A GUIDELINE DOCUMENT FOR THE APPLICATION OF AN APPROPRIATE EMS FOR GREENER GOVERNANCE WITHIN DWAF

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Dedicated to my parents, Murdo and Moina Munro, to Dr Robert Munro and to my aunts and uncles, Jean and Dick Vesotzky, Leila Roper, Bertie Tavenner, Jean and Eric Wood.

These individuals have either passed on, or are in their twilight years. All have left a positive imprint on my life and the lives of others.

P

PREFACE

Research was conducted under conditions which may be regarded as both challenging and conducive to further research.

As a result of increasingly stringent legislative requirements, calls for accountability and an increased onus upon the public service to demonstrate compliance with environmental legislation and environmental performance, conditions may be considered conducive for the development and implementation of an appropriate EMS within DWAF and indeed throughout the public sector.

These requirements can be encapsulated in the term Greener Governance. Despite this need to demonstrate Greener Governance, with few exceptions, little has been done by the public sector to develop and implement an appropriate system for driving Greener Governance. Where initiatives exist, these generally exist as fragmented uncoordinated efforts or such systems are in their infancy.

As a result of increasing pressures, especially with regard to compliance, DWAF has attempted to be proactive in developing an Environmental Management Framework, of which Phase One has just been completed. Phase Two, to be initiated during 2004, makes provision for the implementation of an EMS.

In addition to the aforementioned environmental management "vehicles", DEAT is in the process of refining their statutory reporting requirements for environmental performance and has requested the Auditor General to develop and pilot an appropriate model. DWAF is one of the pilots in this regard. The timing of this study may therefore be regarded as opportune.

The way forward however, will not be without its challenges, given the fact that the public sector has undergone restructuring and is in the process of decentralisation, with associated changes in roles and responsibilities and experiencing an ongoing lack of capacity and resources.

ACKNOWLEDGEMENTS:

In undertaking research for the study in question, I wish to acknowledge the steadfast and unstinting support, encouragement and advice given to me by my supervisor and mentor, Professor Kobus van der Walt.

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S

SUMMARY

The purpose of this study is to establish *whether* an environmental management system will be beneficial for the Department of Water Affairs and Forestry (DWAF) as a tool by which to apply "greener governance", and if so, what type of EMS may be considered most appropriate, given the current challenges and "drivers" associated with the *public sector* in South Africa.

In order to determine the type of system considered most appropriate for DWAF, a literature study of various environmental management systems (their associated standards) and the application thereof, both nationally and abroad was undertaken. The material used and referred to must by no means be considered comprehensive in nature, but rather indicative of current trends and observed shortcomings, which helped shape the proposed EMS.

From the study, it was evident that the main *driver* and catalyst responsible for the application of EMSs within the public sector, is compliance with increasingly stringent environmental legislative requirements, as opposed to other sectors (such as industry), which are largely market driven. Organs of state are accountable for compliance with the legislative mandates that Parliament has vested in them.

Having established the need for an EMS, the literary research and associated case studies demonstrated that an ISO 14001 based EMS is the most practical and appropriate of the respective systems, despite identified shortcomings, such as the fact that this type of system does not necessarily make provision for various sustainable development criteria. It was however evident from the literary research that the identified shortcomings can be largely overcome, as this type of system is sufficiently flexible and robust to allow for continual improvement of both the organisation in question and the actual EMS itself, thus facilitating the evolution of the EMS to a point where it may be considered to constitute a sustainable management system (SMS).

In developing an appropriate system, cognisance was taken of the need to develop not only a flexible but a robust system, which assures institutional stability (considered by some to be the fourth pillar of sustainability), so as to guard against "system failure", which can be particularly problematic in developing countries such as South Africa.

Summery

The proposed EMS was tested against identified sustainable development criteria and in developing an implementation strategy for the proposed EMS, various augmentary environmental management tools were considered, which may be applied in conjunction with the EMS, so as to facilitate the development of a system which over time (and through a process of continual improvement) may be considered to qualify as a sustainable management system (SMS). In this regard, cognisance was taken of both national and international trends.

The integration of the proposed EMS into the existing management system of DWAF was considered an important part of the implementation strategy. A number of "hook-ons" were identified, the most important of which is the Environmental Management Framework (EMF) which following finalization and approval will be known as the Integrated Environmental Management Framework (IEMF). This framework makes provision for the development of an appropriate EMS and will drive "components" of the envisaged system, forward in the interim, until such time as an overarching EMS can be implemented.

Other "hook-ons" include the current pilot project initiated by the Auditor General in conjunction with the Department of Environment Affairs and Tourism (DEAT). This project and associated model attempts to refine the current reporting format compiled by all state departments in terms of the statutory reporting requirements of NEMA (Act 107 of 1998). This model makes provision for benchmarking of environmental performance between state departments and will also allow for "intermediate certification" by the Office of the Auditor General (OAG), prior to certification of an ISO 14001 based EMS, which is included in the scope of the proposed model.

In considering the way forward, it was noted that although the proposed EMS is based upon ISO 14001 principles, *certification* of such a system for the foreseeable future is out of the question, given the associated costs and prerequisites. Various challenges were identified for the successful application of such a system, not least of which include adequate communication between the three tiers of government, especially Local Government responsible for the implementation of policies, programmes, plans and projects – and thus ultimately responsible for sustainable development. Thus it was recommended that as part of the EMS implementation strategy, national key risk areas be identified and allocated to cluster departments, to facilitate and optimise co-operative governance and the use of resources. *Die vernaamste voordeel van die voorgestelde omgewingsbestuurstelsel is die aanpasbaarheid om wetlike en/of departementele veranderinge te inkorporeer.*

Finally, it can be stated that the current circumstances and associated drivers (particularly compliance with legislation) should prove conducive for the development of an appropriate EMS for the department. Indications are that "greener governance" will go from strength to strength and be further supported by environmental fiscal reforms, in the future.

O

OPSOMMING

Die doel van hierdie studie is om vas te stel of 'n omgewingsbestuurstelsel (OBS) enige voordele sal inhou vir die Departement Waterwese en Bosbou (DWB) as 'n hulpmiddel om meer omgewingsvriendelike bestuur te bewerkstellig, en indien wel, watter tipe OBS die geskikste sal wees in die lig van die huidige paradigmas, uitdagings en dryfkragte wat in die Suid-Afrikaanse *openbare sektor* heers.

Om vas te stel watter tipe stelsel die geskikste sal wees vir die DWB, is 'n literatuurstudie van verskeie omgewingsbestuurstelsels en hul onderliggende standaarde, asook nasionale- en internasionale toepassings van hierdie stelsels onderneem met die doel om bepaalde tendense en tekortkomings in elk van die verskillende stelsels te identifiseer.

Dit blyk uit die studie dat nakoming van strenger-wordende wetsbepalings met betrekking tot die omgewing die vernaamste dryfkrag is in die toepassing van OBS'e in die openbare sektor, in teenstelling met ander sektore soos byvoorbeeld die nywerheid, wat hoofsaalik markgedrewe is. Die studie het aangetoon dat 'n ISO 14001-gebaseerde OBS die geskikste en doeltreffendste van die onderskeie stelsels is, ten spyte van tekortkominge soos die probleem dat hierdie tipe stelsel nie noodwendig voorsiening maak vir alle volhoubare-ontwikkelingskriteria nie. Dit het egter uit die literatuurondersoek geblyk dat die geïdentifiseerde tekortkominge in groot mate oorkom kan word, aangesien hierdie tipe stelsel buigsaam en kragtig genoeg is om sowel die betrokke organisasie as die OBS self deurlopend te verbeter. Dit kan daartoe lei dat die OBS ontwikkel tot op 'n punt waar dit beskou kan word as 'n volhoubarebestuur-stelsel (VBS).

By die ontwikkeling van 'n OBS vir die DWB is aandag gegee aan die behoefte om 'n stelsel te ontwikkel wat nie net buigsaam is nie, maar ook kragtig genoeg is om institusionele stabiliteit (wat deur sommige as die vierde steunpilaar van volhoubaarheid beskou word), te verseker.

Die voorgestelde OBS is getoets teen geïdentifiseerde kriteria vir volhoubare ontwikkeling. In die ontwikkeling van 'n implementeringstrategie vir die voorgestelde OBS is verskeie bestuursinstrumente oorweeg waarmee omgewingsbestuur versterk kan word en wat saam met die OBS toegepas kan word om 'n stelsel te help ontwikkel wat met verloop van tyd (en deur 'n proses van voortdurende verbetering) kan kwalifiseer as 'n volhoubarebestuurstelsel

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BACKGROUND, INTRODUCTION AND PROBLEM STATEMENT

A GUIDELINE DOCUMENT FOR THE APPLICATION OF AN APPROPRIATE EMS FOR GREENER GOVERANCE WITHIN DWAF.

1.1 INTRODUCTION

As a result of the ongoing development of stringent environmental legislation there is a greater need for compliance and hence a requirement for sound environmental management practices.

In an effort to streamline existing procedures so as to ensure compliance with environmental legislation, the Department of Water Affairs and Forestry (DWAF) is in the process of developing an *environmental management framework.*

In developing the environmental management framework, various environmental management tools will be developed and refined for incorporation into the framework. One of the tools to be developed will be that of an environmental management system (EMS).

1.2 PROBLEM STATEMENT

Currently, the EMS is perceived by some in the Department as "yet another environmental management tool", which will accomplish objectives similar in nature to many of the initiatives already underway. Furthermore the

development, application and ultimately the certification of an ISO 14001 based EMS is associated with substantial costs.

It is therefore the purpose of this study to demonstrate the merit in developing an appropriate EMS as the overarching tool for the application of Greener Governance by the Department of Water Affairs and Forestry.

1.3 SCOPE AND LIMITATION OF THE STUDY

The scope of this study was confined to the application of an appropriate EMS by DWAF, although an attempt was made to take cognisance of a generic type of EMS, which may be considered appropriate for application by the public sector in general, as a vehicle for promoting Greener Governance.

A comparison of environmental management systems within the South African public sector (at national level) was problematic as few initiatives exist and where these exist, they are still in a state of infancy. As a result, the comparison was for the most part based upon international case studies and augmented by case studies of South African local governments and parastatals. An attempt was also made to "position" the EMS within the context of a developing country.

Despite the apparent lack of case studies representing the public sector, which have evolved to a point of implementation and are available for comparison purposes, this in itself may be regarded as both an opportunity and an advantage to identify an EMS, which may be considered appropriate for application by the public sector.

1.4 STUDY MOTIVATION

The Sub-Directorate: Environment and Recreation of DWAF is responsible for ensuring that sound environmental management is practiced by the water sector and has made provision for the development and implementation of an EMS, to be initiated during 2004, as part of Phase Two of the Environmental Management Framework (EMF), later to become the Integrated Environmental Management Framework (IEMF), following integration with work undertaken by other directorates. This study should facilitate an understanding of the scope of work required and the associated deliverables, which may be expected of the consultant, following the official appointment of professional service providers for developing an appropriate EMS as part of Phase 2 of the EMF. This study should also serve to highlight areas of particular concern.

1.5 HYPOTHESIS

An appropriate EMS is the ideal vehicle by which to drive greener governance within DWAF, as a representative of the South African public sector. In so doing, the proposed EMS will not only facilitate compliance with environmental and related legislation (considered the main driver for the development and implementation of an EMS), but should go beyond compliance to incorporate best practices in environmental management and facilitate effective co-operative governance between the various government departments and their associated tiers.

Although a number of shortcomings are associated with the traditional ISO 14001 based EMS, the system is considered sufficiently robust and flexible to evolve to a point where it may be considered to "qualify" as a Sustainable Management System. It is believed that the proposed system will readily integrate with a number of departmental initiatives, which have been developed to facilitate compliance.

1.6 MAIN AIM AND STUDY OBJECTIVES

The overall aim of this dissertation is to give an indication as to the type of EMS considered most appropriate for DWAF, as a representative of the South African public sector.

In order to achieve this aim, a number of secondary objectives were cited, as follows:

- An indication as to the drivers responsible for the development of the proposed EMS and the associated merit in developing such a system.
- A comparison of the various environmental management systems (standards), to enable identification of their key elements, principles, perceived shortcomings and advantages in providing the vehicle whereby Greener Governance may be conducted.
- An indication as to how the perceived shortcomings can be overcome, to the extent that such a system may evolve through a process of continual improvement to a point where it may be considered to qualify as a Sustainable Management System (SMS).
- Reference as to how and where the envisaged EMS will fit into the DWAF's current management system and the potential for integration with departmental elements identified as "hook-ons".

1.7 METHOD OF INVESTIGATION

In meeting the overall objective, namely demonstrating the purpose and merit of developing an appropriate EMS for DWAF as a member of the public sector, a number of secondary objectives were cited, each of which entailed specific methods of investigation. These objectives and their associated methods of investigation are as follows:

- An indication as to the drivers responsible for the development of the proposed EMS.

  For this objective, literary research was undertaken which highlighted certain legislative requirements. An indication was given as to the development, refinement and application of associated environmental management tools, which were developed in response to the more stringent legislative requirements. As a result, the method of investigation included interviews with representatives responsible for developing these instruments and a literary survey of published and unpublished material, the purpose being to demonstrate compliance as the primary driver and catalyst for the development and application of an EMS within DWAF.

- A comparison of the various environmental management standards and application thereof, so as to identify their key elements, principles, perceived shortcomings and advantages in providing an instrument whereby Greener Governance may be conducted.

  In achieving the aims of this objective, literary research was undertaken of various environmental management systems. This resulted in a comparison of elements in tabular form, using SABS ISO 14001 (hereafter referred to as ISO 14001) as the benchmark. The comparison included standards, which preceded ISO 14001 such as BS 7750, lesser-known standards, and standards developed for specific sectors. In "teasing out" the shortcomings literary research was undertaken of published and unpublished material in conjunction with interviews and personal communication (both telephonic and electronic) with individuals responsible for the development and implementation of environmental management systems. This served to demonstrate how certain shortcomings could be overcome. The survey also served to identify certain environmental management tools, which could be incorporated as part of the EMS to counteract the identified shortcomings.

  An indication was given as to how, in overcoming these shortcomings, the system may evolve through a process of continual improvement to a point where it may be considered to qualify as what is regarded as a Sustainable Management System (SMS).

- Reference to be made as to how and where the envisaged EMS will fit into the DWAF's current management system and the potential for integration with departmental elements identified as "hook ones".

  Interviews with individuals responsible for developing and piloting certain environmental management tools, which form part of the current management system, were undertaken. In this regard reference was made to unpublished material, which outlined progress and the potential thereof.

1.8 STUDY LAYOUT

In developing the study to the point where the objectives could be addressed and guidance be given as to an appropriate EMS for DWAF, the study was broken down into chapters. These reflect the sequence by which the study evolved and are as follows:

Chapter 1: Introduction
Attempts to put into perspective the purpose and objectives of this study, the most important of which, being the fact that an appropriate EMS must be developed for DWAF, as a representative of the public sector.

Chapter 2: EMS The Theory: Origin and Philosophy
This chapter focuses upon the theory that is the origin, philosophy and apparent ongoing evolution of the EMS.

Chapter 3: EMS The Theory: Drivers for the Development Of EMS in South Africa
This chapter identifies the apparent drivers (or catalysts) responsible for the development and application of an EMS within DWAF and indeed within the public sector in South Africa. An EMS is traditionally associated with market related forces and as a result it was important to ascertain whether other drivers exist within the public sector in order to ensure the sustainability of such a system.

Chapter 4: EMS The Theory: A Comparison of Various EMS Standards
A comparison of the respective standards followed, so as to identify the potential advantages and shortcomings of each and to ascertain whether a distinction could be made between the better-known standards. This later assisted in developing what is considered to be an appropriate EMS for DWAF.

Chapter 5: EMS The Theory: Perceived Shortcomings of EMSs
Perceived shortcomings were distilled from literary research, which included a reference to criteria identified as "sustainable development" criteria. This is regarded as being of particular importance, as compliance includes "sustainable

development". In developing an appropriate EMS, an attempt was made to ensure that any perceived shortcomings could be overcome.

Chapters 6 and 7: Application of EMS: A Study of Case Studies, Both National and International

As part of the literary research, a study of a number of case studies, which entailed the application of EMSs both locally, and abroad, was undertaken. Cognisance was particularly taken of the application of EMSs within the public sector. The shortcomings identified in the previous chapter served as a yardstick against which to judge these case studies. From this chapter certain deductions and observations were made which were used in the formulation of an appropriate EMS for DWAF. These case studies also served to give an indication as to global trends in the development and implementation of EMSs. Cognisance was taken of these trends within the context of a developing country, such as South Africa.

Chapter 8: A Proposed EMS for DWAF

8.1 Introduction

This section of the chapter refers to apparent trends, observations and deductions made from the case studies, which served as a departure point in formulating what is considered to be an appropriate EMS for DWAF.

8.2 Elements of the Proposed EMS

Having established both shortcomings and trends, appropriate elements of the proposed EMS were discussed in some detail. Reference was made particularly to the type of system considered most appropriate, this being an ISO 14001 based EMS. The role of augmentary tools was considered and the use of existing "hook-ons" as a measure by which to facilitate "buy in", compliance and continual improvement of the system in question.

Chapters 9: Testing the Proposed System Against Identified Shortcomings, Sustainability Criteria, National Environmental Strategy (NES) Criteria and a SWOT Analysis

Having given an indication as to the type of EMS considered appropriate for application by DWAF, it was fitting that this system be tested against the shortcomings, sustainability criteria and the strengths, weaknesses, opportunities and threats identified as a result of this study.

Chapter 10: Conclusion and Recommendations

10.1 Conclusion: Achieving the Objectives of the Study

An account was given as to whether the overall aim and objectives identified for this research topic had been adequately addressed and certain conclusions were drawn in this regard.

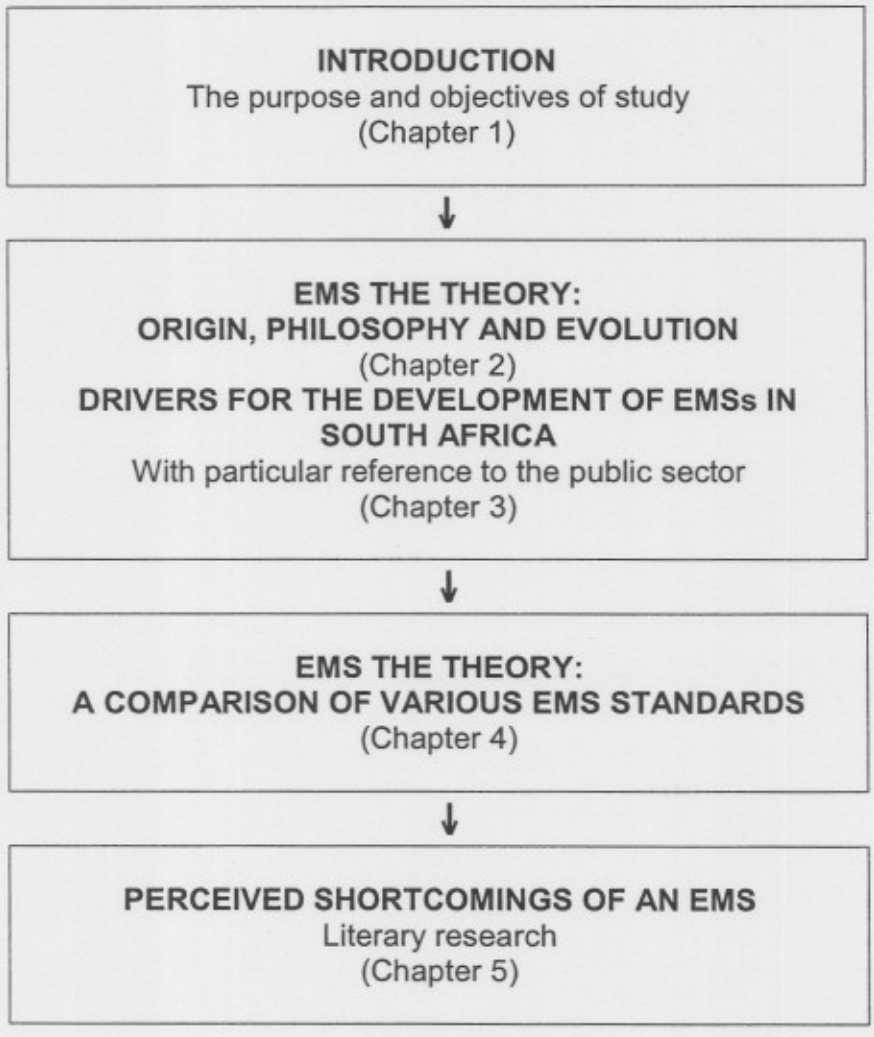
10.2 Recommendations as to a Way Forward, a Proposed Strategy for Implementation of the EMS

