE Reporting therefore, is an ideal tool that provides and distributes some of the information required to meet the above-mentioned requirements.
    - Section 31 (a) states that every person is entitled to have access to information held by the state. NEMA section 31 (b) provides organs of state with the right to information on the state of the environment.
- Section 13 of the Environment Conservation Act (ECA, Act 73 of 1989) stipulated that a National State of the Environment Report had to be compiled every two years. This requirement was incorporated in the legislation, however no regulations were developed to give effect to it and therefore this legal obligation was never fulfilled (Muller *et al.*, 2006).

- The Municipal Systems Act (MSA, Act 32 of 2000) (RSA 2000a) and the Integrated Development Plan (IDP). Chapter 5 of the MSA requires that Municipalities develop an Integrated Development Plan as the principal strategic planning instrument guiding and informing all planning, budgeting, management and decision-making in a Municipality. The IDP is regarded as the primary tool in the implementation of Local Agenda 21 in South Africa. It is therefore critical that there is collaboration between the IDP process and SoE process so as to ensure that SoE Reporting has an impact on the decisions made for municipal planning (DEAT, 2005).

- The Promotion of Access to Information Act (PAIA, Act 2 of 2000) makes provisions and conditions specifically for right of access and application for access to information and records. Section 9(e) of the Act states that an objective of the Act is to "promote transparency, accountability and effective governance of all public and private bodies by, including, but not limited to, empowering and educating everyone: (i) to understand their rights in terms of the Act in order to exercise their rights in relation to public and private bodies; (ii) to understand the functions and operation of public bodies; (iii) to effectively scrutinize, and participate in decision-making by public bodies that affect their rights" (Ekurhuleni SoER, 2003).

3.6 South African view on the Effectiveness of SoE Reporting

State of the Environment (SoE) Reporting is essentially a tool for communicating useful and relevant information about the condition of the environment and pressures acting upon it, to the public, government, industry and non-government organisations. The purpose of that information is to raise awareness and understanding of the environment and to assist decision-making by highlighting the cumulative environmental impacts of natural events and human activities, identifying emerging trends and highlighting the actions needed to improve the management of the environment for long-term environmental sustainability (McPhail, 2005).

The effectiveness of any SoER relies on the constant updating of information so that trends in environmental conditions can be monitored as accurately as

possible. This helps to ensure that well informed decisions regarding the environment can be made (Ringdahl, 2002).

Effective SoE Reporting at the local government level should support, influence and inform how a Municipality operates and what it does. In order to manage the environment well, Municipalities and local stakeholders need to be persuaded of the importance of long-term vision and of integrating planning and management across the environment, economy and society (DEAT, 2005).

In 2005, DEATpublished the State of the Environment Reporting Guidelines for Municipalities. The purpose of the guidelines was to assist municipalities in producing their own State of the Environment (SoE) Reports. Although DEAT acknowledges flexibility of SoE Reporting to meet diverse objectives and user needs in South Africa, there is a realized need for greater harmonization of environmental information through development and encouragement of common approaches and practices. This would improve the quality and comparability of SoE information at Municipal level. DEAT's concern was also that the guideline should support, not only the production of technically sound SoE Reports, but also the objective of influencing and informing decision-making through the effective communication of these data. The guideline was meant to be a valuable tool for municipalities embarking on SoE Reporting process and for those developing subsequent SoE Reports (DEAT, 2005).

SoE Reporting in South Africa has grown in popularity since it began in 1992, and a great deal of learning and improvement has taken place in the SoE Programme. South Africa has been successful in implementing SoE Reporting, with international support (Muller *et al*, 2006). Despite growing in popularity since its inception, the SoE Reporting process in South Africa is still faced with a number of challenges, namely:

- No specific legal requirements for SoE Reporting;

- SoE Reporting is regarded as a stand alone process and therefore not incorporated into the planning, management and decision-making processes;
- The role of government departments in the process is poorly defined;
- Lack of good quality data, i.e. due to lack of good cooperative governance within the various government departments;
- Data collection (monitoring and reporting), is not done frequently due to lack of capacity within government departments;
- Frequency of Reporting, i.e. it is important to compile the SoER frequently because the environment is constantly changing and it is important to track the changes on an ongoing basis;
- No specific budget allocated for SoER.

Due to the absence of any legal requirements for SoE Reporting in South Africa (SA), no government department can be directed to undertake SoE Reporting or to use the SoE Reporting guidelines provided by DEAT, even though there is a substantive political and legal framework setting the context for SoE reporting. The poorly defined roles and responsibilities of government departments within the reporting process can lead to lack of cooperative governance between the departments, which can lead to inefficiencies in data collection, which will lead to additional costs being incurred for the provision of data. Availability and quality of data are in most cases the main limiting factors of SoE Reporting. Available data tend to be scattered across different departments or institutions, and it also varies in both quality and character and is often incomplete. Data availability tends to restrict both the content of SoERs and the depth at which specific problems can be considered and addressed (Muller *et al*, 2006).

SoE Reporting is regarded as a stand alone process and is therefore seldom incorporated into the planning, management and decision-making processes. The role of SoE Reporting within the decision-making system must be addressed more explicitly, if it is to become an effective part of the policy making processes, thereby forcing decision-makers to take into

consideration a wide range of information before undertaking any planning processes.

Therefore, for SoE Reporting to be truly effective in South Africa, the above-mentioned challenges should be addressed to ensure that the role of SoE Reporting is not merely to provide information, but to also improve environmental management and protection by helping to inform and direct policy development.

3.7 State of the Environment Reporting within the Gauteng Province

This Section provides a brief overview of the Municipalities within the Gauteng Province, and also outlines whether or not SoE Reporting is being undertaken within the Province by indicating those Municipalities (Categories A, B and C) that have compiled SoERs.

Gauteng Province consists of three (3) Metropolitan Municipalities (Category A), namely: the City of Tshwane, the City of Johannesburg and Ekurhuleni; three (3) District Municipalities (Category C), namely: Sedibeng, Metsweding and West Rand; and nine (9) Local Municipalities (Category B), namely: Emfuleni, Midvaal and Lesedi (these fall under the Sedibeng District), Kungwinin and Nokeng tsa Taemane (fall under the Metsweding District) and Merafong City, Mogale City, Randfontein and Westonaria (fall under the West Rand District) (WIKIPEDIA FOUNDATION INC, 2006).

All the Gauteng Municipalities are listed in Table 3.5 below.

Table 3.5 Gauteng Municipalities (WIKIPEDIA FOUNDATION INC, 2006).

Category A Municipalities
City of Tshwane Metropolitan Municipality
City of Johannesburg Metropolitan Municipality
Ekurhuleni Metropolitan Municipality

Category C Municipalities

Sedibeng District Municipality

Metsweding District Municipality

West Rand District Municipality

Category B Municipalities (falling under the Sedibeng District)

Emfuleni Local Municipality

Midvaal Local Municipality

Lesedi Local Municipality

Category B Municipalities (falling under the Metsweding District)

Kungwini Local Municipality

Nokeng tsa Taemane Local Municipality

Category B Municipalities (falling under the West Rand District)

Mogale City Local Municipality

Merafong City Local Municipality

Randfontein Local Municipality

Westonaria Local Municipality

A number of Gauteng Municipalities have developed State of the Environment Reports (SoERs) through the years mainly as a response to the call by Agenda 21 for improved environmental information for decision-making. SoERs form part of the Local Agenda 21 concept, which advocates that sustainable local environmental policy requires knowledge and easily accessible environmental information for administrators, decision-makers and citizens. Local Agenda 21 facilitates sustainable development in the Integrated Development Plan process (Mogale City SoER, 2003). The main objective for developing the SoERs was to provide information to decision-makers to enable them to make informed decisions about the environment.

The five cases that formed part of this research were selected because they were the only SOERs that have been conducted in the province at the time of the research. Table 3.6 below outlines the five Gauteng Municipalities that have developed their SoERs, as well as the years in which they were developed. The Status of SoE Reporting in the five cases that formed part of this research is discussed in detail in Chapter 4, Section 4.1.

Table 3.6 Gauteng Municipalities that have developed SoERs

Category A, B & C Municipalities	Year
City of Tshwane	**2001/2002**
City of Johannesburg	**2003**
Ekurhuleni Metropolitan Municipality	**2003/2004**
Sedibeng District Municipality (Emfuleni, Lesedi & Midvaal LMs)	**2004**
Mogale City Municipality	**2003**

CHAPTER 4

DATA ANALYSIS

This chapter aims to address research sub-questions 4 and 5, namely:

What is the current status of SoE Reporting in the Gauteng Province?

What are the views of the various officials within the 5 selected Gauteng Municipalities on the effectiveness of their respective SoERs?

This chapter presents the results on the effectiveness of SoE Reporting within the Gauteng Municipalities. This includes a description of the benefits of SoE Reporting and whether or not these were achieved, the challenges that Municipalities face in compiling or developing SoERs, as well as suggestions on how to improve the overall SoER process.

This chapter assesses and analyses data that was collected from the five (5) selected Municipalities in the form of questionnaires, as well as during the one-on-one interviews.

The following is an outline of the sections contained in this chapter:

Section 4.1 (i.e. Case Analysis) starts by giving a brief overview about the the Municipalities investigated, the Municipality's SoER background or history, the SoER structure and reporting framework used, and finally, it analyzes the effectiveness of SoE Reporting within the Municipalities based on the questionnaire and interview results. Section 4.2 explores the overall effectiveness of SoER in the 5 selected Municipalities based on the views of the officials responsible for its compilation, as well as those of various officials within the selected Municipalities.

4.1 Case Analysis

A number of Gauteng Municipalities have developed State of the Environment Reports (SoERs) through the years mainly as a response to the call by Agenda 21 for improved environmental information for decision-

making. SoERs form part of the Local Agenda 21 concept, which advocates that sustainable local environmental policy requires knowledge and easily accessible environmental information for administrators, decision-makers and citizens. Local Agenda 21 facilitates sustainable development in the Integrated Development Planning process (Mogale City SoER, 2003).