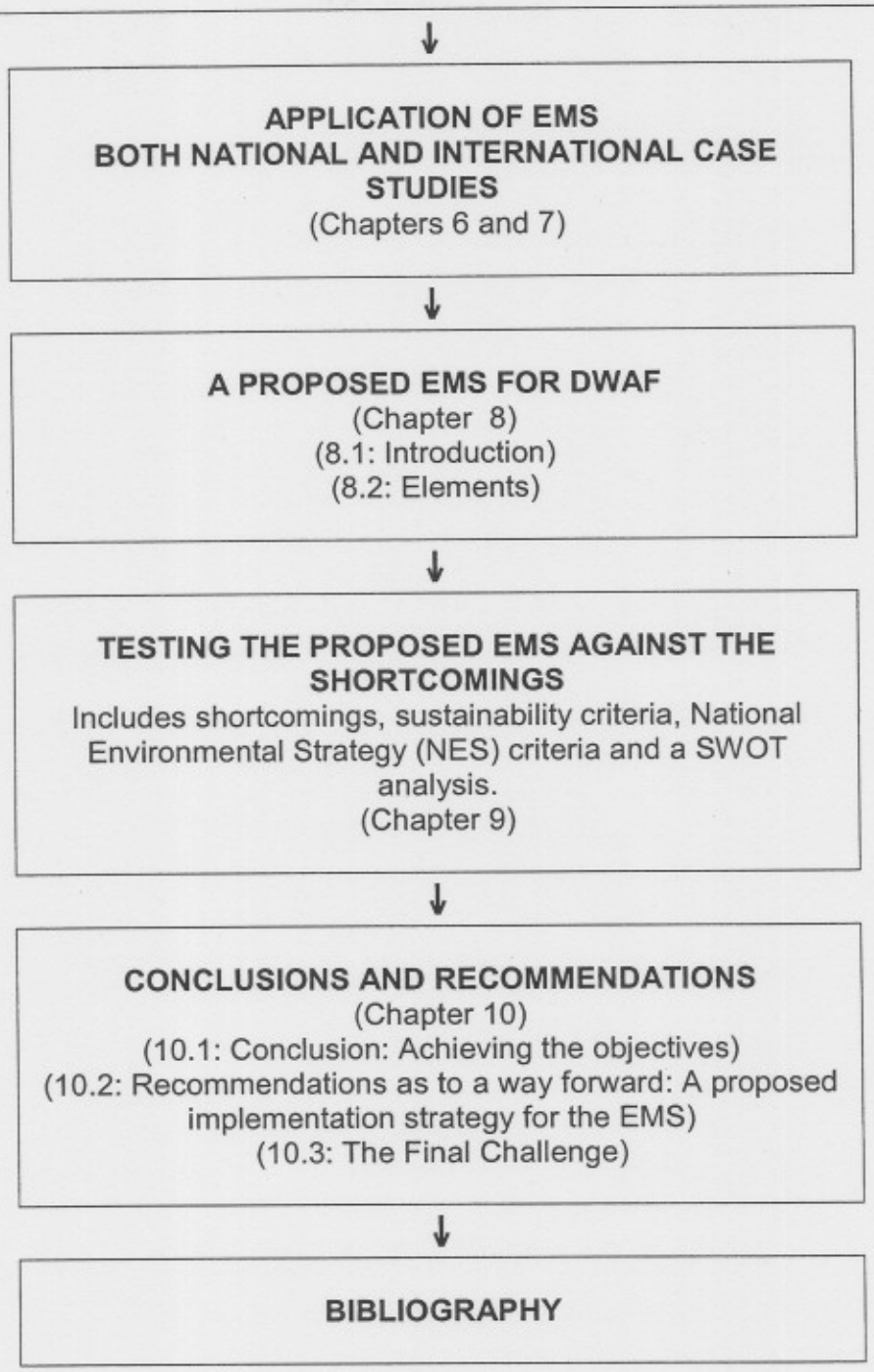
In addressing the way forward for DWAF, certain recommendations were made as to a suitable strategy to be followed in applying the proposed EMS.

Bibliography

The sources used for this study, which served as a basis for "developing" and formulating the proposed EMS, are listed.

STUDY METHODOLOGY ORGANOGRAM
FIGURE 1:

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Includes shortcomings, sustainability criteria, National Environmental Strategy (NES) criteria and a SWOT analysis.
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2

EMS THE THEORY: ORIGIN, PHILOSOPHY AND EVOLUTION OF AN EMS

2.1 INTRODUCTION, DEFINITION AND INTENT

An EMS "is a system, one which includes all the practices, processes and procedures that an organization implements to ensure that from an environmental point of view, its activities, products and/or services are effectively managed. Through a continual cycle of planning, implementation, review and improvement, an EMS helps an organisation to effectively address its environmental responsibilities" (Environment Canada, 2000:2.3).

The International Organization for Standardization (ISO) defines an EMS as an integral part of an organization's overall management system which includes the structure, responsibilities, practices, procedures, processes and resources for implementing environmental policies, objectives and targets (SABS ISO 14004, 1996:v).

The EMS provides the structure by which specific activities related to environmental protection and compliance can be efficiently carried out. An effective management system is central to the avoidance of environmental degradation, in so much as it pulls together all the other tools and strategies for

the avoidance of *risks* and provides a framework for a clear and focused approach to environmental improvement (Wilkinson, 2001:4).

2.2 BACKGROUND, ORIGIN AND EVOLUTION OF EMS

2.2.1 Origin of EMS

"Environmental management systems or as is commonly termed EMSs, were developed in response to public and market pressure. These systems attempt to assist in developing and operating orderly environmental management practices in organisations and businesses" (CMC, 2000:3).

According to Potgieter (2001:1), an EMS is thus a licence to operate and a means to ensure that an international trade barrier does not exist.

The emphasis here is upon *market related pressures* as a result of increasing *environmental awareness, globally.*

This must be viewed within the context of supporting legislation, which is increasingly stringent and the need to demonstrate compliance in this regard. Here too international pressures are being brought to bear, particularly through Agenda 21 (considered as the blueprint of sustainable development) and other related treaties and conventions. Together, legislation, market related forces and other pressure groups form the drivers for the ongoing development and evolution of the EMS.

2.2.2 Elements of an EMS and the Link to Quality Systems

It is generally agreed that the most widely applied type of EMS is that which is ISO 14001 based, the underpinning philosophy being four basic principles, namely *Plan-Do-Check-Act,* which had its foundation in quality related systems, referred to as TQM of which the Deming Cycle is best known (Potgieter, 2001:3).

The Deming Cycle was developed prior to the ISO 14001 based EMS in response to the need for quality control and customer satisfaction. Today the EMS incorporates the same plan, do, check, act philosophy as follows:

The "policy" precedes the aforementioned phases as follows:
- Environmental policy
- Planning (plan).
- Implementation and operations (do).
- Checking and corrective action (check).
- Management review (act).

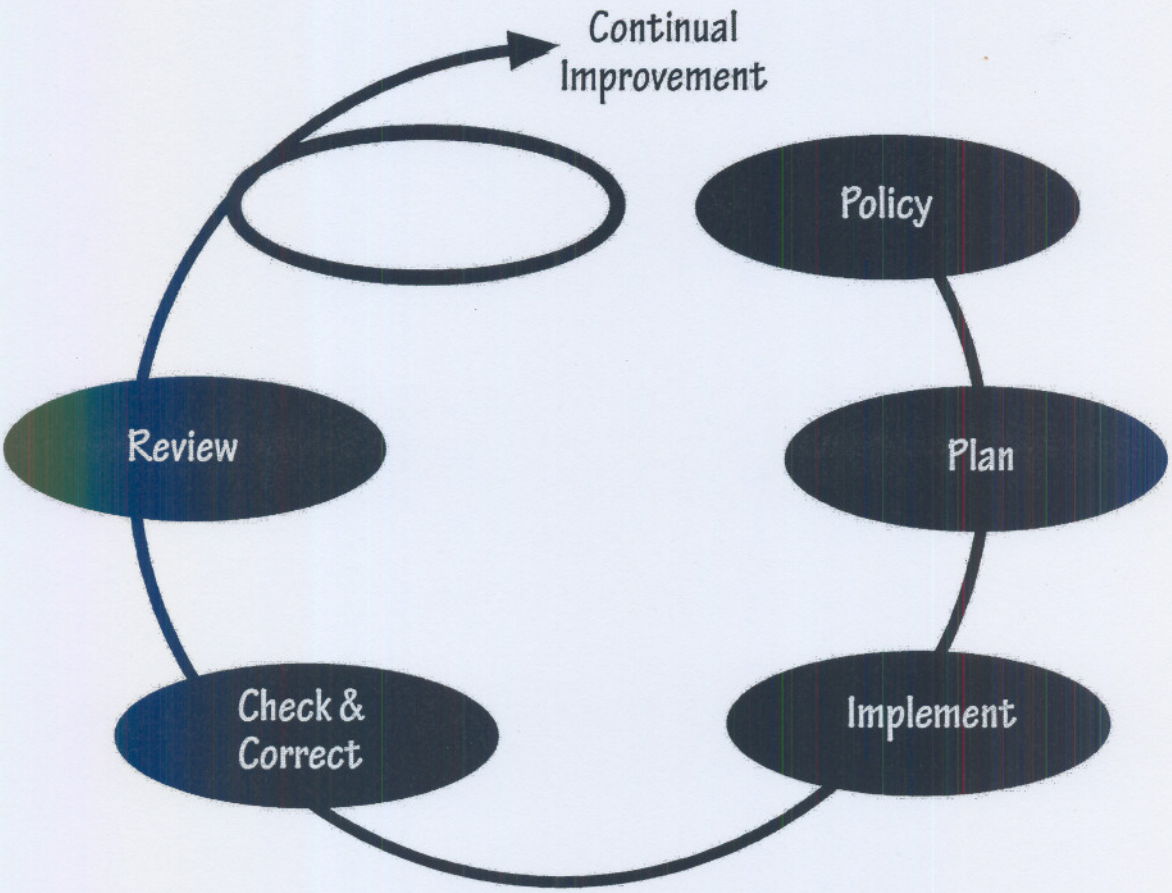

Figure 2: The Life Cycle of ISO 14001
(Adapted from SABS ISO 14001, ISO/TC207/SCI, SABS 1996:vi).

2.3 EVOLUTION OF THE EMS, TOWARDS A SUSTAINABLE MANAGEMENT SYSTEM (SMS)

2.3.1 Introduction

In striving towards Greener Governance, a Sustainable Management System should be developed so as to comply with legislation and associated sustainable development requirements. Whilst it is true to state that an ISO 14001 based EMS

must comply with applicable legislation and that the purpose of this International Standard is to provide assistance with implementing or improving an EMS so as to ensure *consistency with the concept of sustainable development* (SABS, ISO 14004, 1996:v), the scope of such an EMS is confined to environmental aspects and as a result, it cannot be considered to be a sustainable management system. It is however not averse to integration with other management system elements (SABS, ISO 14004, 1996:vii) and the scope of the associated policy should thus be expanded to include the principles of sustainable development.

The principles and philosophy of the 'Natural Step' (Nel, 2002[a]), will thus be reviewed as a basis from which an EMS can be developed which is in line with the requirements of a sustainable management system (SMS), where after various standards and the application thereof by various organisations will be compared.

2.3.2 Background: The Sustainable Management System (SMS) and possible origins: The Natural Step as a concept

The founder of The Natural Step, Professor Karl-Hendrik Robert, laid out the systems perspective needed to plan strategically for sustainability. The Natural Step is thus an international, science-based non-governmental organisation (NGO) with a vision of an attractive society that is socially, ecologically and economically sustainable. The Natural Step has been operational within South Africa since late 1998; its headquarters are based in Cape Town. Its clients include the Cape Metropolitan Council and its philosophy has been applied to the Durban Unicity (Willis, 2000:1).

2.4 THE NATURAL STEP (TNS) FRAMEWORK AND METHODOLOGY

The Natural Step framework is a methodology for planning, which enables organizations to integrate environmental and social considerations into strategic decisions and daily operations. The methodology which follows is based upon the TNS Framework Guidebook (The Natural Step, 2000).

2.4.1 The Methodology

This makes provision for the mapping out and listing of flows of raw materials and energy and all practices in one's organisation that are critical, with reference to the four sustainability objectives, these being:

- To eliminate our contribution to systematic increases in concentrations of substances from the earth's crust.
- To eliminate our contribution to systematic increases in concentrations of substances produced by society.

- To eliminate our contribution to systematic physical degradation of nature through over harvesting, introductions and other forms of modification.

- Meet human needs in our society and worldwide, over and above all the substitution and dematerialization measures taken in meeting the first three objectives.

When using the TNS framework one chooses measures that are flexible steps for further improvements towards sustainability, which give a good rate of return. Measures that individual organizations take while using this strategic way of planning will obviously vary, but the overall direction will be the same – towards the four sustainability objectives (The Natural Step, 2000:9).

- Sustainability review

One needs to map out critical flows and practices in an organization with respect to the four sustainability objectives. Carrying out a sustainability review does this. In a sustainability review an organization and every single operation/activity in the organization represents the flow of raw materials and energy and the transformation thereof, i.e. inputs and outputs. It is recommended that the employees are involved in carrying out the review themselves, as everyone has some impact on the flows of raw materials and energy and the activities of the organisation. Furthermore, it is regarded as imperative that you (the organisation) develop your own sustainability review, tailored specifically to the situation within your organisation and that this is an ongoing process rather than a one-time event (The Natural Step, 2000:10).

- List problems and solutions

Having done this, one then lists every conceivable solution for the identified problems. For the organization to become sustainable, planned measures and strategies must be assessed in relation to the sustainability objectives. One attempts to test the measures against these objectives.

In relation to Sustainability Objective No. 1, options may include finding solutions to decrease the use of metals and minerals per amount of service provided on all levels of the value chain, such as fossil fuels (The Natural Step, 2000:14).

Options for Sustainability Objective No. 2, include:
Finding solutions to decrease the use of chemicals per amount of service provided on all levels of the value chain. If there are no better alternatives, these substances should be tightly cycled (The Natural Step, 2000:14).

Options for Sustainability Objective No. 3, include:
Finding solutions to decrease the use of renewable resources per amount of service provided on all levels of the value chain. This includes switching to

resources drawn only from well-managed ecosystems, green and brown capital – through location of factory (The Natural Step, 2000:15).

Options for Sustainability Objective No. 4, include:
Two approaches, namely substitution and dematerialization. Substitution is about exchange, e.g. replacing persistent substances foreign to nature. Dematerialization is about efficiency, i.e. reducing the consumption of energy and materials.

There are various ways to improve your organizations efficiency:
- Resource productivity (amount needed for production).
- Less waste (improved systems for reuse and recycling).
- Organizational efficiency (avoiding unnecessary transportation, global exchange of information etc).
- Personal efficiency in our daily lives.
- Prioritization and management.

This has to do with determining which targets and measures are to be chosen. That is, those that move you fastest toward sustainability while still maximizing short-term profitability and long-term flexibility. Questions asked may include the following:
- Is this measure a step towards our objectives? Which measure brings us toward sustainability the fastest?
- Are we creating a flexible platform for further improvements (continual improvement) and are the solutions flexible?
- Will the measure bring adequate financial returns? Identify low hanging fruit (in this context that refers to measures which bring about improved profitability by generating comparatively good returns on investments).

It is the combination of these key questions that constitute the strategy – a strategy that prioritizes the measures that are most financially viable, bringing one towards sustainability fastest with optimized flexibility. By examining every aspect of decision-making in terms of the TNS framework, the probability of long-term success greatly improves (The Natural Step, 2000:16).

2.5 SUMMARY

As stated, the TNS framework allows for the management of current problems as well as future problems lying dormant in the system. It allows one to create solutions that focus upon the underlying causes of the problem, rather than trying to tackle the myriad effects. In short, it allows environmental and social problems to be turned from a *potential major liability into a potential major opportunity* releasing creativity and encouraging opportunity (The Natural Step, 2000:17).

3

EMS THE THEORY: DRIVERS FOR THE DEVELOPMENT OF EMS IN SOUTH AFRICA WITH PARTICULAR REFERENCE TO THE PUBLIC SECTOR

3.1 INTRODUCTION

This chapter traces and explores the implications resulting from increased statutory reporting requirements pertaining to environmental performance and the associated prerequisite for increased credibility and demonstration of accountability and compliance, especially within the public sector. Within this context the increasingly apparent role of the Auditor General as auditor of environmental performance together with the implied need for the development of an appropriate EMS for the government sector, as a tool by which to embody and implement these requirements will be addressed. The primary driver for an EMS within the public sector, both now and in the future is compliance with legislation.

3.2 BACKGROUND

In South Africa the development and application of EMSs was initially slower (to my mind) as a result of sanctions and the relative isolation of South Africa to global market trends, international legislation and associated environmental legislative requirements.

3.3 SOUTH AFRICA AND THE TRANSITIONARY PHASE

It was during the transitionary phase in South Africa (pre-1994), that the need for a national EMS (and indeed the need for incorporation of environmental rights as part of the legislation) was questioned. Dr Cameron (as Director General of DEAT during the period 1992-1997), recognised the need for a type of environmental management system and captured the essence thereof in various papers and presentations during this period. The system he envisaged was not synonymous with any of the EMS standards described in Chapter 4, yet the sentiment and the criteria remain relevant today.

Dr Cameron had the following to state: "I wish to sum up the criteria for an environmental management system which must:

- Be based on sound principles and general policy in accordance with *international trends*, but adapted to *accommodate our circumstances and needs.*
- Consist of structures that are commensurate with the *constitutional dispensation* and enable the allocation of functions that are appropriate for each environmental issue and
- *Provide for the formulation of specific policy* and promote the implementation of strategic plans and the *employment of management tools* such as legal, *economic* and other measures in order to attain particular environmental objectives" (UNISA, 1993:69).

Whilst an EMS was not prescribed as a tool for environmental management, in the years which followed much of our legislation and indeed the constitution give the environment a right to protection, thus paving the way for the application of tools (such as an EMS) to ensure compliance and facilitate demonstration of credibility and accountability.

3.4 THE DRIVERS

3.4.1 The New Dispensation

The Constitution of the Republic of SA, (Act No 108 of 1996), with reference to sections 24 and 27, necessitated the development of policies and legislation to facilitate the transformation of the South African government (RSA, 2001:3).

As a result of the new dispensation, it can in general be stated that changes in environmental legislation resulted in legislation which is not only more stringent, but is *binding upon all organs of state,* which was previously not the case (Potgieter, 2001:6-8). Included in the mandates of the respective state departments was "giving effect to" section 24 which ensures that everyone has a right to an environment which is not harmful to their well being.

In addition to compliance prerequisites associated with more stringent legislation, it can be stated that "with increased public consciousness, the demand for public accountability of persons or entities managing public resources has become increasingly evident so that there is a greater need for the accountability process to be in place and operating effectively" (INTOSAI, 1998:6). Thus public sector entities are usually subject to, and accountable for, their compliance with a greater range of legislation than entities in the private sector. Public sector entities may therefore exercise their powers only by carrying out their statutory functions. Compliance with legislation is an essential element of proper public administration and is derived from the constitutional principle of Parliamentary supremacy. Consequently, public sector entities are accountable for the use of, and compliance with, the legislative requirements that Parliament has vested in them (Hamid, 2003).

The concept of accountability and the role of the Office of the Auditor General (OAG) together with the associated implications for the public sector will be explored, where after certain legislative requirements will be highlighted within this context of compliance and accountability.

3.4.2 Environmental and Associated Legislation Affecting the Public Sector

As a result of the new dispensation, South Africa became party to, and signatory of, a number of international agreements. The key international environmental agreement is Agenda 21, which is in effect an action plan and *blueprint for*

sustainable development adopted by 178 governments, including South Africa, at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 and which remains the fundamental programme of action for achieving *sustainable development* (RSA, 1998:3)[C] and (RSA, 2000:4:25).

For the purpose of this dissertation and its associated objectives in demonstrating the need for an appropriate EMS, selected legislation (considered as potential drivers for the implementation of an EMS), will be discussed. The legislation selected for further discussion in this regard is the National Environmental Management Act, 1998 (Act 107 of 1998), in conjunction with the Environment Conservation Act, 1989 (Act 73 of 1989), the Public Finance Management Act, 1999 (Act 29 of 1999) and the King II report (March 2002), within the context of corporate governance and its implications for the public sector.

3.4.3 NEMA/ECA: Overarching Environmental Legislation

Two major Acts at present jointly regulate the management of the environment. They are the Environment Conservation Act (ECA), 1989 (Act 73 of 1989) and the National Environmental Management (NEMA), 1998 (Act 107 of 1998). NEMA is currently under review and once amended will incorporate regulations currently addressed by ECA. *It is anticipated that the amendments will include addressing a broader range of environmental management tools for the application of Integrated Environmental Management (IEM), including that of environmental management systems (Beaumont, 2003).* Environmental statutory reporting requirements in terms of NEMA, Chapter 3, section 11, (RSA,1998:53)[b], and the implications in this regard will also be addressed.