Based on the literature reviewed on SoERs in Gauteng, the main objective for developing SoERs within the Gauteng Municipalities was to provide information to decision-makers to enable them to make informed decisions about the environment. As discussed in Chapter 3, Section 3.7, not all Municipalities within the Gauteng Province have developed SoERs, therefore, the Status of SoE Reporting in the Gauteng Province discussed below, will concentrate on the five selected Gauteng Municipalities that formed part of this research.

4.1.1 City of Tshwane Metropolitan Municipality SoER

The City of Tshwane (CoT) is the administrative capital for the Republic of South Africa. It came into being on 5 December 2000, when the thirteen (13) Municipalities serving the Greater Pretoria area were amalgamated to form the City of Tshwane Metropolitan Municipality. The City of Tshwane Metropolitan Municipality is a Category A Municipality with an Executive Mayoral system, combined with a Ward Participatory system (City of Tshwane SoER, 2001/2002).

The 2001/2002 City of Tshwane SoER – Gap Analysis, was compiled by the Environmental Resource Management Section of the Municipality, with the different departments of the municipality supplying data. The Municipality used the Driving Forces, Pressures, State, Impact and Responses (DPSIR) reporting framework in the 2001/2002 SoER. The DPSIR reporting framework was used even though there were extensive shortcomings in data to develop a full SoER. The 2001/2002 SoER serves as a gap analysis for future SoERs, which will be user-friendly reports drawn from a spatial database that will enable it to measure impacts spatially over time. The future SoERs will then serve as working documents for formulating the IDP,

monitoring the City's Environmental Policy, as well as evaluating the Tshwane Local Agenda 21 programme (City of Tshwane SoER, 2001/2002).

The 2001/2002 SoER – Gap Analysis consists of 4 main sections, namely: (i) The Natural Environment; (ii) The Built Environment; (iii) The Socio-Economic Environment; and (iv) Resource Management.

The themes that were discussed in each section of the City of Tshwane 2001/2002 SoER – Gap Analysis are presented in Table 4.1 below:

Table 4.1 Themes which were discussed in the City of Tshwane's 2001/2002 SoER – Gap Analysis

The Natural Environment	The Built Environment	The Socio-Economic Environment	Resource Management
Agriculture	Energy	Economic Viability	Electricity
Atmosphere & Climate	Housing	Personal Health	Water
Biota	Industrialisation	Demographic Information	
Land	Infrastructure	Poverty	
Noise	Transport	Safety & Security	
Water	Urbanisation		
	Waste generation		

4.1.1.1 Questionnaire Results

As mentioned in the previous section, the City of Tshwane 2001/2002 SoER – Gap Analysis was compiled by the Environmental Resource Management Section of the Municipality, with the different departments of the municipality providing data. The questionnaire was completed by a Municipal official within the Environmental Management Division who was responsible for the compilation of the SoE Report. The official was involved in the overall SoER compilation process, namely: the planning stages, data provision, report

compilation, stakeholder workshops, as well as the development of the SoER and the DPSIR risk databases.

In the Municipal official's opinion, the objectives of the City of Tshwane's SoER were to identify the driving forces with their pressures that result in a change in state, as well as to determine the impact the change in state might have on human health and the ecological environment, through: (i) identifying all the issues in the city; (ii) developing indicators to measure environmental issues in the city; (iii) linking the indicators to driving forces, pressures, state and impacts; (iv) developing relations based on statistical calculations between the driving forces, pressures, state and impact; (v) calculating long-term trends and project future changes; (vi) developing response programs to prevent driving forces and pressures to change the state; and (vii) developing response programs to mitigate the impacts due to the change in state.

The respondent believes that the above-mentioned SoER objectives are being met and achieved to a certain extent. However, the report is not necessarily being used as a management tool but rather, it provides baseline information for: (i) policy development, (ii) long-term planning and decision-making at a strategic level, (iii) the development of targets in the green city strategy, as well as the (iv) integration into the IDP process.

The respondent still regarded the SoER as a useful management tool and necessary in achieving Sustainable Development even though it was not being fully utilized within the Municipality. According to the respondent's view, there are various areas that still needed some improvement in order to ensure that the overall SoER process is improved or enhanced in future, namely:

- Development of more generalised indicators;
- Data sharing stakeholders should be permanently involved with the process;
- Specialised Scientists should be involved in the process, i.e. per theme;

- Data capturing, analysis and interpretation should be automated on a daily, weekly and/or monthly basis;
- Green City targets need to be in-line with the SoE indicators to ensure action and not only a document.

According to the respondent, some of the challenges that the Municipality was faced with in developing/compiling its SoER were as follows:

- Availability of relevant data;
- Cost of data collection, purification and verification;
- Data analysis and interpretation;
- Ensuring that stakeholder participation becomes a long-term commitment;
- Change in technology, i.e. it influences long-term data collection and analysis.

4.1.1.2 Interview Results

The results of the one-on-one interview held on the 29th September 2006 with the Municipal officials from the Environmental Resource Management and City Planning: Water and Sanitation Sections of the City of Tshwane, are presented in Table 4.2 below.

Table 4.2 presents the interview questions versus the responses to the questions provided by the interviewees.

The overall effectiveness of the City of Tshwane's SoER, i.e. an analysis of the responses in Table 4.2, together with those received via the questionnaire (discussed in Section 4.1.1.1) is presented in Section 4.1.1.3.

Table 4.2 The overall effectiveness of the City of Tshwane Metropolitan Municipality's SoER

Environmental Resource Management	Water & Sanitation Planning
Is the SoER used as a Management Tool within the Municipality?	
City Planning / Metropolitan Planning use the Metropolitan Spatial Development Framework (MSDF), which is regarded as the future guideline for the development of the Municipality. Other departments feel that the SoER deals with environmental issues, and therefore it is not regarded as informing planning processes, and therefore, they do not use it as a management tool.	It reports on environmental issues and measures progress towards sustainable development. It improves the understanding of environmental processes and the impact of human activities on these processes. It determines the cause and effect of environmental change and can therefore provide recommendations for responses to the changes. It integrates information from different sources for monitoring purposes. However, it is not necessarily used as a management tool, but rather as an information source document.
Are the SoER recommendations considered in the planning processes?	
Yes, the SoER recommendations are sometimes taken into consideration in the planning processes, e.g. the Eco City Plan was informed by the SoER and the Tshwane Integrated Environmental Policy dealt with the environmental issues that were flagged or identified in the 2001/2002 SoER Gap Analysis.	The SoER recommendations are not taken into consideration in the planning processes.
Is there a copy of the SoER in your department/section?	
Yes. The compilation of the SoER is one of the department's functions.	Yes.

Environmental Resource Management	Water & Sanitation Planning
Is the SoER used as an information source in other studies or development projects?	
Yes. The Tshwane Integrated Environmental Policy addressed what was flagged or identified in the SoER-Gap Analysis and the Eco City Plan was also fed by the SoER.	No. The Metropolitan Spatial Development Framework (MSDF) is used instead, as it is regarded as the future guideline for the development of the Municipality.
Is the SoER regarded as important or just a waste of resources (i.e. time and money)?	
The SoER is not necessarily regarded as a waste of time and money, however, the overall development process within the Municipality should be revised, as currently the SoER is regarded as a duplication of the status quo reports that are being developed by various municipal departments. The City SoER should be aligned to the status quo reports that are developed annually by various departments / divisions within the Municipality. This will assist the Environmental Management Division with the rolling out of the various states from the various municipal departments/divisions through the DPSIR model, because at the moment, the SoER developed only depicts the state and not the DPSIR model.	There are too many programmes, processes and systems trying to address the same issues. From a water and sanitation point of view, the Water & Sanitation division is required to develop a Water Services Development Plan which includes environmental issues. All programmes, processes and systems must be integrated and not duplicate work and waste resources. The SoER is considered as a duplication.
What role did other departments within the Municipality play in the compilation of the SoER?	
They provided data. About 60% of the Municipal departments did not provide comments on the draft report, whereas the other 30-40% did provide comments and	Provided data and provided comments on the draft report.

Environmental Resource Management	Water & Sanitation Planning
Input. Those that provided comments were those officials that were directly involved in the development of the SoER.	

What role did you play in the compilation/development of the SoER?

Overall process, i.e. planning, data collection, compilation of the report, workshops, etc.	Provided data on water and sanitation

Does the SoER inform the IDP process?

Metropolitan Spatial Development Framework (MSDF) informs the IDP. However, there were lists of projects addressing service delivery which were identified in the SoER which will be given to the Councilors to ensure that action is taken. The SoER should inform the IDP, however the challenge with the 2001/2002 SoER Gap Analysis was that it was developed after the IDP process was done and therefore it was challenging to feed the SoER recommendations into the IDP.	Yes, it does inform the IDP to a certain degree. However, the value added by the SoER to the IDP is very minor.

Does the SoER achieve its objectives?

Yes. SoER objectives are being met and achieved to a certain extent, as the report provides baseline information for: (i) policy development, (ii) long-term planning and decision-making at a strategic level, (iii) the development of targets in the green city strategy, as well as the (iv)	Yes. It helps to assess the current state of the environment in order to put in place different measures to address specific problems. Other processes are still being developed therefore it would take some time before the full benefits are apparent.

Environmental Resource Management	Water & Sanitation Planning
Integration into the IDP process.	

What were some of the challenges in compiling the SoER?