3.5 THE PUBLIC FINANCE MANAGEMENT ACT

The Public Finance Management Act (No 29 of 1999) and the associated regulations require that an organisation develop and implement a risk-based audit strategy. Thus in Chapter 5 (section 38) of the PFMA (RSA, 1999:45), reference is made to the fact that "effective, efficient and transparent systems of financial and risk management and internal control" must be in place.

By implication cognisance must be taken of an organisation's liabilities, which include those of an environmental nature, thus resulting in a triple bottom line reporting approach, a requirement in line with Agenda 21 and *"sustainable" development criteria.* The King II Report, a code of corporate practices of conduct, is in effect enacted through the PFMA in that if one complies with the PFMA one has to comply with the King II requirements (Lubbe, 2002)[a]. In this regard, application of the code includes public sector enterprises and agencies that fall under the Public Finance Management Act and the Local Government: Municipal

Finance Management Bill, including any department of State or administration in the national, provincial or local sphere of government or any other functionary or institution (IOD, 2002: 20, 1.1.3).

3.6 THE KING II REPORT AND CORPORATE GOVERNANCE

3.6.1 Introduction

Corporate governance in South Africa was institutionalised by the publication of the King Report on Corporate Governance in November 1994. The King II Report replaces the 1994 King Report, the code being effective as from 1 March 2002. The Code should be seen as a "living document" that may require to be updated from time to time by the King Committee to ensure the currency of its recommended principles of corporate practices and conduct (IOD, 2002: 21, 1.6).

According to Sir Adrian Cadbury (quoted by Lubbe, 2002:3)[b], the purpose of the King Report 1994 was, and remains, to promote the highest standards of corporate governance in South Africa. The King II Report thus embraces corporate governance, the underlying philosophy being that all business should comply with good business practices. Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The aim is to align as nearly as possible the interests of individuals, corporations and society.

Thus in adopting a participative corporate governance system of enterprise with integrity, the King Committee in 1994 successfully formalized the need for companies to recognize that they no longer act independently from the societies and the environment in which they operate (IOD, 2002:4,6).

The report suggests *government* should follow the same management standards as companies. This includes sound safety, health and environmental management. In attempting to "unpack" the term "corporate governance" and its implications for the government sector, reference can be made to the primary characteristics of good corporate governance (IOD, 2002:10-11). These are as follows:

- Discipline
- Transparency
- Independence
- Accountability
- Responsibility
- Fairness
- Social responsibility

It is stated that good corporate governance goes well beyond financial and regulatory matters and includes social, ethical and environmental issues. Encompassed within the concept of good corporate governance is the need to *assess risks*. Corporate governance can, in part, be viewed as a company's strategic response to the need to assume prudent risks, appropriately mitigated, in exchange for measurable rewards. Reference is made to the mitigation of risks through a system of appropriate internal controls (Lubbe, 2002:12-13)[b].

According to Visagie (2002), it would seem reasonable to assume that the tools used to attain this goal will rely heavily upon a type of Environmental Management System.

3.6.2 Summary: Corporate Governance

According to J. Wolfesohn (quoted by Lubbe, 2002, Module 23:7), "the proper governance of companies will become as crucial to the world economy as the proper governing of countries". *Thus in future, law and corporate governance as a total package will have to be complied with.*

The significance of corporate governance is now widely recognized, both for national development and as part of international financial architecture, as a lever to address the converging interests of competitiveness, corporate citizenship, and social and environmental responsibility (IOD, 2002:14,23).

Within a South African context, reference is made to the fact that as society in South Africa has evolved since 1994 through local developments and international circumstances, it is clear that business in this country continues to be faced with many challenges in a complex environment of political imperatives, globalisation and increasing relevance of stakeholder interests (IOD, 2002:16-17,34).

3.7 DWAF AND ENVIRONMENTAL LEGISLATION

The overarching environmental legislation and other legislation considered most significant within the context of developing an appropriate EMS within the public sector has been explored as a tool by which to co-ordinate compliance and develop an appropriate system with internal controls to, amongst others facilitate triple bottom line reporting within the context of sustainability. To add to the aforementioned legislation is DWAF's own enabling legislation, which has direct implications as regards its mandate in regulating the resource considered most significant within South Africa, namely water.

Current water policy and legislation of which DWAF is the custodian underpins fundamental principles such as equity in access to water, the optimal beneficial use of water and the principle of *sustainability*, together with the recognition that

integrated and participatory management of water resources is most appropriate to achieve this. Indeed, although South Africa was absent from the Rio Declaration (1992) at which the concept of Agenda 21 (and associated sustainable development) was born, with the advent of the new Constitution, South Africa was able to model much of its legislation upon Agenda 21 principles. According to Hugo (2002), this is especially true of DWAF and their water policy and legislation, which will be expanded upon later.

The NWA is thus the legal instrument to help give effect to the former and the country's *water policy.* The principles of sustainability and equity run throughout the many components of the Act. According to Hugo (2002), it is considered to be one of the best in the world, because the policy and subsequent Act is to a large extent modelled upon Agenda 21 principles.

According to Peter (2002), much the same can be said of the Forestry Act, in that after the achievement of democracy in South Africa in April 1994, South Africa started developing a forest policy that embraced the Rio principles (Agenda 21) and provided for the reconstruction of the forestry sector in South Africa. This policy, which gave rise to a White Paper on Sustainable Forest Development culminated in 1998 in the passing of South Africa's National Forest Act (NFA).

Thus DWAF is currently responsible for three core functional areas, namely:

- Water Resources Management (WRM)
- Water Services (WS)
- Forestry Management

Associated with these core functional areas, are environmental impacts which are derived from both an implementory (impacting) and regulatory (management) role, as reflected in the table below (RSA: 2001:25).

TABLE 1: SUMMARY OF DWAF'S PRIORITY ENVIRONMENTAL FUNCTIONS

PRIORITY FUNCTIONS IMPACTING THE ENVIRONMENT		
Water Resource Management	**Water Services**	**Forestry**
▪ Making water available for use.	▪ Water services planning. ▪ Project development and implementation. ▪ Operation and maintenance of schemes. ▪ Regulation and intervention.	▪ Facilitating and supporting community forestry. ▪ Development of the industrial/commercial forestry sector.
PRIORITY FUNCTIONS MANAGING THE ENVIRONMENT		
Water Resource Management.	**Water Services**	**Forestry**
▪ Water resource protection. ▪ Water use allocation. ▪ Regulating water use.	Not applicable.	▪ Sustainable management of natural forests and woodlands. ▪ Fire management.

In carrying out their mandate in respect of water resources management, there are several national laws that demands specific requirements of the Department (DWAF), and other water management institutions (RSA, 2002:34) [a]

The departmental legislation (enabling legislation), which guides these core functional areas, follows, as indicated by (RSA, 2001:17).

3.7.1 Water Resource Management: Policy and Legislation

Water resource management polices and legislation included:
- The White Paper on a National Water Policy, April 1997 and
- The National Water Act, No 36 of 1998 (NWA).

3.7.2 Water Services: Policy and Legislation

- The White Paper on Community Water Supply and Sanitation, Nov 1994
- White Paper on Sanitation, 1996 and
- The Water Service Act, No. 108 of 1997.

3.7.3 Forestry: Policy and Legislation

- The White Paper on Sustainable Forest Development in South Africa, 1996
- The National Forests Act, No. 84 of 1998 (NFA) and
- The National Veld and Forest Fire Act, No. 101 of 1998 (NVFFA).

South Africa is obliged by national policy and legislation and by international agreements to manage its water resources in a sustainable, equitable and efficient manner in order to provide for the needs of the people and development of the country (RSA, 2002:1) [b] In giving effect to its own Act, namely the NWA, The National Water Resource Strategy (NWRS) provides the implementation framework for the National Water Act (Act 36 of 1998). The foundations of the National Water Resource Strategy are the National Water Policy (1997) and the National Water Act.

3.7.4 Summary: Legislation

According to Barnard (1999:34), the development of environmental legislation in South Africa reflects a growing environmental awareness. He however continues as follows: "In the administration of environmental law South Africa shares a problem with the rest of the world. The many legislative measures that manage environmental impacts tend to be fragmented and fall under the control of a variety of enforcement agencies" (Barnard, 1999:195). This exacerbates the application of sound environmental management practices. As a solution to this he states that the challenge to environmental practitioners is to establish effective systems for the management of this collection of legislative measures in a way that facilitates their accessibility, integration, co-ordination, application and further development (Barnard, 1999:195). This is important in that compliance to legislation is considered a primary driver for the development of an appropriate EMS for the government sector.

3.8 THE ROLE OF THE AUDITOR GENERAL IN ASSURING THE NEED TO DEMONSTRATE COMPLIANCE

Traditionally the role of the Auditor General has concentrated upon financial reporting to Parliament and use and expenditure of state funds. Thus in terms of section 188 (1) of the Constitution, the Auditor General must report on the accounts, financial statements, and financial management of all national state departments and any other relevant institutions (RSA, 2001:62).

In terms of the respective departmental mandates and as Parliament's auditor, the Auditor General has an obligation to provide assurance about a public sector entity's discharging of accountability, which includes compliance with fundamental laws and regulations. The annual audit should therefore provide an independent assessment of whether a public sector entity has materially complied with the legal instructions given to it by Parliament through legislation. Parliament reserves to itself four fundamental prerogatives with respect to public sector entities. Through legislation (statutes and associated regulations), Parliament may define the public sector entity's purpose, activities, the resource limitations within which the entity will operate, and its accountability requirements. Compliance with legislation is an essential element of proper public administration and is derived from the constitutional principle of Parliamentary supremacy. Consequently, public sector entities are accountable for the use of, and compliance with, the legislative requirements that Parliament has vested in them.

Thus in addition to the more traditional role of the Auditor General, the Office of the Auditor General (OAG) has initiated a process of auditing the environmental management performance of government departments as regards implementation of their constitutional mandates and conformance to international conventions. (RSA, 2001:62). According to Hamid and Heunis (2003), the current Act, namely the Auditor General's Act, 1995 (Act 12 of 1995), is currently being amended to include the term "sustainable", so as to facilitate auditing of the environmental "component", thus enabling triple bottom line reporting, a criterion of sustainable development.

Within this context of accountability, the OAG and its role in the development of a model for benchmarking of environmental performance by the public sector will be expounded upon, as will the envisaged development of this model, which makes provision for an appropriate EMS. Reference will first be made to the relationship between DWAF and the OAG, prior to expounding upon the involvement of DWAF in the pilot study.

3.9 DWAF AND THE ROLE OF THE AUDITOR GENERAL WITHIN AN ENVIRONMENTAL CONTEXT

The Department (DWAF) welcomed the initiative by the Auditor General to undertake environmental audits on national government departments to assess their *performance* in respect of environmentally related activities and functions. The outcome of this initiative resulted in an Interim Audit Report (RSA, 2000), the first external and environmental report of such a nature. The findings and recommendations included the following:

- The Interim Report acknowledged that there is as yet *no appropriate reporting framework* and as a result the Interim Report, along with the associated findings and recommendations, constitutes one of the first attempts to perform such an audit.

- Reference is made to the fact that since the democratisation of South Africa, new legislation has been promulgated, *new policies* have been formulated and strategies drafted with regard to fresh water. As a result, various strategies have to be finalised and *targets set* to continue the work of, and compliance with Agenda 21, the international blueprint for actions to achieve sustainable development" (RSA, 2000:25).

- According to the Auditor General, the establishment of *national monitoring and information systems* on water and water services is still in progress. Comprehensive and accurate information within an acceptable and auditable *reporting framework* is needed (RSA, 2000:15).

Subsequent to the publication of the Interim Report no further external environmental audits have been undertaken. However, since the Interim Audit Report, a pilot study, which incorporates the statutory reporting requirements of NEMA, is being piloted and developed by the OAG in conjunction with the Department of Environment Affairs and Tourism (DEAT) and the associated role-players. This will now be expounded upon.

3.10 DEAT: THE DEVELOPMENT OF STATUTORY REPORTING REQUIREMENTS AND THE ROLE PLAYED BY THE OFFICE OF THE AUDITOR GENERAL

With the promulgation of the National Environmental Management Act (NEMA, Act 107 of 1998) certain national departments and provinces are required to prepare Environmental Implementation Plans (EIPs) and/or Environmental Management Plans (EMPs). EIPs and EMPs are addressed in Chapter 3 of NEMA, which specifies procedures for co-operative governance. EIPs and EMPs are primarily statutory instruments for the promotion of co-operative governance around

environmental management, through the alignment of governmental policies, plans, programmes and decisions with respect to the environment. EIPs and EMPs are therefore particularly important in South Africa, due to the highly fragmented nature of environmental management, both horizontally between departments and vertically between spheres of government.

In terms of NEMA (Chapter 3, section 11), DWAF has published a Consolidated Environmental Implementation and Management Plan (CEIMP) as it is responsible for causing environmental impacts both as a regulator (EMP) and implementer (EIP). In its CEIMP, the Department has committed itself to developing and implementing an integrated environmental management framework, to ensure that its approach to environmental issues is aligned with the national environmental principles described in NEMA (RSA 2003)[a]. According to van Zyl (2003), reporting requirements other than the CEIMP are extensive in nature and include over 70 official reports, which include all three authoritative tiers, namely local, provincial, national and global reporting requirements.

3.10.1 DEAT-OAG Pilot Study

NEMA, Chapter 2, Part 2 (7 - 10) refers to the establishment of a Committee for Environmental Co-ordination (CEC) with the purpose to promote integration and co-ordination of environmental functions by the relevant organs of state, and in particular to promote the achievement of the purpose and objectives of EIPs and EMPs. A presentation was done by the Office of the Auditor General regarding the development of environmental auditing and related consultation with the CEC on 7 June 2002. The idea of a pilot audit of one or more of the national departments, that is listed in the National Environmental Management Act, Act 107 of 1998 (NEMA), was agreed upon in a meeting with the Sub-Committee of Environmental Co-ordination on 29 - 30 July 2002. This was confirmed at meetings held on 12 March and 25 June 2003 respectively.

The lack of clarity in respect of the accountability aspect in the EIPs and EMPs necessitated involvement from the Office of the Auditor General. The Department of Environmental Affairs and Tourism worked with the Office of the Auditor General in an attempt to add value in terms of introducing accountability considerations in the development of environmental reporting across various spheres of government (OAG, 2003:2)[b]. The broad objective of such a model is to increase the credibility and accountability associated with the report- backs, and furthermore allow for benchmarking of reporting requirements between the respective departments, both national and provincial. Two departments were selected as candidates for the pilot study, one being DWAF and the other department being Department of Mineral and Energy Affairs (DME), on the basis that the respective departments:

- Are representative, both nationally and provincially (regionally)

- Have significant impacts through regulation and implementation of their projects.

3.11 THE PROPOSED MODEL: ADAPTED FROM THE FINANCIAL MANAGEMENT CAPABILITY MODEL, AUDITOR GENERAL OF CANADA

As a baseline, the structure of the Financial Management Capability Model (OAG, Canada, 1999?:7) was proposed. This model consists of five levels, namely:

- **Level 1**: Start Up (no proper control framework).
- **Level 2**: Control (focus on compliance and control).
- **Level 3**: Information (focus on measuring how resources are used and managing for efficiency and economy).
- **Level 4**: Managed (focus on balancing efficient and economical use of resources with quality/effectiveness of results achieved).
- **Level 5**: Optimizing (focus on continuous improvement and learning).

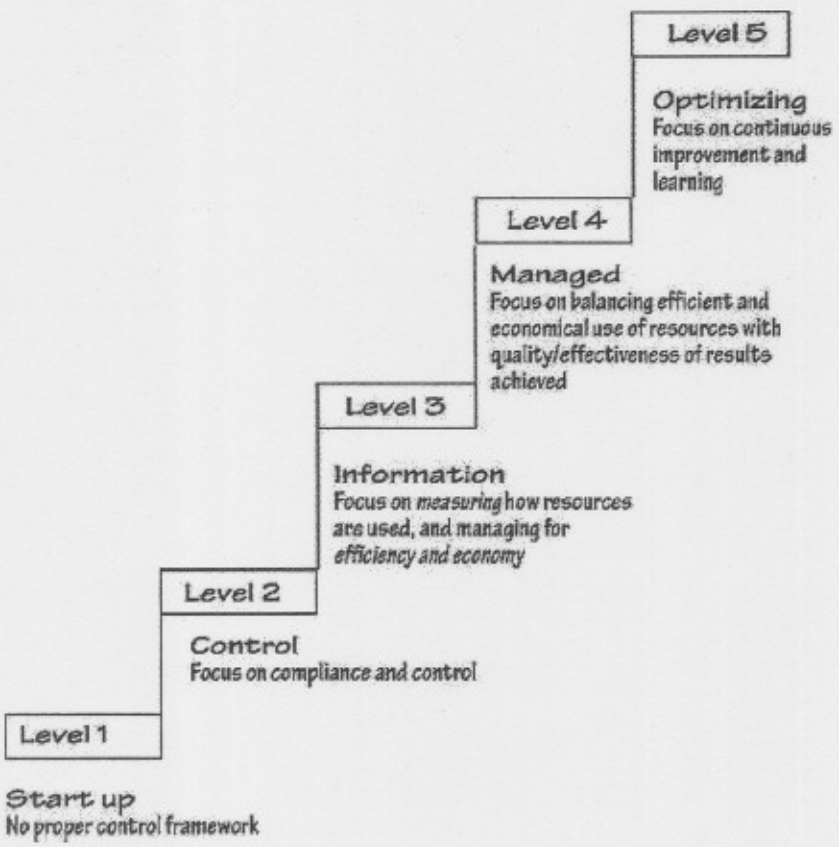

Figure 3: The Canadian Financial Management Capability Model
(Adapted from the Office of the Auditor General, Canada, Financial Capability Model, 1999?).

The Office of the Auditor General (South Africa) amended the model, so as to include six levels. This model was pilot tested, using DWAF and DME, the purpose being to focus on what the department in question should do, against what they actually have in place to achieve what they are supposed to do (mandate). The audit team looked at hierarchy issues, such as environmental legal requirements, linked to risks, versus actual policy implementation (OAG, 2003:5)[b]. The pilot test is termed the DEAT/OAG model. The model is based upon the aforementioned Financial Management Capability Model and has been amended to focus upon six levels, in total.

The following levels of assessment (or stages in implementing environmental management) were thus determined, against which the entity will be measured and assessed. The levels are as follows:

Level 1: Start-up level (no proper framework, *policy not in place).*
Failure to attain this level means there is nothing in place (not even legislation) and therefore the Department has no method of managing, or being informed of, environmental degradation and its potential implications for the department.

Level 2: Development level (develop and implement a proper control framework and environmental and financial processes). *Policy is in place and procedure. Internal controls to implement policy are not in place, thus representing a state of "suspended animation". Most South African state departments are here. Failure to attain this level means that the Department does not have adequate or approved policies in place to manage their risk. This means that management has not put in place a tool to manage amongst others its legal mandate.*

Level 3: Control level (focus on compliance and control).
Internal controls exist to implement policy. Typically audit against four aspects, namely:

- Segregation of roles (no hunter/poacher scenario)
- Authorization and delegation
- Independent checks including 3rd party authorisation and lab accreditation.
- Audit/custody of assets.

Failure to attain this level means that although management has a policy in place, which explains what needs to be done, this has not been implemented adequately. The impact of this is an increased possibility that the information management received is not accurate or complete. This in turn can lead to inappropriate decisions being taken.

The aforementioned three levels all form part of the planning or "institutional" phase and are not part of the actual implementation of the proposed system, which will drive this model.

Level 4: Information level (focuses on measuring how resources are used, and managing for the efficient and economical use of resources). This is a performance-based level.

Level 5: Managed level (focuses on balancing efficient and economical use of resources with quality/effectiveness of results achieved). This is a performance-based level and is a managed level.

Level 6: Optimising level (focuses on continuous improvement and learning). This level may be seen as being in line with the ISO 14001 Standard.

According to Hamid (2003), Levels 4 - 6 therefore allow for a more *performance-based* approach to be followed, in that with the implementation of the model, indicators can be incorporated to assess performance.

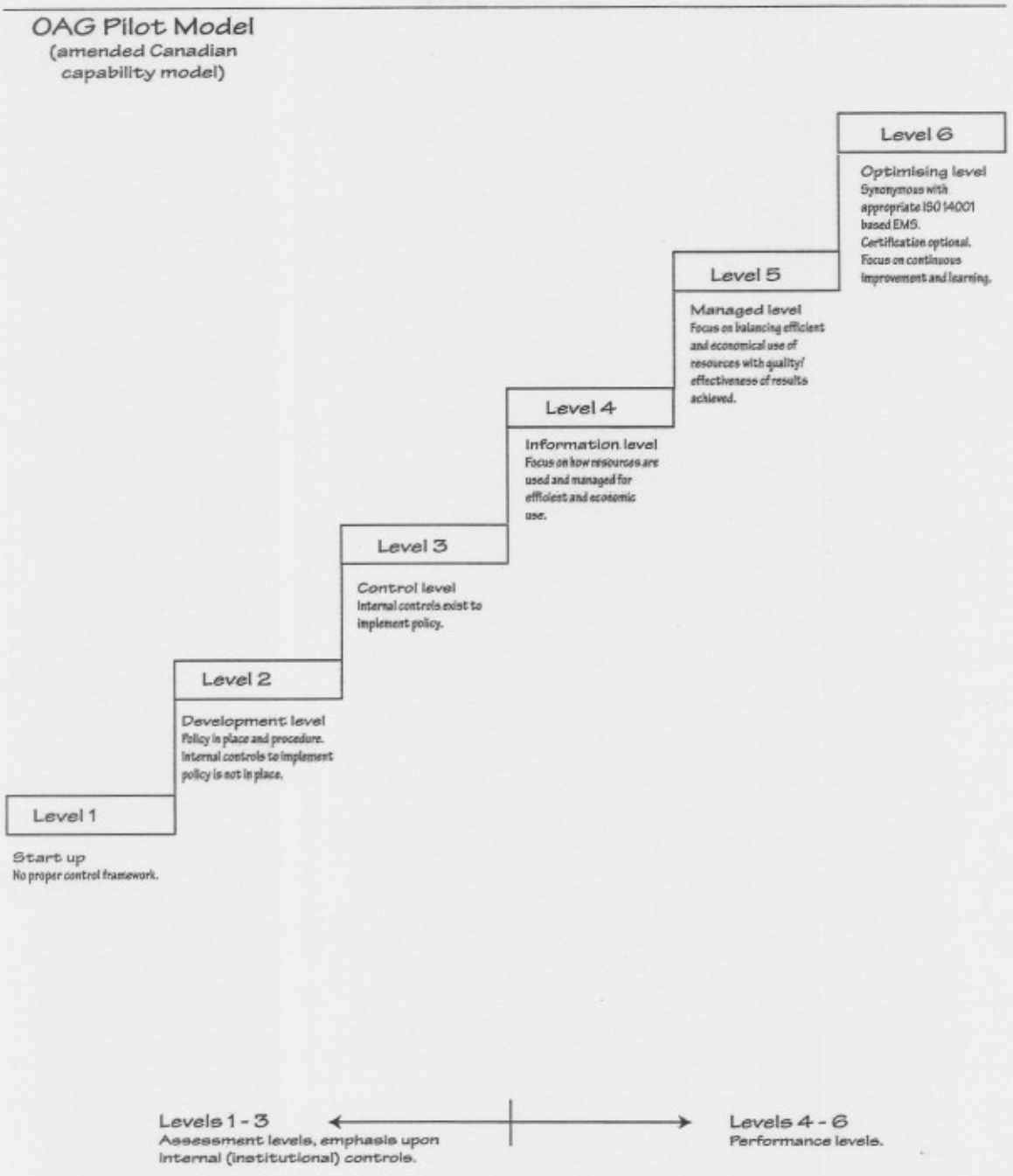

Figure 4: The DEAT/OAG Model (based upon the Canadian Financial Management Model
(Adapted from the pilot study model, driven by the Office of the Auditor General, Republic of South Africa, in conjunction with the Department of Environment Affairs and Tourism, OAG (2003)[b].

3.12 STATUS QUO OF PROPOSED MODEL

The proposed model was accepted in principle at a brainstorming session held at DWAF on 24 February 2003. At this session, it was stated that this model represents both an assessment and certification process, in terms of which government departments as scheduled in NEMA will be benchmarked. The model will thus:

- Allow for benchmarking with other departments.
- Allow for the integration of an ISO 14001 based EMS and for optional certification thereof.
- Enables the Auditor General to certify "interim levels" prior to potentially attaining ISO certification.
- On an annual basis allow for the auditing and benchmarking of the respective departments and provinces and allows for (where necessary) an indication of regression in any level by a department, should the department in question be unable to maintain its benchmarked level.
- Includes an initial risk-based assessment through identification and selection of key activities and processes.
- Allows for institutional /internal controls so as to guard against system failure.
- Allows for incorporation of performance-based indicators.

As regards the need for performance-based assessments, it has been stated that the pilot model is not performance-based. However the implementation levels (levels 4-6) can allow for the incorporation of performance-based criteria. There is "a place" for performance audits but the primary need at this stage is rather to identify the gaps between what the government institutions are accountable for and what they actually can deliver. This can be achieved by identifying the objective of the legislation (inverse of the risk) and assessing the internal (institutional) control structures that should be in place to address the objective (risk) and then identifying the gaps, especially at operational level.

The latter is important because government institutions typically have various policies and plans in place but in reality very few of these policies and plans are implemented at operational level. In ensuring that adequate internal controls are in place to safeguard against system failure, a number of "main characteristics" which serve as criteria for internal controls were identified.

3.13 MAIN CHARACTERISTICS/ CRITERIA FOR INTERNAL (INSTITUTIONAL) CONTROLS

The Office of the Auditor General (OAG, 2003:1)[b], identified the following main characteristics, which should be considered when appraising a public sector environmental system:

- Responsibilities are clearly defined and written.
- The competencies to undertake the functions are defined.

- Information systems are in place.
- Checks and monitoring to ensure the integrity of information are part of the process.

These criteria for internal controls are used to assess the key risk areas of the organisation in question. The identified or residual risks are determined and the organisation classified according to one of the aforementioned.

3.14 SUMMARY: ROLE OF OAG

In discussing the proposed model with representatives of the OAG, cognisance was taken of the objectives of the proposed model and the challenges associated with a way forward. The primary objective is to benchmark state departments according to their environmental performance, using a model, which is consistent, comparable and measurable. In developing the model, provision was made for certification of an ISO 14001 based EMS and for interim certification, which may be considered significant.

A number of challenges are associated with the development of such an EMS. This includes the sheer magnitude of developing a system which will not only co-ordinate plans, policies and programmes within a department (such as DWAF) but be sufficiently generic to be comparable with other state departments, enabling benchmarking between the respective departments and their typical three-tier levels of authority, namely national, provincial and local level. Such a system must thus function equally effectively at both strategic and at ground level, whilst taking into consideration the three tiers of authority.

An ISO 14001 type of system is favoured, although there are reservations that such a system whilst functioning effectively at an operational level, would not function adequately at a strategic level. In addition to this, the proposed model must be sufficiently flexible to be tailored and customised to fit the requirements of the organisation in question, also allowing for comparison between different business units within the same organisation.

The proposed model is not performance-based although subsequent levels (levels 4-6) can make provision for the incorporation of performance-based criteria. A performance-based model with associated indicators is favoured in developed countries. Developed countries can assume an adequate level of implementation of their policies and thus typically any type of environmental or reporting system is performance-based. However, in developing countries generally the adverse is true with the country in question not having the capacity to implement the policy. The system advocated therefore is one, which will first concentrate upon the development of internal controls and institutional capacity, prior to putting indicators in place, which are performance related. *It is contended*

that only once the internal controls are in place can indicators be developed, at subsequent "higher implementation" levels.

The model may thus be regarded as being similar in nature to that of an ISO 14001 based EMS, which is systems/procedurally-based. The objective of the model is to respond to the question "Is what your organisation saying it is doing, being done?" Institutional controls are thus regarded as being of paramount importance.

The aforementioned deductions will be taken into account and discussed further in the chapters, which follow.

4

EMS THE THEORY: A COMPARISON OF VARIOUS ENVIRONMENTAL MANAGEMENT SYSTEMS

4.1 INTRODUCTION

Having established the origin and "triggers" for the development and evolution of the EMS, various EMS standards are reviewed; where after deductions will be made as to their respective strengths and weaknesses.

Environmental Management System standards such as the International Standards Organisation, ISO 14000, the British Standard for Environmental Management Systems, BS 7750 and the EU Eco-Management and Audit Scheme (EMAS), have been developed to provide organisations with a framework to implement an EMS within their organization. These standards are

based upon the principles of Total Quality Management (TQM) (Wilkinson, 2001:10).

In terms of their respective elements and their perceived advantages and shortcomings, the following EMS standards are compared:

- British Standard (BS7750):
- Council Regulation (EEC) No 1836/93, commonly known as the Eco-Management and Audit Scheme (EMAS).
- The International Standard (ISO) 14001
- The Irish Standard IS 310:
- The Canadian Standards Association Standard CSA Z750

According to Starkey (quoted by Welford, 1996:59), the above constitute all the English language environmental management systems existing worldwide. These were the standards applied at the time.

Cognisance is however taken of the fact that a number of standards have since been superseded by the ISO 14001 standard. This includes both the CSA Z 750 and the British Standards Institutes, BSI 7750. These standards although obsolete, remain relevant in terms of what can be learnt from their perceived shortcomings and/or advantages.

In response to sector specific requirements, a number of other standards (such as the FSC) have subsequently been developed which will be referred to later, as case studies.

4.2 BETTER KNOWN SYSTEMS

4.2.1 British Standard: BS 7750

Due to growing recognition of the parallels between environmental and quality management (BS 5750, Quality Systems, Part 1, and Specification for Design, Manufacture and Installation), a British Standards Institution initiative was developed, namely BS 7750 (Wilkinson, 2001:14).

The standard BS 7750 was published in March 1992 and was the worlds first environmental management system standard. "The standard was subjected to a two year pilot implementation programme which involved nearly 500 participants

from various industries (Wilkinson, 2001:12). According to Welford (1996:61) and Aspects International (2001: AI 030301), the modified and current standard was published in January 1994. It was replaced by ISO 14001 on 31 March 1997 (Aspects International, 2001: AI 030301).

- **Elements of the BS 7750 EMS**

It includes elements such as management commitment, policy, organization and personnel, register of regulations, objectives and targets, management programme and manual, operational control, records, audits and reviews.

- As regards policy, the "BS 7750 requires that the policy is made publicly available, it also provides for the setting and publication of environmental objectives and includes a commitment to continual improvement" (Welford, 1996:64).

- It makes provision for *communication and training procedures* to be in place to ensure contractors have an understanding of the EMS requirements.

- Communication provides for the establishment of procedures *for "receiving, documenting and responding to communications (internal and external)* concerning environmental effects.

- It provides for "environmental effects" (impacts) through the "establishment of *procedures for identifying, examining and evaluating the environmental effects, both direct and indirect*, of its activities, products and services.

- Requires the establishment of "procedures *to record all legislative, regulatory and other policy requirements and codes* (to which the organisation subscribes) applicable to the environmental aspects of its activities, products and services.

- As regards environmental performance, it is noted, that BS 7750 (and this is also true of the other standards, ISO and EMAS), does not lay down requirements for environmental performance beyond compliance with applicable legislation and regulations, and a commitment to continual improvement.

- It requires the organisation to establish and *maintain procedures and to specify its environmental objectives and consequent targets at all levels* within the organisation. The objectives and targets shall quantify wherever practicable the commitment to continual improvement in environmental performance over defined timescales. Thus, two organizations carrying out

similar activities but having different environmental performance may both comply with its requirements.

- An environmental management programme requires the organization to "establish and *maintain a programme for achieving the objectives and targets*". This includes the designation of responsibility for achieving targets at each relevant function and level of the organisation, and the means by which they will be achieved (Welford, 1996:66).

- Environmental management audits.
  Provides for auditing, through establishing and maintaining procedures for audits to be carried out.

- Environmental management reviews
  "The environmental management review shall also address the possible need for changes to the policy and objectives, in the light of changing circumstances and commitment to continual improvement" (Welford, 1996:67).

- Corporate environmental management
  As stated by Rawicz (1992:17), the link between business, associated activities and EM is recognised. It is stated that full-scale environmental management will affect most of the key functions of a business including product or service activities and organisational support activities. Furthermore "the integration of environmental and business strategy ensures the establishment of appropriate directive management systems which should function effectively".

- **Summary**

Having considered the elements of the BS 7750 standard, it is of interest to note that as regards corporate environmental management, it was stated at the time of publication (1992), that "such systems are only in their infancy in South Africa, in spite of the urgent need for them" (Rawicz, 1992:17).

4.2.2 EMAS (Eco-Management and Audit System)

- **Introduction**

In April 1995, the EU published EMAS. It is a voluntary scheme operated/administered in each member state of the EU. The EMAS requires

participants, currently only companies performing industrial activities (except in UK) to evaluate their environmental performance and commit themselves to continual improvement and to make relevant performance information available to the public (NATO-CCMS, 2000:7,11).

The regulation was modified on 19 March 2001 (OJ 114 24/4/2001), to take into account the development of ISO 14001 and extend the scope of registration to all types of organisations rather than restricting it to manufacturing companies (Aspects International, 2001: AI 050501).

Participating companies undertake environmental audits and produce an externally verified and publicly available environmental statement.

EMAS evolved in response to the content of drafts of BS 7750 to give much greater emphasis upon the need for auditing to take place against the background of an established environmental management system. The EMA scheme and BS 7750 *are thus entirely complementary,* although some of the terminology used is rather different (Wilkinson, 2001:14).

The BS 7750 was rewritten in 1994 in order to make it compatible with EMAS (Welford, 1996:72).

- **Components:**

The requirements of EMAS place special significance on:
Legal compliance, continual improvement in environmental performance, external communication and employee involvement.

The key elements of EMAS are:
- Environmental review (later a voluntary requirement)
- Environmental management system
- Environmental audits
- Environmental statement
- Statement verification
- Registration

- **Scope:**

- EMAS is now designed to apply to all types of organisations.
- There can be corporate registration.
- The smallest entity for registration is a site (unless in exceptional circumstances).

- **Environmental review:**

This along with the public statement and the verification thereof, were the main differences between ISO 14001 and EMAS. However, EMAS has since been revised for a second time, and the environmental review like ISO 14001 is now a voluntary requirement.

The review should cover:
- Legislative, regulatory and other requirements to which the organisation subscribes.
- Identification of all environmental aspects with a significant environmental impact and compilation of a register of significant aspects.
- Description of the criteria for assessing significance.
- Examination of all existing environmental management practices and procedures.
- An evaluation of the feedback from the investigation of previous incidents.

- **Environmental management system:**

Issues to be addressed when implementing an EMAS:

- Legal compliance:

Organisations must be able to demonstrate that they:
- Have identified and know the implications of all relevant environmental legislation.
- Provide for legal compliance.
- Have procedures in place that enable them to meet legislation on an on-going basis.

- Performance:
- The EMS and the audit procedure must address the actual performance with respect to significant aspects.
- Performance against objectives and targets must be reviewed.
- There must be a commitment to continual improvement of environmental performance.
- Each site shall comply with all the requirements of EMAS including continual improvement of environmental performance.

- External communications and relations:
- There should be open dialogue with public and other interested parties including community and customers, with regard to environmental impacts of activities, products and services.

- The concerns of the public and other interested parties should be identified.

▪ Employee involvement:
- Employees shall be involved with continual improvement.
- Appropriate form of participation e.g. project-based groups, or environmental committees should be used.
- Note should be taken of guidance on best practices.

❑ **Environmental audits:**
- The maximum audit cycle for EMAS is 3 years.
- Using ISO 14010, ISO 14011 and qualified or experienced auditors, meets the needs of EMAS.
- Audits should include an assessment of the factual data necessary to evaluate performance.

❑ **Environmental statement:**
- To provide environmental information to the public and other interested parties regarding the environmental impact, performance and continual improvement of environmental performance of the organisation.
- Vehicle to address the concerns of interested parties.

Content (minimum requirements)
- Clear description of the organisation and a summary of its activities, products and services.
- The environmental policy.
- Brief description of the EMS in place.
- Description of all significant direct and indirect aspects and an explanation of their actual or potential impacts.
- Objectives and targets related to aspects.
- Summary of data on performance against objectives and targets, which should allow year-by-year comparisons.
- Other factors related to environmental performance including legislative compliance.
- Name and accreditation number of environmental verifier and date of verification.
- Written in a clear concise manner and in a written form for those who have no other means of obtaining the information.

▪ Criteria for environmental performance reporting:
Choose performance indicators that:
- Give an accurate appraisal of performance.
- Are understandable and unambiguous.
- Allow for year on year comparison to assess development.

- Allow for comparison with sector, national or regional benchmarks.
- Allow for comparison with regulatory requirements.
- Information in statement to be updated and any changes verified annually.
- After validation the changes submitted to competent body and made public.

▪ Publication:
- Organisations can use selected information from the statement to address different interested parties.
- The EMAS logo can be used on such information provided it has itself been verified by the verifier as being:
- Accurate and non-deceptive.
- Substantial and verifiable.
- Relevant and used in appropriate context.
- Representative of the overall environmental performance.
- Unlikely to result in misinterpretation.
- Significant in relation to overall environmental impact.
- It must reference the latest statement from which it has been drawn.

▪ Availability:
- The information shall be made accessible to the public.
- Organisations are encouraged to use all methods available e.g. electronic publication, libraries, issued to customers and suppliers.

▪ Local accountability:
- Organisations may produce a corporate statement covering a number of different geographical sites.
- The environmental impacts of each site must be clearly identified and reported.

❑ **Statement verification:**
- Verification must be undertaken by an accredited verifier.
- The accredited verifier may be an individual or an organisation.
- External verifiers will verify that the statement is a true record of the state of affairs of the organisation. So the public statement is an audit report, which will receive independent endorsement.

❑ **Registration:**
- Each member state has to appoint an independent and neutral "competent body" to maintain the records of accredited verifiers and registered organisations.

• Use of logo:
- Organisations with a current EMAS registration can use the EMAS logos.

- The logo may be used on:
- Validated environmental statements (version 2)
- Validated information (version 2)
- Letterheads (version 1)
- Information advertising participation in EMAS (version 1)
- Adverts for products, activities and services (only under circumstances that ensure that there is no confusion with environmental product labels)
- The logo shall not be used:
- On products or their packaging.
- In conjunction with comparative claims concerning other products, activities or services.

Summary

EMAS is thus a regulation from the EU, which incorporates the elements of ISO 14001 but goes beyond it with regard to public disclosure of information. Like ISO 14001, it is a voluntary scheme (Aspects International, 2001: AI 030301).

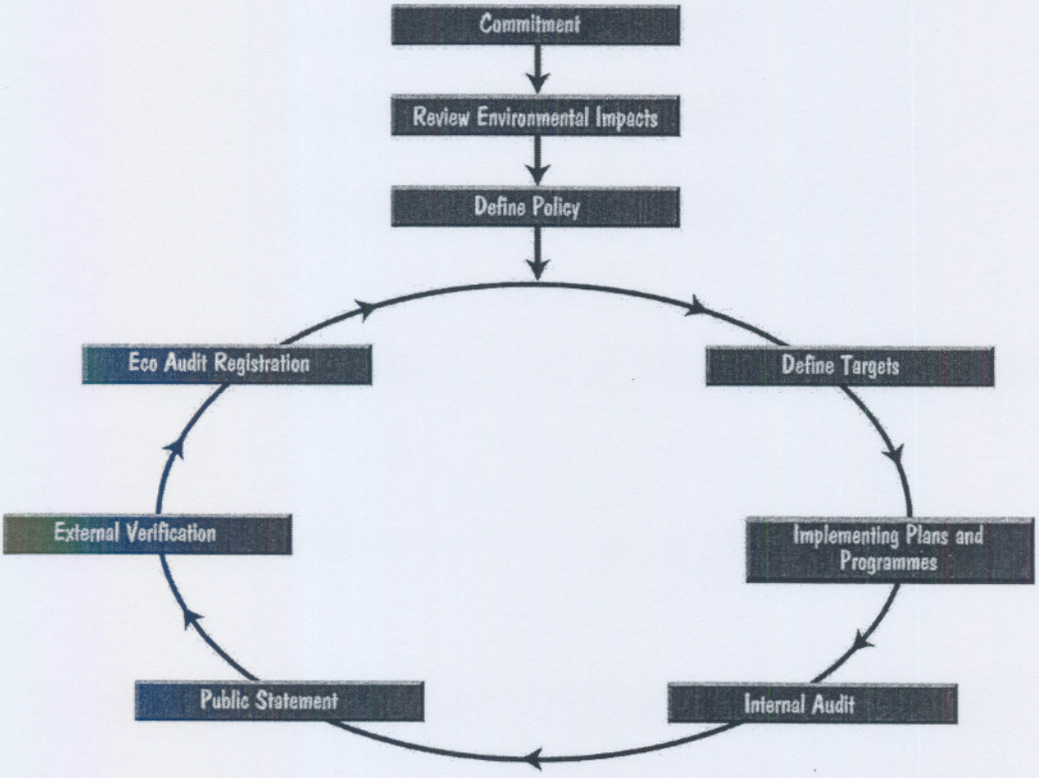

Figure 5: EMAS, the original life cycle
(Adapted from course material, presented by Aspects International, 2001).