Availability and quality of data. Each department develops their own system and SoE Reporting relies on data from various departments. It is not possible to develop a uniform system for data capturing throughout the Municipality as the needs for each department are different in terms of the data collected & captured.	Not applicable.
Lack of sufficient budget.	
Buy-in or participation from different departments. There is a lot of friction, as boundaries are not clearly stated. This often leads to duplication of work.	
Lack of awareness. Different departments are not aware of or do not understand the importance of the SoER.	
The DPSIR model is not understood, i.e. various departments do not understand the DPSIR model.	
Lack of communication between departments.	

Has the SoER been implemented throughout the Municipality?

Environmental Resource Management	Water & Sanitation Planning
No. The SoER compilers feel that their job is to provide information on the state, and not to implement the identified projects, as that lies with the politicians, i.e. implementation is regarded as a political decision.	No, it has not been implemented.

SoERs should be revised annually, do you think that it is realistic or it might pose challenges?

That would be a bit too ambitious. Five (5) years would be more realistic. The Municipality had decided that they'll produce a full SoE Report every 5 years & will produce an annual Sustainability Report which will focus on the Eco City Targets, i.e. 17 targets were identified in the SoER. No budget is usually put aside by Council during planning for the compilation of the SoER, even though its importance is acknowledged. The City of Tshwane's SoER is usually compiled using external sources. The Environmental Management Division has zero budget for the next 5 years for SoER.	It will not be realistic to revise the SoER annually.

What should be the way forward in SoE Reporting in future?

Every department in the Municipality should compile their respective departmental year reports, e.g. State of air quality report which is required by law, waste management, which is also required by law, etc. All the departmental reports will present the current state (i.e. status quo), and therefore there will not be a need to compile the SoER as a separate process, as it would be duplication. All the departmental reports would then be aligned to create the City SoER. This approach would assist the environmental management section with rolling out the various states from various departments through the	SoER should be integrated into other systems or vice versa, to avoid duplication. One system or programme should be developed to gather information and all relevant stakeholders can access the information. This would result in effective management and will also address the current challenges facing the municipality in terms of lack of capacity.

Environmental Resource Management	Water & Sanitation Planning
DPSIR model. At this stage the environmental management section can't compile a SoER using the DPSIR model as they are busy dealing with the state. Currently, only one official is responsible for the compilation of the SoER. It is therefore a challenge, as the official has to collect and coordinate all the information from various departments. The departmental reports should feed into the IDP, to ensure that councilors make the right decisions.	

In Summary:

The SoER is not being fully used as a management tool within the Municipality, but it is however used as an information source.	See previous comment (i.e. way forward in SoER in future).
No budget is put aside during planning, even though the importance of the SoER is acknowledged. The Environmental Management Division has zero budget for the next 5years for SoER.	
The Municipality will ensure that their data system is in such a way that future SoERs are developed internally and not by consultants.	

Environmental Resource Management	Water & Sanitation Planning
A day to day online information system could be a more efficient and effective way of ensuring that the data or information captured in the various databases is updated on a regular basis and not outdated, as it is currently the problem with SoERs in a sense that when the information becomes available it is already two years old or outdated in some cases, hence resulting in the SoER not being effectively used.	
The SoER should be GIS driven so as to ensure that it is effectively utilized within the Municipality, whereby the various Municipal officials could only add the layers that are of interest to them for their respective decision-making processes.	

4.1.1.3 Overall Effectiveness of the City of Tshwane's 2001/2002 SoER

This section explores the overall effectiveness of the 2001/2002 City of Tshwane's (CoT's) SoER in the opinion of the CoT's Environmental Resource Management and Water and Sanitation Planning Sections in terms of the report being used as a management tool and whether its recommendations are being considered in various planning processes. This section was informed by the data collected through the questionnaire that was directed to the Environmental Management Division, as well as that obtained during the one-on-one interviews.

The City of Tshwane's SoER was not regarded as a useful Management tool, but rather as a baseline document that provides information that is being used to some degree in decision-making processes within the Municipality. The SoER is not being fully utilized throughout the Municipality even though some of its recommendations are being integrated into the IDP and used by various Municipal departments in their strategic and operational decisions. The SoER is regarded to be more of a baseline information document that feeds into other strategic processes. Various Municipal departments felt that the SoER dealt more with environmental issues, and as such was not regarded as informing the planning processes, and therefore, they do not use it as a management tool. Instead, strategic tools such as the Metropolitan Spatial Development Framework (MSDF) are being used by departments such as the City Planning / Metropolitan Planning as they are regarded as the future guideline for the development of the Municipality.

In the respondents' view, the City SoER should be aligned to status quo reports that are developed annually by various departments / divisions within the Municipality instead of the SoER being compiled as a separate process, as this creates duplication. Aligning the SoER to the status quo reports developed by the various municipal departments / divisions will therefore assist the Environmental Management Division with the rolling out of the various states from the various municipal departments/divisions through the DPSIR model, because at the moment, the SoER developed only depicts the state and not the DPSIR model.

The official who completed the questionnaire also mentioned that a day to day online information system was regarded as a more efficient and effective way of ensuring that the data or information captured in the various databases was updated on a regular basis and not outdated, as it is currently the problem with SoERs in a sense that when the information becomes available it is already two years old or outdated in some cases, hence resulting in the SoER not being effectively used.

The respondent further suggested that the SoER should be GIS-driven so as to ensure that it is effectively utilized within the Municipality, whereby the various Municipal officials could only add the layers that are of interest to them for their respective decision-making processes.

Even though the SoER was regarded as being partially effective, it was however not suggested that it was a waste of time and resources and therefore should not be compiled. The importance of the SoER was realized within the Municipality, even though other Municipal departments did not clearly know how it fitted into their planning processes and how it can be useful.

4.1.2 City of Johannesburg Metropolitan Municipality SoER

The City of Johannesburg was established in December 2000, and became a Unicity, after the local government elections. The City incorporates the former Northern, Southern, Eastern, Western Metropolitan Local Councils, Midrand and Modderfontein (City of Johannesburg SoER, 2003).

The 2003 State of the Environment Report for the City of Johannesburg is regarded as the second SoER for the City, following the City's SoER that was produced and published on the Internet in 2000, but the first since the transformation process. The then Greater Johannesburg was one of the fifteen (15) pilot cities participating in the Cities SoE Reporting on the Internet (CEROI) project. The CEROI was created in supporting the principles of Agenda 21. The project was initiated by the United Nations Environmental Programme (UNEP) through the DEAT (i.e. as part of the Local Agenda 21 National campaign), and funded by the Norwegian Agency for Development Cooperation (City of Johannesburg SoER, 2003).

The purpose of the State of the Environment Report for the City of Johannesburg, 2003, was to provide information with regard to the state of the environment or the current situation in the city in a user-friendly, strategic and non-technical format (City of Johannesburg SoER, 2003).

The SoER for the City of Johannesburg was produced by the Department of Development Planning, Transportation and Environmental Management of the City of Joburg, with inputs from various stakeholders, e.g. Council departments, Regional Offices, Utilities, Agencies and Corporatised Entities (UACs), Research Institutions and Specialist Consultants. The Driving Forces, Pressures, State, Impact and Responses (DPSIR) reporting framework was used in compiling the 2003 SoER (City of Johannesburg SoER, 2003).

The report sections are: (i) The Physical Environment; (ii) The Economy; and (iii) The Social Context. The main themes which were discussed in the report were: Land and Open spaces, Biodiversity and Conservation, Water, Air and Waste (i.e. various media) (City of Johannesburg SoER, 2003).

4.1.2.1 Questionnaire Results

The questionnaire was completed by a Municipal official within the Department of Development Planning, Transportation and Environmental Management who was responsible for the compilation of the SoE Report. The official was involved in the planning stages of the project, provisioning of data, report compilation, as well as in the stakeholder workshops.

According to the respondent, the objectives of SoE Reporting were to: (i) update key environmental issues, problems, challenges and progress made; (ii) investigate, demonstrate and explain tendencies, trends and improvements; (iii) report on progress or lack thereof of current policies, programmes and initiatives to the environmental issues and trends identified; and (iv) identify and recommend strategic interventions that can be adopted to respond to the issues.

According to the Municipal official that completed the questionnaire, the Municipality does use the SoER as a Management tool, as it guides the

development in the City to achieve environmental improvement. The respondent also believes that the SoER has given rise to the Municipal Programmes and Plans which were designed to deal with environmental hotspots which were identified in the report.

According to the respondent, some of the challenges that the Municipality was faced with in developing/compiling its SoER were:

- Funding for Specialist studies and publication of the report; and
- Internal stakeholder participation in the compilation of the report.

The respondent was of the opinion that the SoE Report has impacted positively on the Municipality's decision-making, because through the report the Municipality has realized the need to elevate environmental management issues so that the Municipality could achieve sustainable development, and the Municipality has since established an independent Environment Department within the Municipality.

Therefore, based on the afore-mentioned developments, the respondent considered the SoER as being effective in the Municipality's decision-making processes.

4.1.2.2 Interview Results

Several requests (via e-mail and telephone) for one-on-one interviews with Municipal officials from various Municipal departments, namely: (i) Water and Sanitation; (ii) IDP; (iii) Environmental Management; (iv) Land; (v) Housing; (vi) Town Planning; (vii) Civil Engineering; (viii) Roads; and (ix) Electricity were forwarded. However, the one-on-one interviews were not conducted, due to the lack of response from other Municipal officials to the request, and others' unavailability due to work commitments. A questionnaire containing the interview questions was then forwarded to the respective officials for completion and not everyone responded. Responses were however received from the Municipal Planning Division and the Development Planning, Transportation and Environment Division, and the responses provided to the interview questions are presented in Table 4.3 below.

Table 4.3 presents the interview questions versus the responses to the questions provided by the respondents.

The overall effectiveness of the City of Johannesburg's SoER, i.e. an analysis of the responses in Table 4.3, together with those received via the questionnaire (discussed in Section 4.1.2.1) is presented in Section 4.1.2.3.