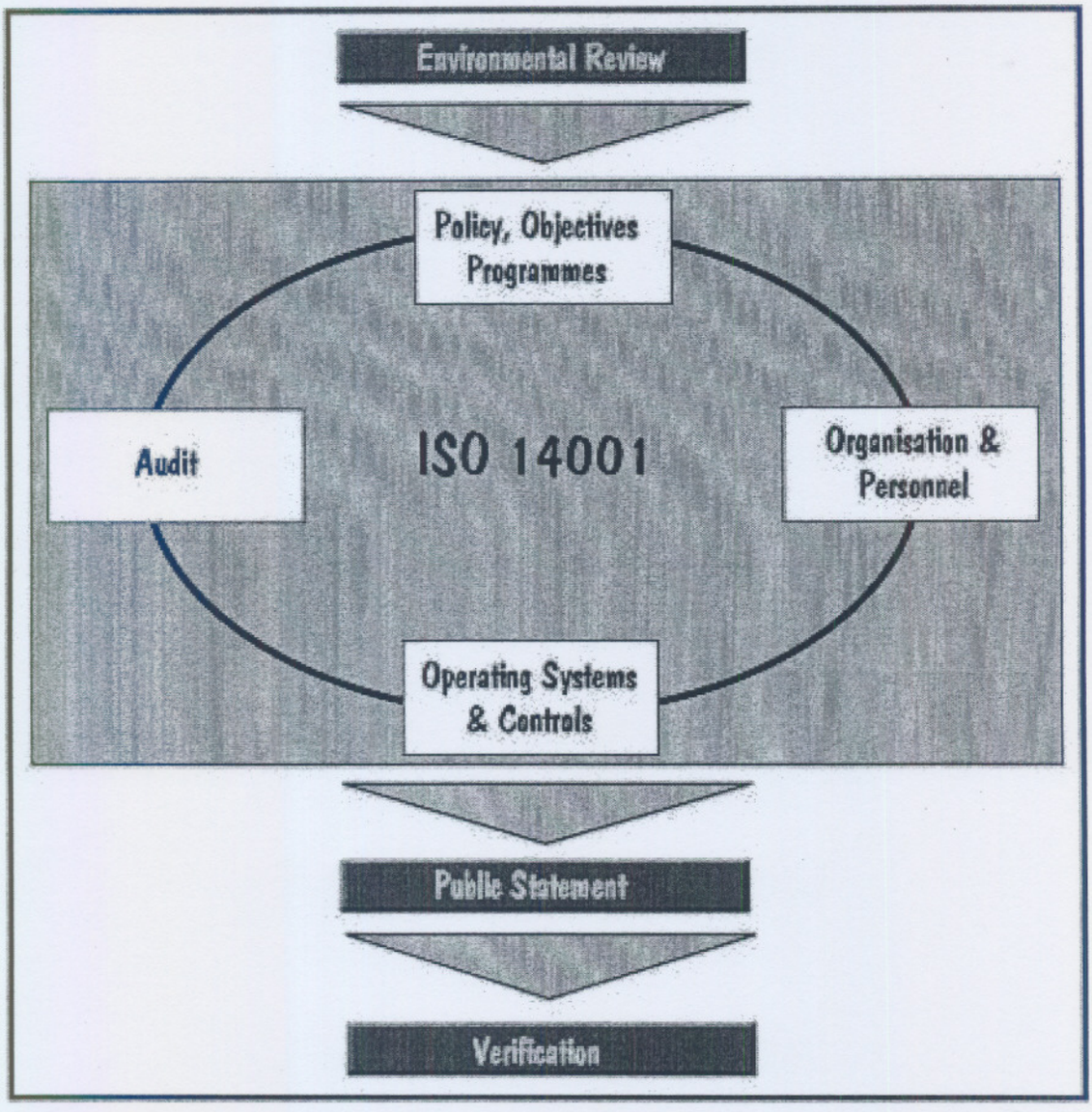

Figure 6: EMAS and the incorporation of the ISO 14001 Life Cycle
(Adapted from course material, presented by Aspects International, 2001).

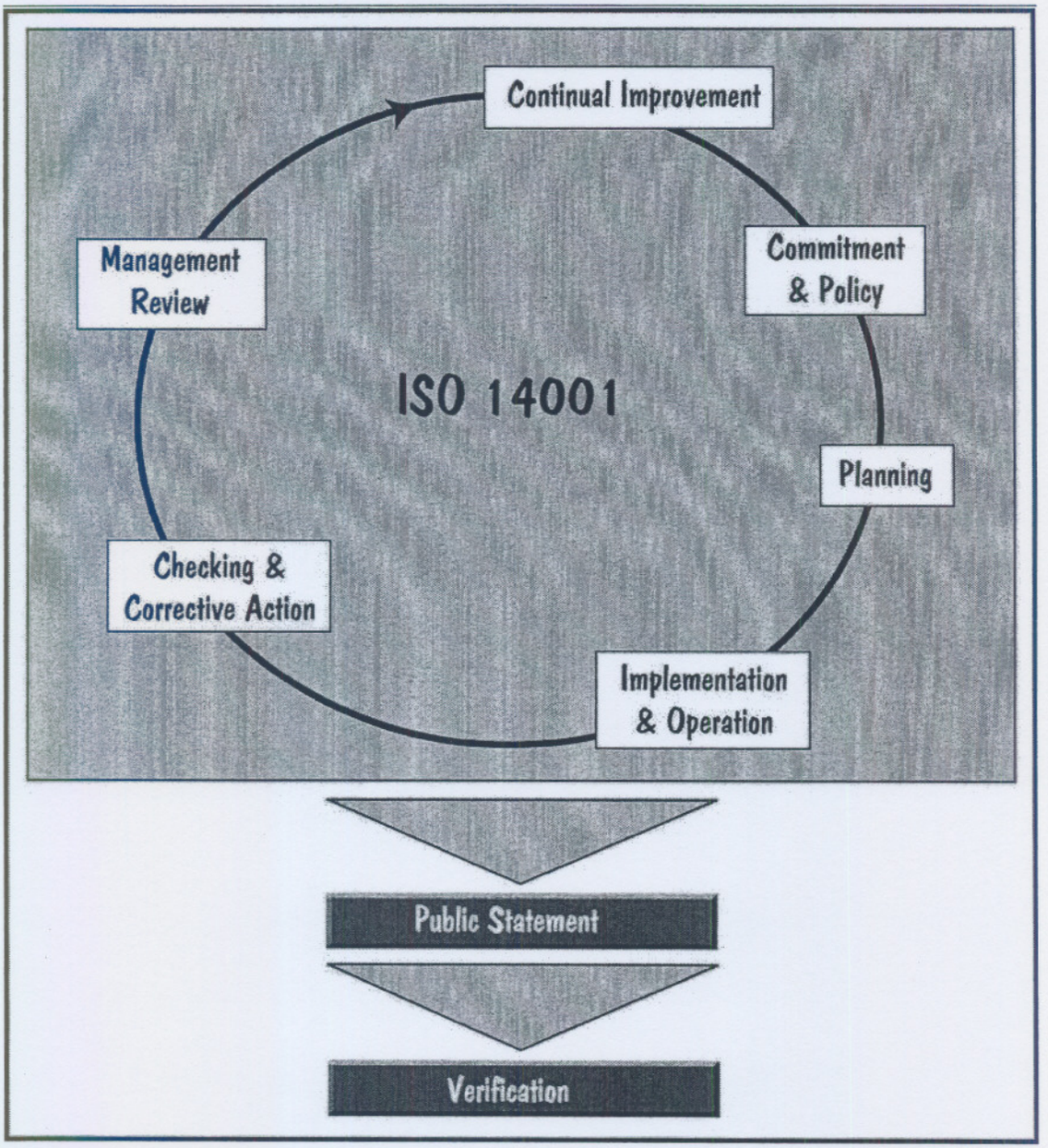

Figure 7: EMAS, the Final Configuration
(Adapted from course material, presented by Aspects International, 2001).

4.2.3 International Standards Organisation: ISO 14 000

- **Introduction**

The ISO 14 000 is modelled upon the BS 7750 (environmental management system) originally published in 1992 and updated in 1994 (Wilkinson, 2001:12).

- **Background**

The International Organisation for Standardization (ISO) is a non-governmental organization founded in 1974. It is composed of a worldwide federation of national standards bodies representing more than 100 countries. It was originally established to facilitate the international exchange of goods and services forming international standards in a variety of product-orientated applications for use in member countries.

In response to calls for an international EMS standard, ISO created the Strategic Advisory Group on the Environment (SAGE) in June 1991 (EPA, 2001:19).

According to Wilkinson (2001:12), this group was formed to consider whether such standards could serve to:

- Promote a common approach to environmental management similar to quality management.
- Enhance organizations' ability to attain and measure improvements in environmental performance.
- Facilitate trade and remove trade barriers.

SAGE assessed the need for an international environmental management standard and recommended that ISO move forward with its development. In 1992, ISO members convened to begin developing a set of standards designed to help organizations establish and objectively evaluate EMSs (EPA, 2001:19).

In January 1993, ISO created the Technical Committee 207 (TC 207) charged with developing the ISO 14000 series of standards and guidance documents.

TC 207 is composed of various subcommittees and working groups and receives input from technical committees from different countries. ISO member nations contribute their input to TC 207 through national delegations (EPA, 2001:19). The committee includes representatives from industry, standards organizations, governments and environmental organizations from many countries (Wilkinson, 2001:11). The new series of ISO 14 000 standards were designed from this committee.

ISO released the 14001 standard in 1996. The same year, TC 207 finalized and published ISO 14004 and an EMS standard – and three auditing standards, ISO 14010, ISO 14011 and ISO 14012. Topics addressed by other documents in the ISO 14000 series include environmental auditing, environmental labelling, environmental performance evaluation and life cycle assessment (EPA, 2001:19).

The ISO 14001 standard for EMSs is the centrepiece and the basic framework for the entire 14000 series. It also is the only standard in the series that is certifiable by third party registrars. All other standards are advisory. According to Wilkinson (2001:11), the standards have been designed to be applied by any organization in any country regardless of the organization's size, process, economic situation and regulatory requirements.

This series of standards provided not only a specification but also guidance and advice on a wide range of EMS-related topics, such as environmental performance evaluation, life-cycle analysis, eco-labelling and others (Wilkinson, 2001:11).

According to Wilkinson (2001:12), the ISO 14 000 series of standards comprises several guideline standards and one compliance standard – ISO 14001 Environmental Management Systems, which is described as follows:

- ISO 14001:
  In January 1993, ISO created Technical Committee 207 to develop standards for environmental management and Canada was awarded Secretariat of TC207.

- ISO 14004
  Information designed to provide assistance to organizations implementing or improving an EMS. It provides general guidance on a broad range of environmental management system issues.

- ISO 14010
  Guidelines for environmental auditing.

- ISO 14011
  Procedures for auditing of environmental management systems.

- ISO 14012
  Qualification criteria for environmental auditors.

- **The principles of ISO 14001:**

There are 5 environmental management system principles for ISO 14001. These being:

Principle 1: Commitment and policy
Principle 2: Planning (plan)
Principle 3: Implementation (do)
Principle 4: Measurement and evaluation (check)
Principle 5: Review and improvement (act).

These principles comprise the typical "Plan – Do – Check – Act" components – which originated from TQM. In addition to these, the following 10 management principles are stipulated by ISO 14000, for organisations considering an EMS (Wilkinson, 2001:14).

Principle 1: Environmental management as one of the highest priorities.
Principle 2: Establish and maintain communication, both internally and externally.
Principle 3: Determine legal requirements associated with activities.
Principle 4: Develop commitments and assign responsibility and accountability.
Principle 5: Promote environmental planning throughout the life cycle of the product and the process.
Principle 6: Establish a management discipline for achieving targeted performance.
Principle 7: Provide resources and training for targets.
Principle 8: Evaluate performance against policy, environmental objectives, and targets and make improvements.
Principle 9: Establish a process to review, monitor and audit the EMS. Identify opportunity for improvement in performance.
Principle 10: Encourage vendors to establish an EMS.

- **SUMMARY:**

From the aforementioned, the question may be posed as to which of the standards in question may be considered the most stringent.

According to the aforementioned comparison it would therefore appear that the BS 7750 standard (now superseded by ISO 14001) is in certain instances more stringent than ISO 14001. However as later demonstrated in the case studies, ISO 14001 can be "customised" by the organisation in question, to include more stringent components from other standards (such as those of BS 7750 and

EMAS), or alternately those attributed to a so-called Sustainable Management System.

An interesting statement is made regarding EMAS (which appears to be the most stringent of the standards researched), in that it is stated that "an EMAS-compatible ISO 14001 would mean the existence of a global environmental management system standard that was not in conflict with an existing European Union environmental management system scheme. This would ensure a worldwide level playing field for environmental management" (Welford, 1996:90).

This appears to reflect why a second revision of EMAS was undertaken in an attempt to make EMAS more compatible with ISO 14001 as demonstrated by Figure 6).

Subsequent to this statement being made, it may be regarded as a truer reflection to quote from (NATO-CCMS, 2000:8), which states that "there are numerous types of EMS, however, the ISO 14001 has emerged as the most widely accepted international standard for environmental management and has the potential to harmonize EMSs worldwide".

Although a comparison of better-known standards is more noteworthy, some lesser-known standards are incorporated as they include some surprisingly innovative ideals. The extent to which these ideals are feasible may however be questioned. These are captured in the text, which follows, refer especially to IS 310, a summary of which is included in the table at the end of this chapter.

4.3 LESSER-KNOWN EMS STANDARDS:

4.3.1 IS 310 (Irish Standard)

Although little known today, the Irish environmental management system standard IS 310 was published in 1994 and (like BS 7750) was applicable to all organizations. IS 310 was intended to complement the Irish series of quality management system standards and takes inspiration from the EU's EMAS (Welford, 1996:82).

- **Elements of IS 310**

- According to Welford, (1996:82), "IS 310 is unique among all the environmental management system documents referred to, in that it *is the only one that contains a definition of sustainable development".*

- IS 310 also requires that *an environmental policy must contain a commitment to the sustainability of the natural environment compatible with economic sustainability of the organisation"* (Welford, 1996:85).

- Publicly available:
  It includes the setting of environmental performance objectives and targets, and *making them publicly available."*

- Environmental performance:
  According to Welford (1996:84), *"some phrases in IS 310 would seem to suggest that it requires organizations to go further in improving environmental performance than the requirement of BS 7750 and EMAS."*

  "However at the same time IS 310 requires a commitment to continual improvement as far as is economically achievable. "

  This is very similar to the requirement of BS 7750 and EMAS. Obviously environmental improvements, which are economically achievable are by no means sufficient to meet the commitments, objectives and targets referred to above.

  Thus *IS 310 illustrates very clearly the tension between what is ultimately environmentally desirable and what is possible to achieve under present economic conditions"* (Welford, 1996:85).

- Environmental reports and complaints:
  "*Like EMAS, IS 310 requires the production of a publicly available report.* A report must be produced "not less frequently than once every three years".

  "In addition the report must also include "*details of complaints relating* to non-conformity with the specified requirement, how these were resolved and whether any legal proceedings against the organization for breach of statutory licensing conditions had been instituted, during the period covered by the report."

  According to Welford (1996:86), "ISO 310 is the only scheme dealt with in this chapter that contains such a requirement. *This is considered a fairly radical*

requirement in that it forces a company using this standard to disclose information other than that which will show it in a good light."

4.3.2 CS Z 750 (Canadian Standard)

The Canadian Standards Association Environmental Management Standard, CSA Z750 was published in September 1994. This standard was superseded by the 14001 EMS Standard in 1996 and is no longer in use and has been withdrawn (Bilodeau, 2001[b]). A review of this standard does not form part of this study.

4.3.3 CS Z 809/808: Sustainable Forest Management Standard

This is also a Canadian standard, developed specifically for the forestry sector, to be enumerated upon as one of the case studies.

4.3.4 ANSI/ASQC E4 American Standards

This is an American standard and appears to be sector specific, being applied to nuclear and/or chemical plants. According to Welford (1996:8), this standard contains more largesse, although the thrust of all four is quite similar.

Currently, the ANSI is better known for its role in 3rd party auditing of ISO 14001. ISO 14001 is administered through national accreditation bodies, linked informally through their trade association, the International Accreditation Forum, Inc. (EPA, 2001:20).

In the United States, the American National Standards Institute (ANSI) and the Registrar Accreditation Board (RAB), acting as the ANSI-RAB National Accreditation Programme (NAP), provides accredited registrars and course providers to ISO 14001. NAP is designed to accredit third-party registrar bodies and ensure that their methods conform to national and international standards for registrar organizations (EPA, 2001:21).

Prior to ISO 14000, most work of RAB strictly concerned businesses, since their focus was on ISO 9000. Due to the public's stake in environmental protection, however, ANSI's Board Committee on Conformity Assessment created a multi-stakeholder task force on US accreditation to the new ISO standard. As a result of the task force's recommendation, ANSI created the EMS Council, which is

composed of representatives from state and federal agencies, as well as representatives of registrars, auditor course providers and business users.

The EMS Council makes important decisions affecting United States EMS registration practices. It sets the policies and procedures for accrediting registrars and course auditor providers in accordance with the guidelines promulgated by ISO (EPA, 2001:22).

- **Summary**

An attempt has been made to compare the strengths and weaknesses of the respective standards in question. This is also reflected in the table, which follows and refers to the better-known standards and one lesser known standard (IS 310), which incorporates some progressive elements.

According to Welford, there exists amazing common ground between the respective environmental management standards. Given this fact however, he raises the point that the competitive advantage is to understand the intent of all of the standards, then tailor an organization's environmental management style to best fit the situation, commitments and expectations.

4.4 IEMS: Integrated Environmental Management System

4.4.1 Introduction

According to the Akzo Nobel diagram (Figure 8, Chapter 6), the IEMS may be considered as the next level in the evolution of systems towards sustainability. The IEMS is a system, which has evolved subsequent to Welford's publication and may be considered a hybridised form of the ISO standards, as it integrates the following standards:

- ISO 14 001 (Environmental Standard)
- ISO 9 000 (Quality standard)
- ISO 18 000 (Safety and Health Standard) (refer to footnote)[1].

4.4.2 Methodology

In integrating these standards, two basic approaches are followed, according to Nel (2001)[a].

- Integration through the respective clauses. This is done through a comparison of the respective clauses and where these differ the most stringent clause is

adopted. The alternative approach is:

- A multi-pronged approach to management system integration, that includes:
  - The integration of all the system requirements with business processes; and
  - Adoption of a cradle to grave perspective on management system implementation that includes supply chains, core business processes, supporting business process and product stewardship.

The latter approach results in the organisation designing the management system around its business needs and processes. It is this approach, which shall be enumerated upon.

Integration of system requirements with business process:

Step 1: Map the business processes, differentiating between key business processes and supporting business processes.

Step 2: Describe the core business process by defining how the process should be conducted in terms of operational and technical requirements or specifications.

Step 3: Add the EMS requirements, through Environmental, Safety and Health and Quality specifications.

The EMS: Support Business Process, includes:

- Leadership;
- Initial review;
- Management plans;
- System documentation and records; and
- Continual improvement processes.

- **A brief synopsis of each of the above will be given as follows:**

Leadership:

- Includes SHEQ policy statement;
- Allocation of resources; and
- Training and communication.

Initial Review (IR) Process:

- Contract review;
- Legal and other requirement review;
- Complaint review; and
- Review of emergency situations.

The purpose of the IR is a SWOT analysis, in terms of your current environmental management performance, i.e. strengths, weaknesses, opportunities, threats, gap analysis against which to improve.

In terms of the IR, the following is undertaken:
- Risk identification and assessment;
- Identification of legal and other requirements;
- Identification of emergencies, accidents and "near hits";
- Identification of issues raised by means of consultation and communication, including interested parties;
- Review of existing contracts and internal agreements; and
- Review of the above.

Management planning process
- Objectives;
- Targets;
- Procedures;
- Dates; and
- Roles, responsibilities and authorities.

System documentation and record process
- Document structure;
- Generation, approval and implementation;
- Maintenance; and
- Records

Continual improvement process:
- Monitoring and measurement;
- Complaints;
- Incident detection and corrective and preventative action;
- Stakeholder feed back;
- Internal performance tracking;
- Audits; and
- Management review.

4.4.3 Summary

The Akzo Nobel model (depicted as Figure 8 in Chapter 6), demonstrates that the IEMS is considered to have evolved further than the conventional EMS, in that it integrates Health, Safety, Quality and the environmental aspects into a single system. Two approaches have been identified for the development of the

IEMS, namely that which is clause based and that which is business process based (Nel, 2001)[a].

Of the two, the latter may be considered to be more appropriate in that it not only integrates the respective standards, but goes one step further in integrating the IEMS with the organisation's business related functions and their associated risks and liabilities.

In the past many South African organisations followed the NOSA standard for Safety and Health aspects, as opposed to ISO 18000. The nature of this standard (NOSA), follows a checklist approach, as opposed to a procedural approach (ISO 18000), thus resulting in complications when an attempt is made to integrate the respective standards.

Interestingly enough NOSA (a South African standard) has apparently been applied overseas in countries such as Australia. The outcome is not included as part of this case study.

According to Professor J. Nel (2001)[b], it is now increasingly evident that many organisations are switching from NOSA to ISO 18000 and as a result of all three standards being procedurally based, integration is simplified and the respective organisations are as a result increasingly applying for an IEMS. At the time of collating the case study material, this was however still regarded as a fairly substantial problem.

Footnote [1]

As regards what is commonly known as "ISO 18001", it is stated that the BS 8800 was published as a guideline for an OH&S Management system in May 1996. This is guidance standard and is not designed to be certifiable. Following the demand for certification against the system the Certification Bodies produced OHSAS 18001 in 1999 and offer certification against it. OHSAS is not an official standard and certification is not accredited by the national accreditation bodies. However having external assessment of the system lends it credibility (Aspects International, 2001: AI 030301).

4.5 Comparison of Various EMS Standards

TABLE 2: A COMPARISON OF VARIOUS EMS STANDARDS

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
Environmental Policy					
▪ **Appropriate for activities, products and services**	Regarded as being appropriate for all organisations.	Regarded as being suitable for all organisations, at the time.	Initially industry, then scope broadened, to include all organisations.	As part of International standards, applicable to all.	Applicable to all organisations.
▪ **Commitment to continual improvement and Prevention of pollution.**	Commitment to continual improvement and Prevention of pollution.	Commitment to continual Improvement.	Requires participants to commit themselves to continual improvement.	As part of ISO standards, a commitment to continual improvement.	Requires a commitment to continual improvement as far as is economically achievable.
▪ **Compliance with legislation / (environmental performance)**	Compliance, not performance based.	Does not lay down requirements For environmental performance beyond compliance with applicable legislation and regulations.	Compliance	Compliance	Seems to exceed other standards regarding environmental performance requirements. Contains a commitment to sustainability of the natural environment, compatible with economic sustainability of the organisation.
▪ **Framework for targets and objectives**	Determined by organization	Requires the organisation to specify its environmental objectives and consequent targets	Objectives and targets identified and performance against these reviewed.	As with ISO standards.	Objectives and targets are made publicly available.

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
		at all levels within the organisation Provides for the setting and publication of environmental objectives.			
▪ **Is documented, implemented and maintained and communicated to all employees.**	Is documented, implemented and maintained and communicated to all employees.			As with ISO standards.	
▪ **Available to public**	Policy available to public	Policy available to public	Policy available to public. Goes beyond policy, refer also to Communication.	ISO standards, policy available to public.	Goes beyond policy, refer also to Communication.
Planning					
▪ **Procedure to identify environmental aspects and impacts.**	Initial Review, voluntary.		Environmental Review, now voluntary, includes identification of all environmental aspects with a significant environmental impact.	Initial Review And SWOT analysis, as part of recommended "multi-pronged approach".	
▪ **Legal and other requirements**	The organisation shall establish and maintain a procedure to identify and have access to legal and other requirements to which the organisation subscribes, that are applicable to the environmental aspects of its activities, products or services.	Requires establishment of procedures to record all legislative, regulatory and other policy requirements and codes (to which the organisation subscribes) applicable to the environmental aspects of its activities, products and services.	EMAS places special significance on (amongst others) legal compliance.	As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, is applied.	
▪ **Objectives and targets**	These are determined by the organisation.				The performance objectives and targets are made publicly available.
▪ **Environmental programme**	The organisation shall establish and maintain a) programmes for achieving its objectives	Maintain a programme for achieving objectives and targets. This includes the designation of		As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000)	

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
	and targets. It shall include: a) Designation of responsibility b) The means and time frame by which they are to be achieved.	responsibility for achieving the targets.		and their associated clauses, applies.	
Implementation and responsibility					
▪ **Structure and responsibility (resources)**					
▪ **Training, awareness, competence**	The organisation shall identify training needs. It shall require that all personnel, whose work may create a significant impact upon the environment, have received appropriate training. It shall establish and maintain procedures to make its employees or members at each relevant level, aware of the aforementioned.	Makes provision for training procedures to be in place to ensure that contractors have an understanding of EMS requirements.		As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
▪ **Communication**	The organisation shall establish and maintain procedures for a) Internal communication between the various levels and functions of the organisation. b) Receiving, documenting and responding to relevant communication from external interested	Provides for the establishment of procedures for receiving, documenting and responding to communications (internal and external) concerning environmental effects (impacts). Similar to ISO 14001	As regards external communication, there should be open dialogue with public and interested parties. Concerns should be identified. An important component is the public statement and the verification thereof. The public statement is an audit report, which will receive independent endorsement.	As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	The production of a publicly available report is required. The report must be produced no less frequently than once every three years. The report must include details of complaints relating to non-conformity, etc. This regarded as a radical requirement in that it forces an organisation to disclose information other

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
	parties.				than that which will show it in a good light. In addition to this, mention is made of the performance objectives and targets being made publicly available.
▪ **Environmental management documentation**	The organisation shall establish and maintain information, in paper or electronic form, to a) Describe the core elements of the management system and their interaction. b) Provide direction to related documentation.			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
▪ **Document control**	The organization shall establish and maintain procedures for controlling all documents required by this International Standard to ensure that: a) They can be located. b) Reviewed c) Current versions are available d) Obsolete documents are retained for legal/knowledge purposes.				
▪ **Operational control**	The organisation shall identify those operations and activities that are associated with the identified significant environmental aspects in			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
	line with its policy, objectives and targets.				
▪ **Emergency preparedness and response**	The organisation shall establish and maintain procedures to identify potential for and respond to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them. The organisation shall make provision for revising and reviewing these.			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
Checking and corrective action					
▪ **Monitoring and measurement**	The organisation shall establish and maintain documented procedures to monitor and measure, on a regular basis, the key characteristic of its operations and activities that can have a significant impact on the environment. This includes calibrated equipment and a documented procedure.			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
▪ **Non-conformance and correction**	The organisation shall establish and maintain procedures for defining responsibility and authority for handling and investigating non-conformance, taking action to mitigate any impacts caused and for initiating and completing			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
	corrective and preventive action.				
▪ **Records**	The organisation shall establish and maintain procedures for the identification, maintenance and disposition of environmental records.			As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
▪ **EMS audit**	Audit frequency not quantified. Scope - Audit of the areas specified.	Frequency every 3 years – those with potential to damage once a year. All parts of organisation.	Frequency very 3 years, EMAS evolved to place emphasis upon auditing.	As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	
Management review	The organisation's top management shall at intervals that it determines, review the environmental management system, to ensure its continuing suitability, adequacy and effectiveness. The review shall address the possible need for changes to policy, objectives and other elements of the EMS, in light of the audit results, changing circumstances and a commitment to continual improvement.	This shall address the possible need for changes to the policy and objectives, in the light of changing circumstances and commitment to continual improvement.		As with ISO standards. The more stringent of the two standards (ISO 14001 and ISO 9000) and their associated clauses, applies.	

ISO 14001 Elements:	ISO 14001	BS 7750	EMAS	IEMS	IS 310
Other / comment	This is the most widely known and applied standard, and is thus used as a benchmark.	BS 7750 was rewritten in 1994, to make it more compatible with EMAS.	EMAS, a voluntary scheme, evolved in response to drafts of BS 7750, to give much greater emphasis upon the need for auditing against backdrop of EMS. EMAS and BS 7750 are thus complementary. The Environmental Review along with the public statement and the verification thereof, were the main differences between ISO and EMAS. Since EMAS was revised (for a second time) the Environmental Review is now a voluntary requirement.	With regard to an IEMS, the more stringent of the ISO 14001 and ISO 9000 (quality) clauses is applicable. The quality standard is generally more stringent than ISO 14001. Note the references to NOSA in the past, which was not clause based. Increasing use is now being made of ISO 18000. Refer also to footnote, regarding ISO 18000.	Intended to compliment the Irish series of quality management system standards and took inspiration from the EU's EMAS.

The table (with the exception of the IEMS) represents the standards which according to Welford (1996:59), were known to the "English speaking world" at the time and applicable to all organisations. Subsequently BS 7750 was superseded by ISO 14001, IS 310 became a little known standard and the concept of integrating ISO based standards, known as IEMS became known and is today becoming increasingly popular. Refer also to the footnote regarding ISO 18000. The comparison of these standards in tabular form is considered important in gauging an appropriate EMS for DWAF, particularly as these standards are benchmarked against the ISO 14001 elements, which is the best-known and most accessible standard for application.

No sector specific standards are included in this table, although a comparison of ISO 14001 with the FSC (Forest Stewardship Council) standard is reflected in a table in Chapter Seven: Application of EMS: national case studies. This comparison is important in view of the fact that DWAF is applying for FSC certification for its forestry sector. This chapter and associated deductions made had an important bearing upon the type of environmental management system, which is recommended in Chapter Nine.

5

PERCEIVED SHORTCOMINGS ASSOCIATED WITH ENVIRONMENTAL MANAGEMENT SYSTEMS

5.1 INTRODUCTION

A number of shortcomings pertaining to the application of EMSs have been identified through literary research. These shortcomings are viewed within the context of what an EMS attempts to achieve as a tool, which strives toward sustainable development,

What follows is a list of shortcomings identified by Welford (1996) and the EPA (2001), regarding ISO 14001 based EMSs, where after a number of sustainability criteria selected by Wilkinson, are used to grade an ISO 14001 based EMS as to how compliant it is in terms of these criteria and thus by

implication how successful the EMS is as a tool for achieving sustainable development through *greener governance.*

Included in this chapter are a number of observations made by the OAG regarding difficulties experienced in developing countries when implementing an EMS or National Environmental Strategy (NES), as these strategies can be implemented by environmental management systems.

5.2 PERCEIVED SHORTCOMINGS IDENTIFIED BY WELFORD

These include the following:

- Discrepancies in application of EMS (ISO 14001)
  It is stated that despite the fact that many organizations use similar steps in developing an EMS, there is a great discrepancy in the quality of the respective EMSs applied by different organizations in terms of their ability to mitigate environmental impacts and integrate environmental management into the organisation (Welford, 1996:47).

- Setting own targets and objectives for environmental performance:
  Due to the fact that an organization sets its own environmental objectives and targets for improvement its environmental performance can improve as little or as much, as fast or as slow as it likes.

  According to Shayler *et al.* (quoted by Welford, 1996:28), it is suggested that the targets an organization sets itself through an EMS might represent "environmental tokenism" rather than a solid commitment to decreasing environmental impacts. Therefore a self-regulated EMS does not guarantee significant improvements in performance *and in environmental terms it could be argued that EMSs are fundamentally flawed.*

- Auditing and environmental performance:
  Welford (1996:53), indicates that the auditing process of the EMS is concerned mainly with the audit of the system rather than auditing actual environmental performance *per se.*

- Lack of data pertaining to threshold values versus compliance:
  It is noted that EMS standards do not set specific limits upon energy or resource consumption, levels of emissions, or level of performance, other than those based on national compliance, nor is there a requirement within their framework to tackle all of the organisation's environmental effects and the standards only require a commitment to continual environmental improvement and do not aim for environmental protection (Welford, 1996:53).

"Therefore, it is theoretically possible for an EMS to be developed by an organization and the standards satisfied, when the organization has an appalling record in environmental terms, by achieving minimum levels of compliance and demonstrating a commitment to continuous environmental improvement, however small that may be" (Welford, 1996:54).

- Possible smokescreen and marketing ploy?
  It is also noted that many organizations will find the EMS standards useful as a motivating factor and as a framework to initiate environmental management and many see them as a toolbox to facilitate this.

  However, within this context it was stated that an EMS does not provide guarantees or assurances to clients, shareholders and the public, that organisational impacts are being minimized. It is thus argued that organizations may use the EMS standards as a marketing device and a smokescreen to pacify concerns regarding environmental performance, instead of as a catalyst for cultural change within the organization in order to provide real and significant improvements in environmental performance (Welford, 1996:54).

- Institutional factors:
  Reference is made to the organizational factors, which can limit the effectiveness of an EMS (Welford, 1996:52).

  According to Welford (1996:36), the EMS approach in general has been criticized as not going far enough in environmental terms, in that they are defensive, bureaucratic and do not provide an adequate framework to tackle urgent environmental issues and work towards sustainable management practices".

5.3 EPA: 3RD PARTY AUDITING, OBSERVATIONS AND PERCEIVED ISSUES

5.3.1 Background

The following observations are extracted from the aforementioned document, the main purpose of this document was to investigate the need and benefits in having 3rd party auditing of ISO 14001 based EMSs. As a result, the deductions concentrate solely upon auditing related problems. It is hoped that these will serve to highlight potential problems in this area, which can once identified be overcome in the design of the proposed EMS.

ISO 14001 has developed guideline documents providing general requirements for bodies that offer EMS conformity assessments and registrations. These

documents include ISO 14004, which is an EMS guidance document and three auditing standards: ISO 14010, ISO 14011 and ISO 14012 (EPA, 2001:64).

What follows are a number of points, which indicates differences between EMS audits and other audits.

5.3.2 Different Types of Audits

- EMS Auditing versus Compliance Auditing
  A third-party EMS audit is not a compliance audit. Yet if properly conducted, an EMS audit can provide verifiable evidence that an effective compliance-management system is in place to prevent non-compliance, to detect and correct non-compliance situations promptly and to prevent recurrences (EPA, 2001:3). Compliance audits and EMS audits have different yet intersecting purposes. The former are designed to ensure that an organization complies with all regulatory requirements (EPA, 2001:36). EMS audits seek to make certain that an organization's EMS conforms to the ISO 14001 standard. The standard requires an organisation to commit to legal and regulatory compliance and to demonstrate that it has a continuously improving EMS that will effectively implement and fulfil its commitment to compliance.

  Thus, ISO 14001 does not *per se* require an organization to maintain compliance. In fact EMS auditors are neither trained not expected to serve as compliance auditors (EPA, 2001:36). It is further stated that compliance auditors typically limit their responsibility to determining compliance or non-compliance. Unlike EMS auditors, they do not take responsibility for assuring that effective management systems are in place to prevent recurrence of violations. In principle, compliance audits are considered more straightforward than EMS audits, in that it is the auditor's task to determine compliance with specific regulations (EPA, 2001:37).

  Whilst in contrast, EMS audits require the auditor to make more subjective decisions and this is less straightforward. It is the auditor's duty to determine conformance or non-conformance to all elements of the ISO 14001 standard within the organisation's defined scope of operations. As such auditors must ensure that an adequate system is in place to assure regulatory compliance, to correct non-compliance and to prevent future non-compliance. *As stated, "This key difference is perhaps the most misunderstood fact in the debate over the purpose and effectiveness of the ISO 14001 standard" (EPA, 2001:37).*

  Compliance audits and EMS audits also use different measures to gauge success. The success of a compliance audit is based on the number of non-compliance findings identified, while the success of an EMS audit is based on the clarity and accuracy of the findings identified. A third party EMS audit, including ISO 14001 certification, cannot be characterized as an environmental

compliance inspection or performance assessment. Rather it is predicated in part on the organisation's own goals and objectives for its EMS, including its commitment to an effective system for fulfilling regulatory compliance. In addition, the scope of an EMS audit differs significantly from the scope of a compliance audit. The range of applicable regulations, as well as the processes and pollution sources subject to them, determine the parameters of a compliance audit. An EMS audit, however may encompass either the full range of a facility's activities, processes, functions and products that have significant environmental aspects and impacts, or it may be limited to a defined subset of them as chosen by the company, as well as the environmental goals, objectives, and targets set by the company (EPA, 2001:37).

5.3.3 Purpose and Scope of EMS Audits

- Purpose and Scope of ISO 14001 Based EMS Audits:
  In contrast to financial audits of publicly traded business, EMS auditing remains a voluntary, internally driven practice for better managing an organization's environmental responsibilities and impacts (EPA, 2001:34).

  ISO 14001 requires implementing organizations to make at least three policy commitments, these being to:
  - Compliance;
  - Prevention of pollution; and
  - Continual improvement.

  The standard's definition of these commitments in turn influences how auditors assess whether an EMS conforms to ISO 14001 (EPA, 2001:78).

- Commitment to Compliance
  ISO 14001's intent and definition with regard to "commitment to compliance" are relatively straightforward. Organizations are required to commit to compliance with all applicable laws and regulations of the country in question as well as other mandates, to which they have voluntarily agreed (EPA, 2001:78). Although supposedly straightforward, various problems in this regard arise such as "auditor confidentiality".

  As stated "a frequent criticism of ISO 14001 is that an organisation may be out of compliance with regulatory requirements, but still in conformance with the standard". Although the standard promotes compliance, EMS audits – unlike compliance audits – are designed to promote conformity only with ISO 14001's requirements for EMSs. That is, the EMS must promote continual improvement in compliance, but the organization does not necessarily have to be in total compliance at the time it receives registration. Nor does the EMS auditor have to verify that the organization is in compliance with all regulatory requirements (EPA, 2001:82).

- Prevention of Pollution
  The standard defines "prevention of pollution" very broadly, allowing companies "flexibility" in interpreting the kinds of pollution methods (EPA, 2001:78).

  The fact that ISO 14001 requires organizations to commit to prevention of pollution but does not specify how they should achieve it, is regarded as problematic (EPA, 2001:85). The EMS auditors assess an organization's commitment to prevention of pollution primarily on a case-by case basis, relative to the targets and objectives that the firm itself sets in its EMS (EPA, 2001:86), which again eludes to the problem of an organisation determining it's own objectives and targets and associated extent of improvement.

- Continual Improvement
  What is meant by "continual improvement" also creates different expectations about what ISO 14001 and the associated EMS auditing is designed to deliver. It is stated, "Some would like to believe that it requires improvements in environmental performance, but the standard simply requires continual improvement of an organisation's EMS (EPA, 2001:78). The concept raises difficulties associated with performance and conformance. Organisations may thus demonstrate continual improvement through setting and achieving ever more stringent objectives, broadening the scope of their EMS, or reducing or enhancing the efficiency of environmental management. An organisation that fails to demonstrate continual improvement of its EMS does not conform to the standard (EPA, 2001:82).

  Thus by definition, continual improvement implies a temporal process in which measurable changes occur over time. Generally, EMS auditors hold companies to this commitment by conducting surveillance audits to see that firms are addressing issues uncovered in previous audits, setting increasingly ambitious objectives and demonstrating efforts to meet them (EPA, 2001:87).

  - Continual Improvement and Prevention of Pollution:
    The allegation is made that whilst ISO 14001 instructs auditors how to examine an EMS for regulatory compliance systems in a straightforward way, in areas such as prevention of pollution and continual improvement, the standard is "intentionally ambiguous" (EPA, 2001:85).

    Thus it is alleged that "ISO 14001" architects deliberately designed the standard and its supporting guidance on prevention of pollution in such a way as to refrain from prescribing what specific actions constitute the term" (EPA, 2001:85). In fact it is stated that "continual improvement" and "prevention of pollution" are areas where there exists a deep chasm between various ISO 14001 Technical Committee (TC) national authors. The ISO 14001

standard contains deliberate ambiguity on what constitutes prevention of pollution. Additionally, continual improvement is defined as referring to improving an organization's EMS, not its environmental performance. These ambiguities create uncertainty about how auditors should apply objective criteria and whether conformity assessment should be conducted uniformly for all organizations that apply for EMS registration (EPA, 2001:10).

5.3.4 Elements other than scope of audit, which are regarded as problematic

- 3RD Party Verification and Associated Expectations of Stakeholders:
  ISO 14001 provides participating organizations the option of using independent, third party registrars to verify that their EMSs conform to the ISO 14001 standard and lead to improvement over time (EPA, 2001:1).

  What became evident from the document in question is the fact that through increasing awareness and interest in the ISO 14001 standard, a number of stakeholders have different expectations, as demonstrated in the following paragraph.

  Third party EMS registration and auditing are subject to conflicting and in some cases inappropriate expectations on the part of business, government agencies, environmental groups, the public, and sometimes even members of the registration and auditing community. Some environmental groups perceive third-party certification and EMS auditing to be at worst, a business-controlled – and therefore not a credible substitute for compliance verification, or at best, as another "environmental cop" (EPA, 2001:2). Given such conflicting and in some cases, inappropriate expectations, it is imperative that all interested parties understand how EMS auditing is similar to and distinct from, other forms of environmental auditing, other types of auditing in general and public policies designed to provide public recognition or other regulatory benefits (EPA, 2001:3).

  It is further stated that there is a need to distinguish EMS audits from other forms of auditing. Attention is drawn to other audits, such as financial audits and compliance audits, as possible models for EMS audits.

- Auditing and public disclosure
  ISO 14001 only requires public disclosure of a firm's environmental policy statement, not data on its environmental performance or key EMS information (EPA, 2001:3). EMS auditing is considered by many as largely a voluntary initiative *by business for business*. However it is stated that the EMS registration and auditing system is designed to ensure conformity and

adherence to the international EMS standard. Thus it also is intended to provide assurance of conformity with ISO 14001 to stakeholders who are external to, the audited organization (EPA, 2001:34).