Table 4.3 The overall effectiveness of the City of Johannesburg Metropolitan Municipality's SoER

Development Planning & Facilitation	Development Planning Transportation & Environment (Roads)
Is the SoER used as a Management Tool?	
The SoER could prove to be a very valuable tool in establishing base-line environmental information.	Having not heard of the Municipality's SoER, it is not possible to judge whether or not is a useful management tool.
Are the SoER recommendations considered in the planning processes?	
No, because the Municipal SoER had not been seen. However, it would be useful to take it into account during planning.	No, because the Municipality's SoER have not been heard of nor reviewed.
Is there a copy of the SoER in your department/section?	
No.	No.
Is the SoER regarded as important or just a waste of resources (i.e. time and money)?	
The SoER is considered to be very useful and important. All the Municipalities should have such a tool.	SoER is very useful and important. The SoER could be used for taking early project decisions, and can also be a starting point for project specific EIAs.

Development Planning & Facilitation	Development Planning Transportation & Environment (Roads)
What role did you play in the compilation/development of the SoER?	
None.	None.
Does the SoER inform the IDP process and vice versa?	
Don't know. The Municipal IDP and City Growth Development Strategy were looked at and there was no mention of the SoER.	No evidence to this effect has been observed.
Does the SoER achieve its objectives?	
Do not know, because a copy of the report has never been seen.	Having not heard of the Municipality's SoER, it can only be presumed that is either not achieving its function or the department responsible for its development is not advertising its existence or availability.
What should be the way forward in SoE Reporting or what could be done differently in developing future SoERs?	
All relevant departments should be involved in the compilation of the report. This will assist in getting buy-in from everyone involved. It is essential that the different municipal departments share information in order to be able to compile a representative and credible SoER.	All the municipal departments that may have to use the SoER in terms of their capital budget projects, should be involved in the development process of the report from an early stage. The involvement might be in terms of providing inputs to the report content or providing comments on the initial draft reports.

4.1.2.3 Overall effectiveness of the City of Johannesburg's SoER

It should be noted that SoER compilation or coordination thereof, forms part of the responsibilities of the respondent that completed the questionnaire, and according to that respondent, the SoER was considered as an effective environmental Management tool, as it has been utilized in guiding development within the City, as well as giving rise to the Municipal Programmes and Plans which were designed to deal with environmental hotspots which were identified in the report. The respondent clearly considered the report as being an effective environmental management tool within the Municipality.

However, feedback from the other Municipal officials from the Municipal departments of Development Planning and Facilitation, and the Development Planning, Transportation and Environment (Roads), clearly stated that the Municipal SoER was not at all effective based on the fact that they have not heard of the Municipality's SoER nor were they involved in the compilation process, let alone incorporating its recommendations into their planning and decision-making processes. For these reasons, the SoER has not achieved its function, and therefore was not regarded as an effective environmental management tool.

The lack of interdepartmental governance has played a major role in the SoER not being utilized and considered in the planning processes within the various Municipal departments as well as in their decision-making processes. All the other relevant Municipal departments were said to have not been involved in the compilation process and therefore did not provide any comments or inputs into the SoER. The SoER was however regarded as potentially a valuable tool in establishing base-line environmental information.

4.1.3 Ekurhuleni Metropolitan Municipality SoER

The Ekurhuleni Metropolitan Municipality (EMM) is a relatively new municipality that was formed in 2000 from the joining of several local municipalities of the former East Rand. It is one of the six (6) Metropolitan Municipalities in South Africa, located in the eastern region of the Gauteng

Province, and is known as the "industrial hub" of the country. It is bordered by the metropolitan areas of the City of Johannesburg in the west, and the City of Tshwane in the north-west. The Kungwini Municipality (Metsweding District Municipality), and the Delmas Municipality within the Mpumalanga Province (Nkangala District Municipality), lie to the north and east respectively. Midvaal and Lesedi are the southern bordering municipalities (Sedibeng District Municipality) It covers approximately 1923 km^2 (Ekurhuleni Metropolitan Municipality SoER, 2004).

The First Year State of the Environment Report was compiled with the purpose of providing information on the condition of the social, economic and natural environment to both decision makers and the public, in order for them to understand and manage environmental problems. The provision of this information was intended to set the basis for the development of policy and strategies. It was also intended to allow the monitoring of progress and performance of implemented policy and programmes, and to raise public awareness of environmental issues (Ekurhuleni Metropolitan Municipality SoER, 2003).

The Ekurhuleni Metropolitan Municipality's Department of Environment and Tourism was responsible for the compilation of the first Year State of the Environment Report, 2003, with the help of Environmental Consultants. The first year SoER was developed to form an integral part of the Integrated Environmental Management Framework (IEMF). The IEMF had to be drafted and implemented as part of the five year IDP and Spatial Development Framework (SDF) processes which were underway in the Municipality (Ekurhuleni Metropolitan Municipality SoER, 2003).

The Ekurhuleni Metropolitan Municipality's first Year State of the Environment Report, 2003, adopted the DPSIR reporting framework. The DPSIR reporting framework was adopted to allow the aggregation of information presented in the First Year SoER, as well as subsequent reports so as to be integrated into the Gauteng provincial and the National SoE Reporting initiatives. In the first Year State of the Environment Report for the Ekurhuleni Metropolitan Municipality, 2003, the Drivers of Environmental

Change were included as a separate chapter, while the PSIR components of the reporting framework were reported on for each theme. The themes contained in the report are as follows: (i) Human Environment; (ii) Cultural Heritage; (iii) Land and Soils; (iv) Water Resources; (v) Atmosphere; (vi) Biodiversity and Conservation; and (vii) Environmental Management. A monitoring section for each theme was then included and highlighted recommended indicators for consideration for future monitoring (Ekurhuleni Metropolitan Municipality SoER, 2003).

4.1.3.1 Questionnaire Results

As discussed in the previous section, the EMM's Department of Environment and Tourism was responsible for the compilation of the first Year State of the Environment Report, 2003, with the help of Environmental Consultants. The questionnaire was completed by an official within the Municipality's Department of Environment and Tourism who was responsible for the coordination and compilation of the report. Based on the questionnaire results, the objectives of SoER were said to be: (i) getting an overview on the current state of the environment within the Municipality; (ii) identifying issues in order to develop strategies; (iii) developing environmental indicators to measure the Municipality's environmental performance, which to the respondents view, they are being achieved.

According to the respondent, the information contained in the SoER has been used in several studies undertaken within the Municipality, for example, Spatial Development Framework, Environmental Management Framework, the Air Quality Management Plan, the Energy Study, Local Spatial Development Framework, etc. The respondent also mentioned that the recommendations contained in the SoER have been integrated into the IDP.

It is the view of the official that the report is not necessarily being used as a Management Tool within the Municipality, however it is a baseline information tool that has impacted positively on the Municipality's decision-making ability as it has assisted in identifying environmental issues that needed to be incorporated into other projects or taken into account when decisions are being made.

As in many instances, there were several challenges that the Municipality was faced with in developing its SoER, the biggest being the lack of or inadequate budgetary assistance. Other challenges which were experienced by the Municipality were:

- Lack of human resources to manage the SoER process;
- The management of the SoER throughout the year to ensure that there is regular input of environmental information;
- Development of an information system to capture data required for reporting.

In the respondent's view, the following should be done differently in developing future SoERs in order to enhance the overall SoER development process:

- There should be integrated planning amongst various departments before the start of the process;
- All stakeholders should be involved in the process so that they can own the process and be part of decision-making;
- An integrated information system should be developed to assist in data capturing.

The respondent felt that future reports needed to be less technical so that they are easy to read, with the technical information attached as an annexure.

4.1.3.2 Interview Results

The one-on-one interviews with Municipal officials from several departments within the Municipality, namely: (i) Town Planning; (ii) Environmental Planning and Coordination; (iii) Electricity; (iv) IDP; and (v) Housing and Land, were conducted on the 19th June 2007, at the Municipal Offices.

Table 4.4 presents the interview questions versus the responses to the questions provided by the respondents.

The overall effectiveness of the Ekurhuleni Metropolitan Municipality's SoER, i.e. an analysis of the responses in Table 4.4, together with those received via the questionnaire (discussed in Section 4.1.3.1) is presented in Section 4.1.3.3.

Table 4.4 The overall effectiveness of the Ekurhuleni Metropolitan Municipality's SoER

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
Is the SoER used as a Management Tool?				
No. The SoER was not work-shopped & therefore not implemented. The Record of Decision (ROD) is regarded as the Planner's Tool, therefore the conditions of the ROD guides projects.	No. It is regarded as a strategic tool that identifies the issues that need to be incorporated into projects or project needed. The SoER was done because legislation calls for it, other Municipalities had developed theirs and budget was available to undertake such a study.	No, it is not. Don't know that it exists. The department's priority is to provide people with services and does not have time for soft issues. The department is driven by demand and legislation.	The SoER is not being fully utilised. However, all new developments should be in line with what the report prescribes.	No. The SoER is regarded as a reference tool for planning purposes & not as a management tool.
Are the SoER recommendations considered in the planning processes?				
No. The 'silo' mentality has given rise to people constantly passing the buck.	The SoER recommendations are used in the compilation of the Environmental Management Policy	No, because it is not used in within the department.	The SoER recommendations are being considered in some of the planning processes.	Yes, as the recommendations are treated as a reference.

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
Is there a copy of the SoER in your department/section?				
Yes, a copy is available within the department, but its exact location within the department is not known.	Yes, definitely. The SoER is coordinated by this department.	No.	Yes. An electronic copy is available however it is not being referred to. SoER is one of the core functions of Environmental Management section. Departments such as Housing, City Development & infrastructure should refer to the report.	Yes. It is used as a reference document for planning purposes.
Is the SoER used as an information source in other studies or development projects?				
Yes. The SoER will be incorporated into the Spatial Development Framework.	Yes. It used in other study as an information source or part of the literature review / data for other studies.	No, it is not being used.	Yes the SoER will inform the review of the SDF, and will also inform future development.	Yes. It is used as a baseline information document.
Is the SoER regarded as important or just a waste of resources (i.e. time and money)?				
It is not regarded as waste of time. It should be used effectively even though it is not regarded as a management tool.	No, it is not a waste of time. The SoER is necessary to gather information so as to feed into other projects, e.g. EMF, SDF, etc.	Wouldn't know, because its contents are unknown.	The SoER is very useful. It plays an important role in informing development and providing the baseline information.	It is not a waste of time. The SoER is required as it is baseline document that flags hotspots and other environmental management

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
	Its purpose needs to be re-defined.		legislation also calls for it. It should be developed.	Issues within the Municipality.

What role did you play in the compilation/development of the SoER?

None.	Project planning and coordination. Gathering data. Report compilation. Stakeholder workshops.	None. Don't remember being given a draft to comment on.	The SoER process was facilitated through the IDP Steering Committee and was discussed during the public participation process.	Data provision; Reviewed draft report & provided comments and inputs. Attended the internal workshop on the draft report.

Does the SoER inform the IDP process and vice versa?

According to the EMM IDP, the SoER must give rise to the Spatial Development Framework. It does not necessarily inform the IDP.	No. the SoER does not inform the IDP at this stage. It does however inform it, indirectly. Environmental Management issues are identified with targets in the IDP, even though there are no financial linkages.	Wouldn't know. The department holds monthly steering committee meetings with the IDP department to discuss issues related with the department.	Yes. The SoER does influence planning, i.e. it does inform the IDP through the environmental Management department.	Not applicable.

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land

Does the SoER achieve its objectives?

Don't know if it does.	Yes. The SoER information was used in several studies that were undertaken by the Municipality, e.g. EMFs, SDFs, etc.	Don't know if it does.	Don't know if it does.	Don't know if it does.

What are the challenges in compiling/ developing SoERs?

Departments within the Municipality do not play a major role in plugging the existing information gaps or ensuring that the necessary interventions are included in the SoER.	The Municipality was a new Metro, (i.e. 9 Local Municipalities were amalgamated into one Metropolitan Municipality) when the report was compiled. Information availability. Participation of other departments, i.e. they are not willing to participate. Municipal Environmental officials do not know the drivers within the Municipality.	Not applicable.	Ensuring effective communication and participation throughout the municipality.	Not exactly sure what the challenges were in compiling the SoER, as the department's role was to provide data, as well as to review and provide comments on the draft report.

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
	Officials are not entirely involved in the SoER process. Consultants drive the process.			

What should be the way forward in SoE Reporting?

The SoER should be incorporated into the Spatial Development Framework (SDF). The review of the Municipality's SDF in June 2008 will take the SoER into consideration. The Municipal Systems Act, calls for the SDF to incorporate other sector	Municipal Environmental officials should know the drivers within the Municipality Officials should be entirely involved in the SoER process, and don't let consultants drive the entire process.	The report should be circulated for comment throughout the municipality. The report should be summarised, so that it becomes easier for other departments to review and comment.	The SoER was work-shopped internally and other officials did not participate. Lack of participation leads to the report not being effective.	The Environmental Management department should ensure that all the municipal departments are given an opportunity to review & provide comments or inputs on the draft report.

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
reports, i.e. like SoERs.	Environmental officers should ensure that indicator selection is not solely the consultant's discretion. Officials within various Municipal departments should serve on Project Steering committees of strategic projects, e.g. EM Policy, EMF, etc. Communication should be improved in the Municipality.			
		In Summary:		
	The SoER is not regarded as a management tool, however, it is important because it provides baseline information that feeds into other strategic tool, e.g. EMF, SDF, etc.	The SoER does not influence any decisions taken within the department, therefore, it is not regarded as useful in any way. Comments will be provided in future SoERs if circulated. However, the comments will only be provided for the	SoER is an important tool, because it provides baseline information that feeds into other strategic tools; Communication between the three spheres of government as well as between the Municipal departments should improve;	The SoER is regarded as an important baseline document that flags hot spots, as well as other environmental issues that need to be considered in other projects.

Town Planning	Environmental Planning and Coordination	Electricity	IDP	Housing and Land
	Guidance is needed from DEAT with regards to SoE Reporting.	Electricity Chapter.	Not enough attention has been given to environmental management issues, resources & planning; Municipal departments should be educated on environmental management issues; More resources to deal with environmental management should be allocated	

4.1.3.3 Overall effectiveness of the Ekurhuleni Metropolitan Municipality's SoER

The data collected via the questionnaire, as well as during the one-on-one interviews clearly indicates that the SoER is not being fully utilised within the Municipality, and as a result it is not being used as a management tool. The SoER is however, regarded as a strategic tool that identifies the environmental issues that need to be incorporated into or considered in various projects or projects that are needed within the municipality.

Even though the respondents indicated that they did not regard the SoER as a management tool, they however confirmed that the SoER is being used as a reference tool in other development projects and its recommendations are being incorporated into other strategic environmental management tools such as Environmental Management Policies, Environmental Management Frameworks, Spatial Development Frameworks, etc.

The SoER is perceived differently by various officials within the municipality. Hence, the view on its effectiveness is also varied. The role of the SoER in the decision-making processes is not fully understood as one of the respondents mentioned that amongst other things, the SoER was developed because of the legislative requirements and budget availability. It is therefore, the view of the respondents that its effectiveness lies in its ability of being a useful reference tool that provides baseline information that can be used in other projects or strategic environmental tools.

4.1.4 Sedibeng District Municipality SoER

The Sedibeng District Municipality (SDM) is situated in the southern-most part of Gauteng province. It was previously known as Lekoa Vaal Metro, which was changed in the year 2000. The SDM consists of three local municipalities covering a total of 63 wards. These are: Emfuleni, Midvaal and Lesedi. The SDM is a large area with a diverse settlement structure ranging from dense urban to farmland and rural hamlets. Emfuleni Local Municipality (LM) is predominantly urban in nature and associated with large industries such as coal mining and iron and steel processing. The Midvaal LM has a predominantly rural population, and also Lesedi LM is predominantly rural with an extensive agriculture. SDM is characterised by generally poor air

quality. This is a result of heavy steel and chemical industrial activities, as well as coal smoke emanating from the historically disadvantaged township areas (UEMP, 2008).

The reporting system that was used in the Sedibeng District Municipality SoER (2004) was the Pressure, State and Response (PSR) framework. The reporting system reported each theme in terms of cause, the current status and response (i.e. what is being or should be done to alleviate environmental problems within the Municipality impacting on human health and quality of life). The compilation of the SoER was sub-contracted to Environmental Consultants. It was coordinated through the Environmental Management Section of the Municipality.

According to the respondent from the Environmental Management Section, the 2004 Sedibeng District SoER was not approved by Council, due to unresolved differences between the Municipality and the consultants that were responsible for the compilation of the report. According to the respondent, the Municipality decided to end the project and drive the process internally. The project is however still not complete.

The electronic version of the report that was collected from the Municipality consisted of the following sections:

- Atmosphere and Climate;
- Biodiversity and Heritage;
- Environmental Management;
- Human Well-being;
- Inland Water;
- Land Use; and
- Waste Management.

Each section had several themes with their own indicators discussed on a Publikit template (Sedibeng District SoER, 2004). The Publikit is a custom-made software package which was developed by GRID-Arendal in Norway and Ugland Publikit in Norway. The template provides a structure, graphical layout and framework on which to build the SoER content. The Publikit

software is customized for the CEROI programme and enables cities to create, publish and maintain their SoERs on the internet (DEAT, 2001).

4.1.4.1 Questionnaire Results

The SoER for the Sedibeng District Municipality was coordinated through the Environmental Management Section of the Municipality, with inputs from various departments within the Municipality. The questionnaire was completed by an official within the Environmental Management section of the Municipality.

In the respondent's understanding, the objectives of SoE Reporting are to: (i) enhance understanding of environmental issues and the impacts of various activities; (ii) to change behaviours; (iii) to influence policies; (iv) to conform to environmental regulations; (v) to provide a foundation for improved decision-making; and (vi) to monitor the implementation and success of management policies and plans.

In the respondent's view, the Municipality is clearly not achieving the SoER objectives due to the fact that the SoER was not approved by Council, and therefore was not adopted officially. Issues such as a lack of a GIS system, a shared server and website that are not fully functional also contribute to the challenges being faced within the Municipality in terms of the SoER. According to the respondent, the SoER is not effective in terms of decision-making processes. However, it is being used as an information source in other projects.

The lack of environmental information, databases, inconsistency of indicators, poor stakeholder participation and the unreliability of the environmental information were flagged as additional challenges that the Municipality was faced with in the development of the SoER.

It was the respondent's view that the SoER process should be owned by stakeholders, councillors, officials, etc., in future to enhance the SoER development process. Complimentary systems, such as GIS, Municipal website, Intranet, etc., must also be in place, and there should also be intergovernmental governance to ensure information sharing.

In the respondent's view, the future SoER content could be improved if gaps in data are highlighted, and if the information is digitally mapped, in order to make a positive contribution for future studies.

4.1.4.2 Interview Results

One-on-one interviews were arranged with Municipal officials from various Municipal departments, namely: (i) Water and Sanitation; (ii) IDP; (iii) Environmental Management; (iv) Housing; (v) Town Planning; (vi) Civil Engineering; (vii) Roads; and (viii) Electricity. However, the one-on-one interviews were not conducted, due to various reasons ranging from not being able to coordinate dates with various officials within the Municipality, their hectic work schedules, work responsibilities, etc. A questionnaire with the interview questions was then forwarded to the respective officials to complete, however no responses were received.

4.1.4.3 Overall effectiveness of the Sedibeng District Municipalities's SoER

Based on the data collected, it is clear that the Municipality's SoER is not at all effective. It is challenging to establish its effectiveness as it was never finalised, implemented, or even approved by Council.