As noted ISO 14001 acknowledges that EMSs address the environmental needs of a broad range of interested parties and the society at large, unlike the financial auditing model. ISO 14001 only requires public disclosure of a firm's environmental policy statement. It leaves to the discretion of the adopting organizations the decision whether to make public their environmental performance data and if so which ones and in what form (EPA, 2001:33). This practice of non-disclosure for EMS data contrasts with the requirements for public release of financial statements.

A number of other issues associated with disclosure have been identified, such as audit privilege laws:

- Audit privilege laws:
  An audit by its very nature is designed to find violations, i.e. when a company is not in compliance. However making this information available to a third party auditor may trigger legal consequences, such as immediate disclosure, lawsuits and sanctions (EPA, 2001:35). It is stated that "this issue is germane to ISO 14001 registration practices, partly because it may influence the types of information that businesses are willing to divulge to EMS auditors as part of the registration process". As a result, in America some states have adopted audit privilege and immunity laws, which grant businesses and other entities "safe passage" to conduct self-audits and then disclose and correct any violations. The laws are intended to create an incentive for regulated entities to detect and correct non-compliance on an ongoing basis. The EPA has however tried to dissuade state legislatures from adopting some versions of these laws that may allow businesses to hide information about violations rather than make them public (EPA, 2001:35).

  Moreover since 1995, EPA has initiated a series of policies to promote compliance auditing, ranging from reduced penalties to increased rewards such as public recognition.

- Performance,
  Does not go far enough.

5.3.5 Auditing: Recommendations

According to the document in question, several areas were identified where the current system should be strengthened to address present and future challenges (EPA, 2001:100). These included the following:

- Continual Improvement:
  It is stated that future revisions of ISO 14001 should consider such issues as to how auditors should determine what pace of continual improvement in an EMS is sufficient to warrant registration (EPA, 2001:10).

- Management Systems Criteria:
  Reference is made to the use of management systems criteria, to assess how well a system for EMS registration is working, and not those geared toward compliance auditing (EPA, 2001:40).

- Greater Transparency:
  In America the ANSI–RAB has recognized the public stake in environmental protection by creating the EMS Council, which includes government and public interest group representatives. It is stated that the EMS registration system would benefit from greater transparency.

- Reporting Requirements:
  There is an unresolved conflict of expectation about public reporting of environmental performance indicators and outcomes. The ISO 14001 auditing system is often characterized as analogous to the financial auditing system, yet it is different because ISO 14001 does not require public disclosure of environmental performance results, unlike publishing a company's financial statement. Under ISO 14001, the EMS audit is a confidential report with regard to an organization's management, yet the goal of an audit is to provide assurance of public certification and conformity with a publicly available standard (EPA, 2001:101).

  There is apparently a basic disagreement among the drafters of ISO 14001 about whether the auditing and registration process should be designed to foster internal management improvements or to impart information to the public. As already referred to, the resulting standard became a hybrid that is useful to managers but less informative to the public and less clear about what third party auditing and registration represents. This confusion contrasts sharply with the openness of financial auditing and reporting (EPA, 2001:101). In this regard the American US TAG state that consideration should be given to public reporting of environmental and social performance which can be addressed more explicitly as part of the ISO 14001 documentation and certification process (EPA, 2001:11).

  Extensive public reporting on environmental and social performance has developed concurrently with the ISO 14001 registration system. Some models for these types of reports, such as the Global Reporting Initiative (GRI), are now well developed. GRI attempts to find agreement among businesses, environmental groups, accounting firms and others on

guidelines for standardized environmental management and sustainability reporting (EPA, 2001:102).

- Accreditation Bodies And The Registration System
  Finally a number of observations are made regarding the maintenance of a strong and uniform registration system, these being:

  - To ensure effectiveness and credibility. EMS accreditation and registration systems must develop strong norms of uniformity for professional competence and standards and for the interpretations and judgments of registrars and auditors in practice.

  - The auditor must audit against these requirements, not merely against the organization's own goals, objectives, and targets. In short, an EMS auditor must make a reasoned judgment that the firm is doing what it claims, and that it is satisfying the requirements of ISO 14001 (EPA, 2001:103).

  - Peer review and benchmarking is thus encouraged as is the use of ways to promote greater uniformity in the selection of registrars based on professional competence (EPA, 2001:104).

  - It is stated that one of the best ways to promote the integrity of ISO 14001 is to provide businesses (particularly small and medium sized ones), with more guidance on selecting a qualified registrar.

  - The recommendation is made that information be provided as to the benefits of using third-party registrars to certify EMSs. This includes organizations that have adopted an ISO like EMS without certification, as well as public facilities (EPA, 2001:105).

5.3.6 Summary: Auditing

Although EMS audits share some commonality with financial and compliance audits, their origins, purposes, standards of practice and outcomes differ significantly. As a result some continue to view third party EMS registration with deep suspicion (EPA, 2001:39). It is stated that the emergence of public policies and initiatives promoting both compliance audits and EMS audits has contributed to this confusion.

EMS audits and compliance audits are related – and may even be complementary – but EMS audits should be evaluated using criteria different from those used for compliance audits. Although the success of a compliance audit is based largely on the number of actual or potential violations detected, the success of an EMS audit

should be based on whether an organization's EMS conforms to the ISO 14001 standard (EPA, 2001:40).

The EPA is of the opinion that despite these identified shortcomings; EMS auditing can meet several objectives. These objectives include verifying compliance with environmental laws and regulations, evaluating the effectiveness of systems in place to manage environmental responsibilities, and assessing the risks from regulated and unregulated activities in facility operations (EPA, 2001:35). It is stated that "expectations by non-participants are, in many ways both too high and too low". They are too high because they seem to expect that EMS registration will help to enforce environmental compliance or verify performance. Yet, they are also too low because they underestimate the continual improvements in environmental performance that can result from well functioning and carefully audited EMSs (EPA, 2001:105).

Critics of ISO 14001 state that failures in financial auditing may carry serious public consequences, but they can usually be remedied by recovery of money. Failures in EMS auditing can however lead to disastrous environmental impacts that cannot be mitigated so easily (EPA, 2001:33).

5.3.7 Auditing and the Public Sector

Reference is made to the fact that many organizations continue to view ISO 14001 registrations as strictly *"by business for business"*. However, it is noted that those interested in third-party registration do not only include businesses (in the traditional sense), but also public organizations such as municipal facilities. It is further stated that Government, including state and federal regulatory agencies, are increasingly looking to the EMS registration system to meet broader and different expectations (EPA, 2001:105). *Within this context it is stated that those "outside" the system should be placed in a position whereby they can see how "the system works and the promise it holds". Thus – accreditation body's registrars and EMS auditors - must play a greater role in managing the expectations of the public.*

5.4 Perceived shortcomings regarding sustainability Criteria

5.4.1 Background

According to the UN (2000:1), "Today many accept that sustainable development is built on three pillars: economic prosperity, environmental quality, and social equity. It is further stated that "while the definition of sustainable development has been agreed, what has not emerged is recognised consensus on what a sustainable global economy might look like and *what path might get us there*. In

fact, it seems that the global economy is farther from a sustainable development path than ever before ".

The UNDP Human Development Report 1999 makes it clear that economic growth is still being achieved at the expense of ecological balance and social progress and are in fact of the opinion that the gap between current practice and the desired state of sustainability has never been wider (UN, 2000:1).

The primary reason cited, being because many enterprises see sustainable development and commercial activity as mutually exclusive. It is also stated that of those few enterprises committed to sustainable development most *have yet to operationalize the concept* (UN, 2000:1). The UN survey revealed that "the business community did not hold a single, clear interpretation of sustainability" (UN, 2000:3) as a means whereby the concept of sustainability can be operationalised according to a number of identified criteria identified by Wilkinson (2001), and it is within this context, that the EMS (with specific reference to ISO 14001), will be investigated according to perceived criteria for sustainability.

5.4.2 Critique of Environmental Management Systems as a Technique for Sustainability Assessment, CSIR, M Wilkinson

The foreword by Wilkinson (2001:1), gives an indication as to the drivers of an EMS, in that from an organisations point of view, the main aim of an EMS is to ensure that the criteria *demanded by the global market – are satisfied* and hence result in a sound profit margin.

EMS as a vehicle for Sustainable Development:
"In 1987, the World Commission on Environment and Development (Brundtland Commission) called for the development of new ways to measure and assess progress toward sustainable development. This call was subsequently echoed in Agenda 21 of the 1992 Earth Summit. In response, significant *efforts to assess performance* have been made by corporations, non-government organizations, academics, communities, nations, and international organizations" (Wilkinson, 2001:19).

The Bellagio Principles for Assessment are referred to as guidelines for undertaking and improving assessment of *progress towards sustainable development*

"These principles serve as guidelines for the whole of the assessment process including the choice and design of indicators, their interpretation and communication of the result".

The Bellagio Assessment Principles are as follows:

- Assessment Principle 1: Guiding vision and goals.
- Assessment Principle 2: Holistic perspective.
- Assessment Principle 3: Essential elements.
- Assessment Principle 4: Adequate scope.
- Assessment Principle 5: Practical focus (reporting and performance indicators).
- Assessment Principle 6: Openness.
- Assessment Principle 7: Effective communication.
- Assessment Principle 8: Broad participation.

- Assessment Principle 9: Ongoing assessment.
- Assessment Principle 10: Institutional capacity.

The aforementioned ten principles can be categorised into *four key aspects for assessing progress toward sustainable development,* which are as follows:

Principle 1 deals with the *starting point* of any assessment, stabilising a vision of sustainable development.
Principles 2 to 5, deal with the *content* of any assessment.
Principles 6 to 8, deal with *key issues* of the process of assessment
Principles 9 and 10, deal with the necessity for establishing a *continuing capacity* for assessment.

Further to considering sustainable development in terms of these ten principles and their associated categories, a number of "sustainable criteria" (22 in total), were selected by Wilkinson (2001:20), for the assessment of EMS as a tool for sustainability assessment, these being as follows:

- Considers *the whole system* (linkages).
- Considers the well being *of social, ecological and economic* sub-systems.
- Considers the fair distribution of cost and benefits for human and ecological systems.
- Intergenerational equity (waste minimization, cleaner production, responsible resource use).
- Considers the limits of life supporting systems.
- Considers effects of economic development on human well-being and ability to meet basic needs through *inter alia* equitable access to resources.
- Adequate scope (time, space). Global implications evaluated.
- Broad participation in projects plans and programmes.
- Ability of policy, plan, programme to sustain itself though its life cycle.
- Guided by clear vision and goals for sustainable development.
- Proactive and considers a range of options.
- Framework linking goals to assessment measures.
- Standardised measurements to allow comparison across spheres.
- Benchmarking of assessment measures.

- Considers the precautionary principle.
- Openness (data accessible, uncertainties explicit).
- Effective communication.
- Broad participation in the sustainability assessment. Combine top-down and bottom-up approaches.
- Accountability.
- Ongoing assessment in an adaptive management framework.
- Institutional capacity and
- Flexibility in process application.

The section, which follows, assesses an EMS in terms of the ten Bellagio assessment *principles* referred to above and their inherent sustainability criteria.

5.4.3 Assessment of EMS in Terms of the selected Bellagio Sustainability Principles and their Criteria

In terms of the ten Bellagio principles and the associated twenty two criteria, the following:

- Assessment Principle 1: Guiding Vision and Goals.
  According to Law *et al.* (quoted by Wilkinson, 2001:22-23), indicated *non-compliance* to this criterion when evaluating EMS as a tool for sustainability assessment.

  The importance of *policy* is emphasised in that it states that: "one of the key steps to an EMS is the development of an environmental policy that states the organization's commitment to environmental management and provides a framework for setting objectives and targets. It goes on further to state "it establishes the overall sense of direction of an organization in environmental matters and sets the parameters and boundaries within which action is to be taken.

  The reason for the EMS not meeting this criterion for sustainability assessment is the fact that environmental policies are not required to be guided by a clear vision of sustainable development and goals that define that vision and furthermore "the substantive decisions that make up the content of the EMS are left almost entirely to the discretion of the adopting organization itself". Thus the *"EMS by themselves are only limited procedural instruments* for such purposes, and the goals themselves – sustainability or otherwise must and will *be driven by more fundamental exogenous forces.* All the substantive decisions that an EMS reflects are self-selected from tithing the enterprise, and often reflect only the perspectives and priorities even of particular facilities and *business units".*

It is further alleged, that *"the reality is that both the adoption and the content of EMSs, as voluntary and discretionary action of businesses, will over time be only as good or as sustainable as are the underlying business reason".*

- Assessment Principle 2: Holistic Perspective
  It is stated that a distinctive characteristic of sustainable development is its holistic approach and that the concept of sustainable development requires the linking of people with the surrounding world. It is further emphasised that the assessment must consider all three pillars of sustainability, namely, the well being of social, ecological and economic sub-systems.

  In meeting this assessment principle, Law *et al.* (quoted by Wilkinson, 2001:25), rates EMS *as non-compliant,* in view of the fact that "traditional environmental management strategies like EMS are not sustainable in that they tackle problems for the benefit of the organization and are not concerned with the effect of their policies and practices on a wide range of long term *global issues".* It is further stated that although these management systems may represent a theoretical example of best practice in environmental management, their applicability in the real world and the likelihood of adopting them is questioned.

- Assessment Principle 3: Essential Elements
  The concept *of intergenerational equity* requires that the current generation takes into consideration the needs of future generation when deciding on resource use. It is stated that "a fundamental principle for sustainable development is ensuring that we remain in the limits set by the natural environment to support development".

  Law *et al.* (quoted by Wilkinson, 2001:27), rates the EMS as being *non compliant* to criterion 5 and 6. However it is stated that the EMS was shown as *partially complaint* to criterion 4 as it covers some aspects of intergenerational equity by its commitment to *continuous improvement* and reduction of environmental impacts. In order to comply with the assessment principle, it is stated that a sustainable business needs explicit policies and practices that take it beyond the law or beyond simple compliance. This requires the organisation to demonstrate due diligence in all its operations and procedures and link these to stakeholder accountability. In effect, this requires the organization to be anticipative and have systematic scenario planning and *risk assessment* procedure. It notes that sustainable organisations should also be involved in the phasing out of non-renewable resources through placing emphasis on research for *alternatives*. Substitution strategies must be linked to closing the cycle of resource use and emphasis must be placed on systems, which reduce the use of, re-use and recycle resources.

- Assessment Principle 4: Adequate Scope:
  This principle addresses time and space issues. Improved ability to assess outcomes of human activities is all the more important considering the time frame for ecological processes. Implications of human activities on the environment tend to be much longer than even the social implications of our actions. A measure is needed that links the social and economic activities to the long-term perspectives of the environment. Binding human activities to the time frame of ecological process reveals the scope of work required to achieve sustainable development.

  Law *et al.* (quoted by Wilkinson, 2001:29-30), indicated the EMS as being *partially compliant*, as some EMS (i.e. ISO 14001) have the potential to look at

  adequate scope. This does not however mean that all EMSs include adequate *scope* in the process.

  In prescribing the means to meet this assessment principle, it is stated that, *"An EMS does not mandate how fast or how far continuous improvement must proceed, nor even how quickly an organisation must actually achieve compliance with environmental regulations".* It is further stated that, "the nature of human activities is now such that activities undertaken at one location can have implications for people and ecosystems located far away. In order that full costs be accounted for and by implication integrated into decision making, the *physical boundary* for a given project area of target jurisdiction should be set to include the full extent of affected ecosystems. Ecological changes are not confined to socio-political boundaries. A number of limiting factors were recognised in that, "taking adequate scope to the extreme would imply *development of an assessment that is beyond the possibility of implementation".*

- Assessment Principle 5: Practical Focus (Reporting and Performance Indicators):
  It is stated that, "one of the more challenging aspects of pursuing a commitment to a sustainable future is devising a means of measuring progress towards that goal". An example being the use of indicators. It is further stated that "a given measure" of sustainable development would not say anything about sustainability unless a reference value such as a threshold was given to it.

  Law *et al.* (quoted by Wilkinson, 2001:32), rated EMS as *fully compliant* with this criterion, in that an EMS requires that there is a regular and systematic evaluation of the system in terms of its efficiency in achieving objectives and targets. I would disagree with this statement on the basis of a number of extracts referred to in the following paragraphs, which substantiate this statement.

With regard to environmental performance and the reporting thereof, it is stated that, "pressure is increasing on enterprises to report environmental performance". In this regard it is stated that "both surveys revealed that environmental disclosures remained qualitative, descriptive, partial and difficult to compare", with no relation usually being drawn between environmental targets, the amounts spent to achieve these targets and the results achieved either in environmental terms or financial terms. Furthermore, it is stated that, "environmental disclosures in annual reports vary widely in scope and quality, as do stand alone reports, there is little consistency and not much scope for inter-enterprise comparison or benchmarking" (UN, 2000:9). In this regard it is simply stated that, *"while eco-efficiency is becoming an increasingly widely accepted idea, there is no universally agreed system for measuring and reporting on it"* (UN, 2000:10).

In fact "to date there is no international consensus on how corporate environmental activity and impact should be reported". It being stated that "there is no consensus on the use of standardized environmental performance indicators and "as a result, it is difficult to compare the environmental performance of different companies, and to determine whether the enterprise is improving over time, and if so what strategy it adopted to achieve any improvements and whether it was the most cost-efficient" (UN, 2000:10).

In contrast, financial performance indicators are calculated on the basis of national and international accounting standards (UN, 2000:10).

According to UN (2000:13), the "diversity in terms of environmental performance indicators has rendered most environmental reports useless" and furthermore that "environmental reporting currently lacks credibility in the eyes of certain external stakeholder groups because certain qualitative characteristics which exist in the financial reporting domain are absent". These characteristics include the following:

- A guarantee of completeness
- Comparability
- Consistency of measurement
- Credible external verification

- Assessment Principle 6: Openness

  Sustainable development is a concern for all and it requires that people be given the opportunity to be informed about issues and conditions that influence their life in the present and future.

  According to Law *et al.* (quoted by Wilkinson, 2001:33-35), the EMS rates as *fully complaint* with the ideal of openness but only *partially complaint* in practice

as it is questionable how well uncertainties are presented or whether companies sensitive data is made available to the public.

In achieving this assessment principle, it is stated that in assessing sustainable development an organization must demonstrate openness. There should be free access to information that is not of a commercially sensitive nature. Furthermore a regular third party verification report, covering financial, environmental and social measures, would identify the organizations achievements and any failure to meet the set targets. Thus, measures need to be reported upon and audited in an accountable, transparent and accessible style.

The constraints regarding lack of transparency and "openness" were acknowledged. The ideal of being "fully compliant" may also be questioned, as an EMS is more likely to be partially compliant in this regard as access to information is upon request only.

- Assessment Principle 7: Effective Communication
  New types and new ways for communicating information about progress towards sustainable development are continually being developed. It is stated that cultural differences exist within any society and as a result different values exist. Thus communication is central to any assessment process. For it to stand peer and public scrutiny, the assessment process must be transparent, fully documented and clearly communicated.

  Law *et al.* (quoted by Wilkinson, 2001:35-36), showed EMS as being *fully compliant* with this principle, but acknowledges that an effective communication strategy is critical to an EMS and adds that internal communication requires a mechanism for information to flow top-down and bottom-up.

  It is further stated that the EMS is designed to allow flexibility and implementation at a number of levels. My opinion of the aforementioned is that whilst in broad terms the EMS is designed for the aforementioned principle, one must distinguish between an effective communication strategy for those "outside" the organisation and those "within". Those "outside" the organisation having been referred to in Principle 6.

- Assessment Principle 8: Broad Participation:
  Without broad participation, it is impossible to reflect the diverse and changing nature of values held across society. The need to involve all key stakeholders in decision-making is fundamental to sustainable development.

Law *et al.* (quoted by Wilkinson, 2001), evaluated the EMS as *non-compliant* in this regard due to the fact that there is not participation involved in the EMS process. The only pre-requisite is that there is broad participation of management and individuals within the organisation who will be involved or impacted upon by the process. Suggestions are made that the perceptions and concerns of other parties be solicited to ensure that the organization is aware of the concerns of interested and affected parties. Whilst this is the case, it is important to note that the EMS must comply with the "law of the land" and within a South African context this automatically results in "public participation" being extended to ensure that cognisance is taken of interested and affected parties and not only affected parties.

- Assessment Principle 9: Ongoing assessment:
  It is stated that an assessment consists of three elements, namely the diagnosis, which explains why the action is necessary, monitoring, which

  follows its progress and the evaluation, which draws conclusions about both progress and outcome. Furthermore, an assessment should be iterative, because conditions, information, values, capacities and priorities are constantly changing. These changes should be accommodated within strategies for sustainability and should be adaptive. Good assessment therefore forces the rethinking of priorities, the resetting of goals and "recharting" of the course of action.

  Law *et al.* (quoted by Wilkinson, 2001:37-38), rated EMS *as fully compliant* with this criterion both in the ideal and in practice. An EMS requires a review of the management system that summarizes the status of the EMS in terms of the current environmental performance, a review of internal and external pressures for change and a resulting action plan to facilitate further improvement in performance.