4.1.5 Mogale City Local Municipality SoER

The Mogale City Local Municipality (MCLM) was established in terms of the Municipal Structures Amendment Act (Act 33 of 2000), as a Category B Municipality and officially came into being after the democratically held Local Government elections on 5 December 2000 (Mogale City SoER, 2003).

The Mogale City Integrated Development Plan, 2002, identified environmental stability as one of its key strategic priorities, addressing environmental awareness, preserving heritage and cultural sites, promoting parks, conserving fauna and flora, effectively managing waste and pollution, as well as developing relevant legislation and regulations to protect the environment. The aim of the Mogale City SoER of 2003, was to assist the Municipality in achieving the above-mentioned strategic priorities (Mogale City SoER, 2003).

The reporting system that was used in the Mogale City SoER, 2003, was the Pressure, State and Response (PSR) framework. The reporting system reported each theme in terms of cause, the current status and response (i.e. what is being or should be done to alleviate environmental problems within the Municipality impacting on human health and quality of life) (Mogale City SoER, 2003).

As in many instances, the compilation of the Mogale City SoER of 2003 was sub-contracted to Environmental Consultants. It was coordinated through the Environmental Management Section of the Municipality, with the other sections within the Municipality assisting in providing data and information which was valuable and necessary in the compilation of the report, as well as providing comments and inputs on the draft report.

The Mogale City SoER of 2003 consists of three main Sections, namely: (i) The Natural Environment; (ii) The Built Environment; and (iii) The Socio-Economic Environment. Some of the important themes that emerged from the SoER in each Section are listed Table 4.5 below (Mogale City SoER, 2003):

Table 4.5 Themes which were discussed in the Mogale City's 2003 SoER

The Natural Environment	The Built Environment	The Socio-Economic Environment
Air Quality	Agriculture, Housing, Industrial, Mining	Local Economy
Water Quality & Quantity	Open Space	Health
Habitat & Biodiversity	Cultural Heritage	Education
Geomorphology	Infrastructure	Safety and Security
		Governance
		Tourism

The results of the data collected from the questionnaire are discussed in Section 4.1.5.1 below.

4.1.5.1 Questionnaire Results

The questionnaire was completed by an official within the Environmental Management section of the Municipality who was involved in the planning stages of the SoER compilation process, as well as in stakeholder workshops.

In the respondent's understanding, the objectives of SoE Reporting are to: (i) provide a foundation for improved decision-making at all levels of government; (ii) increase awareness and understanding of environmental trends and conditions and their causes and consequences among all stakeholders; (iii) facilitate the measurement of progress towards sustainability; (iv) enhance awareness on how sound environmental management can assist service delivery; (v) develop better understanding of the interplay of social and physical factors that determine human vulnerability and to increase the ability to mitigate the potentially harmful impacts that might arise from environmental change.

Based on the respondent's view, the Municipality is achieving some of the SoER objectives in the sense that the Municipality's Environmental section involves schools, communities, councillors in their awareness programmes as a means of creating awareness of the environmental challenges facing the Municipality, and how the causes for the environmental change can be addressed in an ecologically sensitive, economically viable and socially beneficial manner.

The respondent believes that the report is being used as a Management Tool within the Municipality as it assists in environmental monitoring and assessment, increases public awareness on environmental and development issues, as well as enhances understanding of environmental issues and the responsible actions that individuals, communities and organisations can undertake to improve the quality of life. According to the respondent, the Municipality's only major challenge in developing its SoER was with regards to data collection.

The report is believed by the respondent to have impacted positively on the Municipality's decision-making ability, because:

- Environmental considerations have been integrated in decision-making through EIA processes and environmental management systems;
- Environmental monitoring, compliance monitoring, auditing and enforcement, are all important components for the monitoring of environmental trends in order to assess the effectiveness of environmental management interventions;
- The rehabilitation of mine dumps and tailings dams, landfill sites, degraded landscapes, and watercourses are important environmental management responses that were initiated by the recommendations contained in the SoER.

In the respondent's view, the SoER could be very useful and necessary in achieving sustainable development if it is complemented by other guiding tools such as Environmental Management Frameworks, GIS, etc. The respondent strongly felt that the SoER's layout and presentation and content should be made simpler, i.e. more user friendly and be shortened or summarised.

4.1.5.2 Interview Results

The one-on-one interviews with Municipal Officials from various departments within the Municipality, namely: (i) Roads; (ii) Urban Development; (iii) Environmental Management; (iv) Water and Sanitation; and (v) Housing, were conducted on the 05th September 2006, at the Municipal Offices.

Table 4.6 below, presents the interview questions versus the responses to the questions provided by the respondents.

The overall effectiveness of the Mogale City's SoER, i.e. an analysis of the responses in Table 4.6, together with those received via the questionnaire (discussed in Section 4.1.5.1) is presented in Section 4.1.5.3.

Table 4.6 The overall effectiveness of the Mogale City Local Municipality's SoER

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
Is SoER used as a Management Tool and how is it being used as such?					
No, the SoER is not regarded as a direct environmental management tool, as the recommendations contained in the report are not always considered in decision-making processes & not always incorporated into planning. Budget guides service delivery.	The SoER is regarded as a tool that informs the department about environmental issues that need to be considered in various development projects.	Yes. It has enhanced understanding of environmental issues, rights and responsible actions required to improve the quality of life within the Municipality. It has also informed the Environmental Management Framework.	No. The SoER is not being used as a management tool.	The SoER has not been seen and there's no knowledge of its existence. Therefore, it can't be regarded as a tool if it is not being used.	The SoER can be used as a management tool if it is updated annually, as the information contained in the report is outdated which leads to the department not considering it. However, the Environmental Management section held a workshop in which the report was distributed and environmental issues discussed.
Are the SoER recommendations considered in the planning processes?					
Yes, the SoER recommendations are sometimes taken into consideration during the planning processes, however, budget availability, as well as	Recommendations contained in the SoER are being taken into account during the planning processes in the department.	The Environmental Management section does not have ways in which they ensure that other departments or sections implement the recommendations	No, as the people in the department are not even aware that it exists.	No. It is not being used, because the department has no knowledge of its existence.	No, because the information contained in the SoER is outdated and as a result, it does not give a true picture of what's happening on

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
those projects regarded as a high priority drives service delivery.		contained in the SoER.			the ground.
Is there a copy of the SoER in your department/section?					
No, there is no copy of the SoER in the department/section.	Yes. A copy of the report is being kept in the department for reference purposes.	Yes. Definitely.	No & according to them, it does not exist as they have not seen it.	Definitely, No.	Yes.
Is the SoER used as an information source in other studies or development projects?					
Yes, the SoER is being used as information source in other developments.	Yes. It is being used as an information source in various projects within the department.	Yes. The SoER is being used as an information source in other studies or developments.	No. The Water Services Development Plans are being used in the department.	No.	Yes. The report was used as an information source when compiling the Rural Housing Development Strategy. It is also for planning future projects.
Is the SoER regarded as important or just a waste of resources (i.e. time and money)?					
The SoER is regarded as important, because it highlights the areas in which service delivery is required, and there not a waste of resources.	The SoER is very important and a useful tool, but is not being used as it should and does not inform the IDP and vice versa.	SoER is very important, however, it is under utilised within the Municipality. The Environmental Management section	It might be useful, if properly implemented. Currently departments within the Municipality work independently.	It can be a useful document if implemented throughout the Municipality, as it will help inform the	No. The SoER is not regarded as a waste of time. However, it is not optimally used due to the fact that it is outdated and there

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
		does not have ways in which to ensure that other departments or sections implement the recommendations contained in the SoER.		Directorate on the Water & Sanitation issues that the Directorate might have missed.	is no alignment between the report and other Strategic tools.

What role did you play in the compilation/development of SoER?

Provision of data. Provide inputs on the draft report.	Provision of data; Provide comments on the draft report.	Gathering data/information; Stakeholder workshops.	None.	None.	None.

Does the SoER inform the IDP process and vice versa?

The SoER does not always inform the IDP process.	No. It does not inform the IDP.	The SoER does not always inform the IDP process.	Do not know if the SoER does inform the IDP process.	Do not know if the SoER does s informs the IDP process.	The SoER does not always inform the IDP process.

Does the SoER achieve its objectives?

Not sure if the SoER does achieve its objectives.	Not sure if the SoER does achieve its objectives.	Yes. The SoER does achieve its objectives, but not yet fully, i.e. some objectives are being achieved, not all.	Not sure if the SoER does achieve its objectives.	Not sure if the SoER does achieve its objectives.	Not sure if the SoER does achieve its objectives.

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
What are the challenges in compiling/developing SoERs?					
Availability and quality of data. Guiding tools that can assist the department in outlining the type of data required are needed. The framework should be based on the type if information required.	None that the department is aware of.	Data collection Financial constraints.	None that the department is currently aware of. However, the SoER should be properly implemented throughout the municipality.	None.	None. However, the latest or correct information should be incorporated into the report so that it could be effectively and efficiently used.
What should be the way forward in SoE Reporting?					
The Environmental Management department needs to implement the SoER, to ensure that all the Municipality's departments are aware of the report and how it can assist them in carrying out their mandates. The Environmental Management	There is lack of communication within the Municipality. Therefore, communication between the Municipal departments needs to improve, so that departments could stop working in isolation.	A system to assist with data collection should be put in place. The PSR reporting framework was used for the Municipality's 2003 SoER, it might be useful in future to use the DPSIR framework, as it would fully describe the origins and consequences on environmental issues. There should be Political buy-in, as	The Municipal departments should start working together and not work independently.	Communication between the Municipal Directorates should improve. There is currently no communication amongst the Directorates. The Environmental Management section should implement the report throughout the Municipality.	The report should be updated annually in order to provide up to date information, because what is contained in the report does not represent what is on the ground. A provincial database is required to assist with data capturing. Storing of data should be

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
department should be involved in the roads related projects to ensure that environmental issues are taken into consideration and mitigation measures implemented.		there is currently none.		The Environmental Management section should have bi-annual meetings to discuss the report's findings and recommendations on the way-forward in terms of the issues affecting other Directorates	centralised, i.e. there should be a dedicated system or computer that stores data from all the Municipal Directorates. Currently data is stored in various systems, i.e. within computers of officials within the various Directorates.

In Summary:

The SoER is regarded as a useful environmental management tool, however, it is not being fully utilized; Recommendations contained in the report are being considered during the planning process, however, budget controls the project roll-out	SoER is important and needed. The Environmental Management section of the Municipality should assist other sections or departments within the Municipality in informing them about the importance of the SoER as a management tool. The Environmental Management section	More environmental awareness and environmental management capacity is required.	SoER might be useful if implemented throughout the Municipality.	The SoER should be properly implemented throughout the municipality.	The Environmental Management section should capacitate Officials within other Directorates on environmental management issues, and inform them about the importance of the SoER and how it can be a useful management tool, so that it becomes a living document.

Roads	Urban Development	Environmental Management	Water & Sanitation (Waste-water Treatment)	Infrastructure (Water)	Housing
The SoER should be implemented to ensure that it is fully utilized throughout the Municipality.	should be brought on board of various projects from the start. They should not b e involved when projects identified by other sections within the Municipality are already up & running.				

4.1.5.3 Overall effectiveness of the Mogale City's SoER

Based on the feedback provided by the interviewees, the SoER is not regarded as a direct environmental management tool, as it is not being fully utilised within the Municipality, and the recommendations contained in the report are not always considered in decision-making processes and not always incorporated into planning. However, in the view of the respondents from the Environmental Management section, the report is being partially used as a Management Tool within the Municipality as it assists in environmental monitoring and assessment, increases public awareness on environmental and development issues, as well as enhances understanding of environmental issues and the responsible actions that individuals, communities and organisations can undertake to improve the quality of life.

The interviewees believed that the SoER could be used as a management tool if it was updated annually, as the information contained in the report is usually outdated which leads to other Municipal department not considering it in their respective projects or planning processes.

The respondents also stated that the SoER might be useful if properly implemented, as the departments within the Municipality currently work independently and some are not even aware of its existence even though the Environmental Management Section maintains that the SoER has been work-shopped throughout the Municipality.

There was however, a consensus between the respondents from the other Municipal departments in terms of the need for the Environmental Management section to capacitate officials within the other departments on environmental management issues, to inform them about the importance of the SoER and how it can be a useful management tool, so that it becomes a living document.

Based on the views of the interviewees, the SoER is not considered as an effective environmental management tool, but it could be if properly implemented and its importance understood.

4.2 Overall effectiveness of SoE Reporting in the five Gauteng Municipalities

This section explores patterns or similarities in the effectiveness of the SoER across the five selected Gauteng Municipalities based on views or opinions of those Municipal officials whose responsibility or core function it is to compile the SoER, or drive and coordinate the SoE Reporting process, as well as the of the various officials within the respective municipalities who were interviewed. This includes a description of the benefits or objectives of SoE Reporting and whether or not these were achieved, whether the respective Municipalities consider the SoER as a Management Tool and whether or not it is being utilised as such, the challenges that Municipalities face in compiling or developing SoERs, as well as suggestions on how to improve the overall SoER process.

The overall effectiveness of SoER based on the views of those Municipal officials whose responsibility or core function it is to compile the SoER within the five selected Municipalities is presented in Table 4.7, below, whereas Table 4.8 presents the overall effectiveness of SoER based on the views of various officials within the five selected Municipalities. The two main conclusions to be drawn from the cross case analysis are the following:

- Firstly, those officials that are responsible for the compilation of the SoER, consider the tool as being partially effective. They are of the opinion that the recommendations contained in the reports are to some extent being considered in other projects, as well as in decision-making processes. However, they do highlight great concern regarding the integration of the tool and application throughout the wider organization.
- The officials from other departments within the selected municipalities clearly do not regard the SoER as an effective management tool, and generally do not use the information. The majority of the officials even maintain that they have no knowledge of the existence of the reports, as they were not being considered in decision making.

It is evident that different role players perceive the effectiveness of SoE Reporting differently with those responsible for the application being slightly more optimistic

than other functions within the organization. Ultimately it is concluded that SoE Reporting has not fully achieved its objectives within the five municipalities analysed. The next chapter aims to provide a summary of the main conclusions and make recommendations for the improvement in the effectiveness of SoE Reporting in South Africa.

Table 4.7 Matrix: Overall effectiveness – Environmental Management departments within the 5 selected Municipalities

Questions	City of Tshwane Metropolitan Municipality	City of Johannesburg Metropolitan Municipality	Ekurhuleni Metropolitan Municipality	Sedibeng District Municipality	Mogale City Local Municipality
Is the Municipality achieving the SoER objectives?	A	A	A	C	B
Has the SoER been implemented throughout the Municipality?	C	C	C	C	B
Is the Municipality using the SoER as a Management Tool?	B	B	B	C	B
Is the SoER used as an information source in other developments, projects or studies?	A	A	A	C	A
Has the report impacted positively on the Municipality's decision-making ability?	B	B	B	C	B
EFFECTIVENESS	B	B	B	C	B

A = YES

B = PARTIALLY

C = NO

Table 4.8 Matrix: Overall effectiveness - Other Departments within the 5 selected Municipalities

Questions	City of Tshwane Metropolitan Municipality	City of Johannesburg Metropolitan Municipality	Ekurhuleni Metropolitan Municipality	Sedibeng District Municipality	Mogale City Local Municipality
Is the Municipality using the SoER as a Management Tool?	B	C	C	C	C
Are the SoER recommendations considered in the planning processes?	B	C	B	C	B
Is there a copy of the SoER in your department / section?	A	C	A	C	C
Is the SoER used as an information source in other developments, projects or studies?	A	C	B	C	B
Does the SoER inform the IDP?	B	C	B	C	C
Is the Municipality achieving the SoER objectives?	A	C	C	C	C
Has the SoER been implemented throughout the Municipality?	C	C	C	C	C
Has the report impacted positively on the Municipality's decision-making ability?	B	C	B	C	C
EFFECTIVENESS	B	C	B	C	C
A = YES **B = PARTIALLY** **C = NO**					

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This chapter aims to address the overall research aim by answering the main research question described in section 1.4, which is:

Whether State of the Environment Reporting (SoER) is an effective environmental management tool within *Category A (Metropolitan), B (Local) and C (District) municipalities* in the Gauteng Province?

The following is an outline of the sections contained in this chapter:

Section 5.1 outlines a comparative assessment in terms of the effectiveness of SoER within the 5 selected Municipalities (i.e. Cross Case Analysis), Section 5.2 outlines the challenges for SoER implementation, followed by the role of SoER, the effectiveness of SoER and recommendations to enhance the overall development process, as well as effectiveness in Sections 5.3. 5.4 and 5.5, respectively. The chapter is concluded with Section 5.6, areas for future research.

5.1 Cross Case Analysis

The aim of this research was to determine the effectiveness of State of the Environment Reporting within selected Category A (Metropolitan), B (Local) and C (District) municipalities in the Gauteng Province in terms of whether or not its benefits and/or objectives are being achieved, the challenges that Municipalities face in compiling or developing SoERs, as well as suggestions on how to improve the overall SoER process.

The questionnaire results discussed in Chapter 4, Section 4.1, clearly indicates that four of the five officials responsible for the compilation of SoERs in the Municipalities believe that their SoER's objectives are being achieved and that the reports are useful environmental management tools even though they are not fully utilised within the Municipalities, and therefore regard them as being partially effective. The SoERs are however regarded

as being baseline information documents that identifies environmental issues that need to be considered or incorporated into other strategic projects.

It should however be noted that the questionnaire results are based on the views or opinions of those Municipal officials whose responsibility or core function is to compile SoERs or drive and coordinate the SoE Reporting process within the respective Municipalities. Therefore, these views were not necessarily shared by some of the Municipal officials in other departments or sections within the respective Municipalities.

There was however some consensus among the questionnaire and interview responses in terms of the challenges that the Municipalities are constantly faced with in compiling the reports, as well as the need to improve the report's layout (i.e. simplify or summarise), to ensure that there is stakeholder buy-in. The respondents also expressed the importance of the report not being a stand-alone process (i.e. should be complemented by other environmental management tools), to ensure that the reports are integrated into planning processes in order to improve decision-making, as well as to avoid duplication.

5.2 Challenges for SoER implementation

Since its inception in 1992, SoE Reporting in South Africa has grown in popularity, and there has been a great deal of learning and improvement in the SoE Programme. However, despite growing in popularity since its inception, the SoE Reporting process in South Africa is still faced with a number of challenges, namely:

- No specific legal requirements for SoE Reporting;
- SoER is regarded as a stand-alone process and therefore not incorporated into the planning, management and decision-making processes;
- The role of government departments in the process is poorly defined;
- Lack of good quality data, i.e. due to lack of good cooperative governance within the various government departments;

- Data collection (monitoring and reporting), is not done frequently enough due to lack of capacity within government departments;
- Frequency of Reporting, i.e. it is important to compile the SoER frequently because the environment is constantly changing and it is important to track the changes on an ongoing basis;
- No specific budget is allocated for SoER and in some instances limited budget is allocated (Muller *et al*, 2006).

The absence of any legal requirements for SoE reporting in South Africa (SA), leads to it not being able to direct any government department to undertake SoE Reporting or to use the SoE Reporting guidelines provided by DEAT, even though there is a substantive political and legal framework setting the context for SoE reporting. The poorly defined roles and responsibilities of government departments within the reporting process can lead to lack of cooperative governance between the departments, which can lead to inefficiencies in data collection, which will lead to additional costs being incurred for the provision of data. Availability and quality of data are in most cases the main limiting factors of SoE Reporting.

SoE Reporting is regarded as a stand-alone process and therefore not incorporated into the planning, management and decision-making processes. The role of SoE Reporting within the decision-making system must be addressed more explicitly, if it is to become an effective part of the policy making processes, thereby forcing decision-makers to take into consideration a wide range of information before undertaking any planning processes.

This research has also established that the SoE Reporting process within the five selected Municipalities investigated for this research was impacted by various challenges, namely:

- Availability of relevant data;
- Cost of data collection, purification and verification;
- Data analysis and interpretation;

- Ensuring that the stakeholder participation becomes a long-term commitment;
- Change in technology, i.e. it influences long-term data collection and analysis;
- Funding for Specialist studies and publication of the report;
- Internal stakeholder participation in the compilation of the report.
- Lack of human resources to manage the SoER process;
- The management of the SoER throughout the year to ensure that there is regular input of environmental information;
- Development of an information system to capture data required for reporting, etc.

Considering the challenges that were flagged by the various officials, which include data quality and availability, lack of and/or unwillingness of stakeholder participation, budgetary constraints, the lack of an integrated information management system that would assist in data capturing, lack of governmental and intergovernmental cooperative governance, amongst others, suggests that SoE Reporting is not totally fulfilling its functions, that of informing and guiding decision-making. It is clear that the challenges that currently exist within the Municipalities hamper the SoER process and they need to be addressed, if SoE Reporting is to achieve its objectives.

5.3 The Role of SoER

The role of the State of Environment (SoE) is to essentially communicate useful and relevant information about the condition of the environment and pressures acting upon it, to the public, government, industry and non-government organisations. The purpose of that information is to raise awareness and understanding of the environment and to assist decision-making by highlighting the cumulative environmental impacts of natural events and human activities, identifying emerging trends and highlighting the actions needed to improve the management of the environment for long-term environmental sustainability (McPhail, 2005).

Based on this, there is therefore no question that SoE Reporting is a very important management tool (i.e. it provides information and recommendations on the current status of the environment, which feeds into various Implementation Plans) and if managed properly and effectively it will have a great impact in the decision-making processes throughout all spheres of government.

5.4 Effectiveness of SoER

The effectiveness of SoE Reporting in the Gauteng Province was investigated within the five selected Gauteng Province Municipalities, i.e. three Metropolitan Municipalities (Category A), one District Municipality (Category C), and one Local Municipality (Category B). Based on the data collected (i.e. questionnaire, interviews, e-mails, telephone) from the officials within the five Municipalities, it is clear that SoE Reporting is regarded as being a useful tool in terms of it being a baseline document that feeds into other strategic projects, and not really regarded as an environmental management tool. SoERs are still not understood in terms of where they exactly fit in the planning and decision-making processes.

Ringdahl (2002) states that: "*The effectiveness of any SoER relies on the constant updating of information so that trends in environmental conditions can be monitored as accurately as possible. This helps to ensure that well informed decisions regarding the environment can be made*".

Effective SoE Reporting at the local government level should support, influence and inform how a Municipality operates and what it does. In order to manage the environment well, Municipalities and local stakeholders need to be persuaded of the importance of long-term vision and of integrating planning and management across the environment, economy and society (DEAT, 2005).

Clarity is still sought in terms of the role that SoE Reporting plays in the planning processes and how it should influence decision-making processes. Most of the officials interviewed regarded SoER as a baseline information document that provides baseline information or that can be used as a

reference document in other projects and did not really understand where exactly it fits in the planning and decision-making processes. The SoER is however, regarded as important and not seen as a waste of money and resources, even though strategic tools such as Environmental Management Frameworks (EMF), Spatial Development Frameworks (SDF), etc., are regarded as being more useful than the SoER as they guide and drive development within the Municipalities, and therefore are regarded as management tools.

5.5 Recommendations

For SoE Reporting to be truly effective, the identified challenges considered to be hampering the SoE Reporting process should be addressed to ensure that the role of SoE Reporting is not merely to provide information, but to also improve environmental management and protection by helping to inform and direct policy development. The following mechanisms or recommendations are suggested for consideration in dealing with the identified SoER compilation challenges that are believed to be contributing to the SoER not being an effective environmental management tool:

- SoE Reporting should be a legislative requirement;
- Specific reporting guidelines for all spheres of government should be developed;
- Integration of SoER into planning and decision-making processes;
- Raising awareness of the importance of SoER and what the process of achieving the product entails (i.e. target audience: political leaders, senior managers, decision makers);
- Establishing mechanisms for measuring the impact of SoER;
- Promote intergovernmental cooperative governance;
- Establishing working relationships with cross-sectoral teams,
- Establish a provincially or locally-based information management system, so as to curb the challenges in data availability, quality and consistency.

5.6 Areas for future research

The following two areas of future research are highlighted as a way forward in exploring the effectiveness of SoER in South Africa. Firstly, the obvious next step would be to expand the focus to include more SoERs from different provinces. This would strengthen the sample size and the validity of generalized results.

Secondly, because the effectiveness evaluation methodology designed for this research, depended on people's opinions or views, the actual effect has not been covered. Therefore the research ideally needs to be followed-up with methods that measures actual effects. It was not within the scope of this research to determine the latter and it is expected that such a study would face serious methodological challenges, especially in dealing with causality. Verifying the perceived effectiveness of SoE Reporting within the various Municipal departments against the actual effectiveness could provide a fundamentally important contribution to the existing body of knowledge.

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ANNEXURES

ANNEXURE A: QUESTIONNAIRE

QUESTIONNAIRE TO ESTABLISH THE EFFECTIVENESS OF STATE OF ENVIRONMENT REPORTING (SOER) WITHIN CATEGORY A (METROPOLITAN MUNICIPALITY) AND CATEGORY C (DISTRICT MUNICIPALITY) IN THE GAUTENG PROVINCE

1. What are the objectives of the SOER?

2. To your understanding, is your Municipality's SOER achieving those objectives? (Please tick appropriate block)

YES	NO

Comment:

3. Is the Municipality using the SOER as a Management Tool?

YES	NO

3 (a) If YES, what are the benefits or opportunities thereof?

Comment:

3 (b) If NO, why not?

Comment:

3. What are the challenges in developing/ compiling an SOER?

Comment:

4. Which reporting system was used, i.e. DPSIR or PSR? Why?

Comment:

5. Has the report impacted positively on the Municipality's decision-making ability?

YES	NO

Comment:

6. What has been the impact of SOE Reporting on users and citizens within the Municipality (i.e. behavioural change(s))?

Comment:

7. In your view, what could be done differently in developing/ compiling future SOERs to improve or enhance the process?

Comment:

8. Are SOERs useful and necessary in achieving Sustainable Development?
Please assign a value according to the following scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
2	1	0	-1	-2

Comment:

9. What, if any, suggestions do you have that can be used to improve the SOER's layout and presentation? (Please be specific)

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_____

_____

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10. What, if any, suggestions do you have to improve the content?

_____

_____

_____

11. Were you personally involved in the compilation of the report?

YES	NO

If yes, please indicate your involvement according to the following (tick appropriate block/s):

Involved in the planning stage	
Involved in providing information/data	
Involved in the compilation of the report	
Involved in stakeholder workshops	
Other (specify):	

Please tick the appropriate block regarding your occupation:

Occupation	√
Policy maker / decision maker / government official	
Work for an NGO	
Work for the private sector	
School teacher	
Lecturer at a tertiary institution	
Researcher	
Environmental consultant	
Other (please specify):	

Any other comments that you would like to make about your Municipality's State of Environment Report:

ANNEXURE B: INTERVIEW SCHEDULES

Annexure B1: Mogale City Local Municipality

Name	Department	Timeslot	Venue	Date
Mr Andre Botes	Roads	09h00	Mogale City Local Municipality Offices.	5 September 2006
Ms Celia Manda	Town Planning – Urban Development	10h00	Mogale City Local Municipality Offices.	5 September 2006
Ms Mpempe Monyane and Angie Mpshe	Environmental Management	12h00	Mogale City Local Municipality Offices.	5 September 2006
Ms Eise Maree	Waste Water Treatment	13h00	Mogale City Local Municipality Offices.	5 September 2006
Mr Org Viljoen	Engineer Technician Water Infrastructure	13h30	Mogale City Local Municipality Offices.	5 September 2006
Mr Adam Masonganye	Housing Development	15h00	Mogale City Local Municipality Offices.	5 September 2006

Annexure B2: City of Tshwane Metropolitan Municipality

Name	Department	Timeslot	Venue	Date
Mr Jan van den Berg	Environmental Management	14h00	City of Tshwane Metropolitan Municipality Offices	29 September 2006
Mr Klaas	City Planning – Water and Sanitation	14h00	City of Tshwane Metropolitan Municipality Offices	29 September 2006

Annexure B3: Ekurhuleni Metropolitan Municipality

Name	Department	Timeslot	Venue	Date
Mr Ivan Kudungure	Town Planning	08h30	Room 25, grd floor, Queen Street, Germiston (City Planning)	19 June 2007
Mr Louis de Klerk	Environmental Planning & Coordination	11h30	Edenvale – Cnr van Riebeck and Hendrik Potgieter, 1st floor, Room 230 (City Council Building)	19 June 2007
Mr Arthur Smith	Electricity	13h30	Room 421, Boksburg Civic Centre	19 June 2007
Bertus van Zyl	IDP	15h00	Benoni – Mutual and Federal Building, 4th floor, No. 87 Elston Avenue.	19 June 2007
Ms Alida Kotzee	Housing & Land	16h00	Lake View Crescent Kleinfontein Office Park Benoni.	19 June 2007