  It is further stated that an EMS report should include the identification of gaps and problems with the EMS. In this regard, I am of the opinion that in practice the EMS may not be *fully complaint* as a result of potential problems associated with the frequency of the review period, the extent of the review, the frequency associated with auditing and practical problems encountered with lack of data for monitoring purposes.

- Assessment Principle 10: Institutional capacity:
  The success of an EMS is very dependent upon training and resources so as to encourage an understanding of the issues involved among employees and to develop an understanding of their role and responsibilities within the greening process. It is important that training of the EMS process is offered at all levels of the organization.

An EMS requires that each member of staff be clear about why they are carrying out environmental management responsibilities, hence the need for training.

Law *et al.* (quoted by Wilkinson, 2001:39-40), indicated the ISO 14001 based EMS as being *fully compliant* with this principle both in the idea and in practice. In reality, I am of the opinion that capacity problems (both human and financial) may well challenge this principle, especially within developing countries.

5.4.4 Summary: Sustainable Criteria

It has thus been demonstrated that the ISO 14001 based EMS is in broad terms compliant or at least partially compliant with the "alleged" sustainability principles and criteria, identified by the CSIR. However, a number of shortcomings were identified especially those pertaining to monitoring, auditing and reporting requirements. Coupled to this is evidence of a need to be able to measure improvement, which alludes to a shift from a traditionally procedurally based system to performance-based systems. Despite these identified shortcomings none appear insurmountable and the ISO 14001 based EMS system appears to be sufficiently robust to incorporate measures to overcome these perceived shortcomings, thus potentially allowing for the development of a system which will "*operationalise sustainable development*".

5.5 PROBLEMS ASSOCIATED WITH DEVELOPING COUNTRIES

5.5.1 Introduction

According to Beaumont (2002), in keeping with Agenda 21 requirements, all signatories are responsible for developing a NES for their respective countries. Many countries (including South Africa) have not yet developed or implemented their respective NES, the due date being 2002. As a result of these outstanding strategies, it was decided at the World Summit, that extension would be granted for the development and implementation thereof until 2005. South Africa in response to this is currently developing their NSSD (National Strategic Sustainable Development) programme through DEAT, as the mandated department.

5.5.2 Background

National Environmental Strategies

An EMS is regarded as the most appropriate vehicle by which to drive national sustainable development strategies (Swedish case study, Chapter Six), which are assumed to be fairly similar in nature to National Environmental Strategies (NES). Thus, reference is made to problems experienced in implementing National Environmental Strategies, particularly within developing countries. *Furthermore, it*

is hoped that in identifying problems at a national strategic level, an attempt can be made to overcome these problems through co-operative governance.

5.5.3 Identified Shortcomings

The purpose of the NES is to (in terms of Agenda 21) address sustainable development issues. Developing countries experience typical pressure factors such as population growth, poverty and (associated demands for) economic activity. When not adequately managed, this results in environmental degradation. *Furthermore, it is stated that in most countries these factors are not regarded as environmental problems per se and are addressed in broader national development plans rather than in environmental strategies (World Bank, 1995:13).* In addition to the aforementioned concern, a number of problem areas have been identified, particularly with regard to developing countries and the implementation of their environmental strategies. These failures have been identified as market, government or institutionally related (World Bank, 1995:15). As regards government failures, it is stated that where environmental resources are not

correctly priced, serious distortions in resource use and allocation can occur with associated degradation of the environment.

As regards institutional failures, it is stated that, "most national environmental strategies and action plans identify institutional weaknesses as a vital factor contributing to the perpetuation of environmental degradation". Furthermore, "in many countries overlapping responsibilities among agencies at different levels of government may send contradictory signals to polluters" (World Bank, 1995:15).

In reflecting upon the problems identified with the implementation of environmental strategies, it was stated that *the diversity of national environmental problems requires that each country tailor its environmental strategy to reflect national conditions and capacities (World Bank, 1995:2).*

5.5.4 Developing Countries and Apparent Lack of Institutional Controls

In developing the DEAT/OAG pilot model for DWAF (referred to in Chapter 3, Drivers), the OAG representative, Khalid Hamid, referred to the importance with which performance measures are viewed as an integral part of EMSs by developed countries.

Whilst, the OAG acknowledged the importance of performance measures, it is their opinion that when developing an EMS for application by less developed countries, institutional controls are more important in ensuring the sustainability of the envisaged EMS. They are of the opinion that without adequate institutional controls in place, the EMS can prove unsustainable. The OAG is therefore of the opinion that institutional controls (referred to as internal controls) must be in place

and receive adequate attention prior to the development and incorporation of performance measures such as environmental indicators – if the system is to prove sustainable in the long term. The link between adequate internal controls as a means to safeguard against organisational risks and associated liabilities is evident from the following statement:

"The existence of an adequate system of internal controls minimises the risk of errors or irregularities" (INTOSAI, 1998:9).

5.5.5 Summary

What is evident from the aforementioned is the fact that the overall concern with regard to developing countries appears to be twofold, namely the fact that development and environmental strategies are considered as two distinct and separate entities and secondly that failure in implementing environmental strategies is generally associated with an apparent lack of institutional controls.

In referring to the need for each country to "tailor" its environmental strategy to reflect national conditions and concerns, it is advisable that in developing an appropriate EMS for DWAF, cognisance be taken of this principle. This chapter in conjunction with Chapters Six and Seven investigates a number of case studies with regard to the application of EMSs and will assist in determining what is considered an appropriate EMS for implementation by DWAF.

6

APPLICATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS: INTERNATIONAL CASE STUDIES

What follows are a number of international case studies regarding the application of environmental management systems.

6.1 AMERICA: GOVERNMENT SECTOR (FEDERAL AGENCIES) AND EMS

6.1.1 Introduction

According to Martin (2002), from the American Environmental Protection Agency (EPA), they "do not endorse" any specific EMS such as ISO 14 001, but acknowledge that these are good systems to develop. She further states that "we do not have extensive experience of EMS for governments, but *we are being pushed to acquire that knowledge".*

6.1.2 Background

On April 26, 2 000 the then President issued an Executive Order (EO) for "Greening the Government" through "Leadership in Environmental Management". This EO is not being rescinded by the current administration. *As a result, the federal government is required to develop an EMS for many of its facilities (Martin, 2002).*

Evidence of governments "dual role", that is in getting their "own house" in order and putting measures in place to encourage regulatory practices, has resulted in the introduction of various initiatives. These have been launched in several states to test ways in which EMSs and third party registration can complement traditional regulatory approaches. Examples include EPAs Star Track and the National Performance Track, as well as "Green Track" programmes in Oregon, Wisconsin and several other states (EPA, 2001:23).

Ms Marilou Martin also refers to the development of the National Performance Track, which is required as one of the criteria for eligibility (for a facility or company) operating an EMS.

Whilst Ms Martin refers to the fact that "no specific EMS is endorsed", it is interesting to note that as of November 2000, 1 130 US based organizations had been certified under the ISO 14001 standard. The strongest United States (US) advocates for registering EMSs to ISO 14001 include large automobile companies such as Ford and General Motors. These firms have moved quickly to register their own manufacturing plants and have directed their suppliers to implement EMSs over the next two years (EPA, 2001:14).

There is however apparent uncertainty surrounding what ISO 14001 is intended to deliver, leading many US firms to adopt a wait and see attitude about the standard and third party conformance verification (EPA, 2001:14).

In addition to the aforementioned state initiatives, a number of other initiatives have been developed to support the application of EMS. One such initiative, being the CEMP, described below:

6.1.3 The CEMP

The Code of Environmental Management Principles for Federal Agencies (CEMP), developed by the EPA in response to the aforementioned Executive Order (EO 12856), was signed on 3 August 1993, and is a collection of five broad principles and underlying performance objectives that provide a basis *for federal agencies to move toward responsible environmental management.* Adherence to the five principles will help ensure environmental performance that is proactive, flexible, cost-effective, integrated and sustainable. Sixteen federal agencies participated in the development of the CEMP (EPA, 1997:1).

- The CEMP reflects its EMS origins in its structure and format. However it is not a standard or a regulation, it is a voluntary component of *a programme established to encourage federal agencies to enhance their environmental performance through the creative use of management tools.*

- The EPA has patterned the CEMP on the common critical elements of a comprehensive management system tailored to the environmental activities of an organization (EPA, 1997:1).

- As such, the goal is to move agencies "beyond compliance" and the traditional short-term focus on regulatory requirements to a broader, more inclusive view of the interrelated nature of their environmental activities.

- It is noted that "federal agencies often lack the resources to develop a complete environmental management program" and as a result "are often forced to take *a finger in the dike approach that focuses on compliance, addressing situations as they occur*, instead of planning their activities to prevent such situations".

- Thus it is hoped that a better understanding of the weak points of their system, will allow the agencies to manage their resources for prevention, not just response (EPA, 1997:2).

6.1.4 The Link between the CEMP and an EMS

As already stated, the CEMP is not a standard and consists of a set of principles to assist an organization in improving its environmental performance and level of environmental protection. In developing the CEMP, the EPA examined a number of EMS standards to identify common elements and areas that needed to be addressed, these being as follows:

- ISO 14001; (draft)
- NSF: 110 EMS Standard;
- CMS Responsible Care Programme;

- CSA = 3750 EMS Standard; (draft)
- DOE Environment Management Assessment Protocols;
- US Sentencing Commission Guidelines;
- Canadian Code of Environmental Stewardship;
- EPA leadership Program; (proposed)
- GEMI TQEM materials; and
- Wever, "utilizing a self Assessment Matrix for implementing TQEM".

Following a review of the aforementioned sources (EPA, 1997:3), the following 5 principles were decided upon as being representative for the CEMP:

- Principle 1: Management Commitment.
- Principle 2: Compliance Assurance and Pollution Prevention.
- Principle 3: Enabling systems.
- Principle 4: Performance and accountability.
- Principle 5: Measurement and improvement.

6.1.5 CEMP Principles

These 5 principles are expounded upon as follows:

- **Principle 1: Management Commitment**

(a) Obtain management support, through:
  - Policy development; and
  - System integration

(b) Environmental stewardship.

- **Principle 2: Compliance Assurance And Pollution Prevention**

(a) Compliance assurance.
(b) Emergency preparedness.
(c) Pollution prevention and resource conservation.

- **Principle 3: Enabling Systems**

(a) Training.
(b) Structural supports.
(c) Information management, communication, documentation.

- **Principle 4: Performance And Accountability**

(a) Responsibility, authority and accountability.
(b) Employee performance standards.

- **Principle 5: Measurement And Improvement**

(a) Evaluate performance:
  - Gather/analyze data; and
  - Institute benchmarking.

(b) Continuous improvement.

According to the principles listed for the CEMP, *all appear by and large synonymous with ISO 14001*. In reviewing these principles, it is evident that certain elements of each principle extend beyond the scope of the conventional boundaries of ISO 14001, especially those pertaining to the measurement of environmental performance. It must however be borne in mind that ISO 14001 makes provision for continual improvement and provides a flexible framework in this regard, hence the recommendation in the closing summary for an ISO 14001 based EMS to incorporate the CEMP principles.

A broad comparison of the CEMP principles with those of ISO 14001, follows in tabular form.

TABLE 3: A COMPARISON OF CEMP PRINCIPLES WITH ISO 14001

CEMP Principle	ISO 14001	Beyond ISO 14001
PRINCIPLE 1: **Management Commitment** 1.1 obtain management support ▪ Policy development ▪ System integration 1.2 Environmental stewardship	**4.Environmental management system requirements:** 4.2 Environmental Policy ▪ Provides for policy development ▪ Reference is NOT made to system integration. 1.2 Reference is NOT made to environmental stewardship	▪ In ISO 14001, reference is NOT made to system integration. ▪ In ISO 14001, reference is NOT made to environmental stewardship.
PRINCIPLE 2: **Compliance Assurance and Pollution Prevention** 2.1 Compliance assurance 2.2 emergency preparedness 2.3 pollution prevention and resource conservation.	4.2 Environmental Policy (b) Includes a commitment to continual improvement and prevention of pollution. c) Includes a commitment to comply with relevant environmental legislation and regulations, and with other requirements to which the organization subscribes. 4.4.7Emergency preparedness and response	▪ In ISO 14001, reference is NOT made to resource conservation.
PRINCIPLE 3: **Enabling Systems** 3.1 Training 3.2 structural supports 3.3 information management, communication, documentation	4.4 Implementation and operation 4.4.1 Structure and responsibility ▪ Roles, responsibility and authorities shall be defined. ▪ Management shall provide resources. 4.4.2 Training, awareness and competence 4.4.3 Communication 4.4.5 Document control 4.5.3 Records	
PRINCIPLE 4: **Performance and Accountability** 4.1 Responsibility, authority and accountability 4.2 employee performance standards	4.4.1 Structure and responsibility ▪ Roles, responsibility and authorities shall be defined, documented and communicated	▪ In ISO 14001, no specific reference made to employee performance standards, except where reference in 4.2 c) is made, to compliance with "other requirements" to which the organisation subscribes.
PRINCIPLE 5: **Measurement and Improvement:** 5.1 Evaluate performance ▪ Gather/analyze data ▪ Institute benchmarking 5.2 continuous improvement	4.5 Checking and corrective action 4.5.1 Monitoring and measurement 4.5.2 Non-conformance and corrective preventive action. 4.2 Environmental policy b) Includes commitment to continual improvement and prevention of pollution.	▪ The ISO 14001 standard is not performance-based, but is systems (procedurally) based. ▪ The ISO 14001 does not make provision for benchmarking as conformance can be achieved by the various role-players, but the level of performance differs.

In addition to these "guiding" CEMP principles, a CEMP Self-Assessment Matrix has been developed as a tool to help agencies evaluate their progress in implementing the CEMP and map their next steps. The matrix was designed to support the gradual development of an environmental programme that addresses the CEMP principles. The matrix is also intended to support several points that are key to the development of an environmental management system. The proposed CEMP matrix is offered as a potentially useful tool that gives one approach to implementing the principles, not as a "rigid one size fits all". Agencies are encouraged to adapt the matrix to their own programmes and to make whatever modifications they deem advisable.

6.1.6 Summary

In reviewing this case study, it was evident that the need for application of an EMS within the public sector was acknowledged and supported by national legislation. In developing the CEMP as a guiding principle, it is noted that this is targeted at federal agencies, essentially removing the appeal of commercial advantage, which may be regarded as being something of a paradigm shift.

Of particular interest is the fact that in developing a set of guiding principles for the application of sound environmental management practices, various standards, codes and best practices were reviewed. The guiding CEMP principles, thus incorporates elements which extend beyond the scope of ISO 14001, particularly as regards performance based criteria. Given the fact that the CEMP consists of a set of principles and best practices derived from no fewer than 10 standards, protocols and codes, but is not in itself a standard, it may be reasonable to assume that an ISO 14001 based EMS could incorporate the aforementioned principles given its inherent compatibility with other standards, robustness and scope for "continual improvement". In this regard, it is of interest to not that although the EPA believes that it would be inappropriate for it to endorse a particular EMS standard at this point in time, it has participated strongly in the ISO 14001 process and exchanges information with other countries that have developed such standards.

6.2 CANADA: APPLICATION OF EMS

6.2.1 Introduction

The International Organisation for Standardization has developed two relevant standards, ISO 14001 and ISO 14004, *which are now widely accepted internationally and have become the accepted standards for use in Canada* (Environment Canada, 2000:2.2). Whilst this is the general case, it is true to state that a number of sector specific standards, have been developed, including those

applied to the forestry industry. These will be reviewed, particularly as this sector has a bearing upon the Department of Water Affairs and Forestry.

A dedicated web site: www.ec.gc.ca/emsinfo provides information on the application of environmental management systems to employees of the government of Canada and to EMS practitioners around the world.

6.2.2 Background

The 1998 report of the Commissioner of the Environment and Sustainable Development states that "as an employer, landlord and purchaser, the federal government is the *largest single enterprise* in Canada. The way it manages its day-to-day operations and the signals it sends as a purchaser of goods and services have significant implications for resource use, the environment and sustainable development" (Environment Canada, 2000:2.5).

As a result supportive policies and legislation were developed, the most important being:

- **Policy on Greening Government Operations.**
  More specific direction on managing environmental obligations was provided in the federal government policy on Greening Government Operations. This policy stipulated that each department should improve its environmental performance by implementing best management practices in a number of key operations.

  The Greening Government Operations Policy indicates that the best way to improve performance and institute better management of these issues is *through the development and implementation of an EMS* (Environment Canada, 2000:2.7).

- **Auditor General Act**
  In 1995, the Auditor General Act was amended and the Commissioner of the Environment and Sustainable Development was established within the Office of the Auditor General of Canada. The Act required all federal departments to present sustainable development strategies to Parliament by 1997. *One of the key tools to be used by individual departments to achieve sustainable development was an environmental management system.*

- **Report to Parliament by Commissioner of the Environment and Sustainable Development:**
  In his 1999 report to Parliament, the Commissioner of the Environment and Sustainable Development clearly indicated that the ISO 14001 standard would be used as the benchmark against which the management of environmental priorities by the public sector would be evaluated. This is

considered a clear indication that there is a direct link between the development of an EMS consistent with the ISO 14001 standard and a department's ability to meet sustainable development commitments. Reference is also made to reporting to Parliament regarding progress (Environment Canada, 2000:2.8).

In light of the above, it is further stated that, "by virtue of existing federal policy, individual federal departments and agencies are tasked with developing and implementing formal EMSs in order to minimize any negative or harmful effects that their activities might have on the environment". *In fact, "basically, as a federal government department or agency, you have no choice – you have to develop an EMS"* (Environment Canada, 2000:2.8).

Thus, the importance of developing an EMS within the public sector of Canada can be attributed largely to the development of supportive policy and legislation.

6.2.3 Application of EMS in the Canadian Public Sector

For the purpose of this section, it suffices to state that a practical guideline document on the application of ISO 14001 within the Canadian federal (public) sector has been compiled. No further reference is made to the standard in this chapter, as this is addressed in a dedicated chapter, namely Chapter Four: Comparisons of EMS.

Shortcomings associated with the application of ISO 14001, are also acknowledged, as indicated in the extract which follows, namely: *"It is possible for you to be out of compliance with a particular environmental regulation and still have an EMS that is consistent with all the ISO elements. You simply have to demonstrate that you have a procedure in place to bring you back into compliance should regulatory commitments be missed" (Wilkinson, 2001:3).* These shortcomings will be expounded upon in a dedicated chapter, Chapter Five: Perceived Shortcomings associated with Environmental Management Systems.

With regard to the application of an EMS, reference is made to the fact that "continual improvement does not have to happen in all areas at once" and "can be within your own boundaries" (Environment Canada, 2000:2.11). Of interest is the fact that the Canadian federal agencies included aspects such as fleet maintenance and waste management, within their boundaries. This can be extended to include eco-efficiency service contracts and purchasing of greener goods and services (Environment Canada, 2000:3.22) and is encouraged, thus alluding to the next "step" in the evolution of an EMS, namely that of product stewardship and ongoing continual improvement toward the goal of sustainable development.

6.2.4 Application of EMS within the Forestry Sector

Not only is the Canadian federal agency regarded as being "significant in size", it is also true to state that Canada has the largest forest area certified in the world. The commercial forest area in Canada is some 120 million hectares. Currently the Societe Generale de Surveillance's (SCC's) accredited organizations have certified forest areas of 92 million hectares of forest in Canada (Janhager, 2002)[c].

According to the statistics report referred to below, provided by Abusow (2002), the following standards have been applied for certification purposes:

- New certifications to ISO 14001 bring the total area certified to ISO, to 91,845,000 hectares.
- New certifications to CSA bring the total area certified to CSA to 8,840,000 hectares.
- New certifications to SFI bring the total area certified to SFI to 8,210,000 hectares.
- There were no new certifications to FSC in Canada, hence the total hectares certified remains 123,253 as per FSC latest data, this being December 2001.

The aforementioned statistics are extracted from a report prepared by Kathy Abusow in June 2002, for the Canadian Sustainable Forestry Certification Coalition and although subsequent reports are now available, these statistics give an indication as to the trends at the time of publication (CSFCC, 2002).

With the exception of the SFI, the application of these standards will be discussed briefly. For "historical purposes", reference will also be made to the CSA Z 750 (1994) standard.

6.2.5 Application of various EMS standards

- **CSA Z 750**

The Canadian Standards Association, now the CSA Group, published the standard in September 1994. This standard has subsequently been superseded by the ISO 14001 (1996) standard, and is no longer in use (Bilodeau, 2001)[b]

- **CAN/CSA Z809/808**

The ISO 14001 standard has been utilized by the Canadian forestry industry as a basis for environmental management. The next step in improving their environmental performance has been the application of more stringent industry specific standards such as the CAN/CSA Z 808/809. This standard is a nationally developed standard (as per the Canadian voluntary standardization system's requirements for developing national standards) and approved standard (1977) by SCC as the approver of national standards. From its inception, the standard was based upon ISO 14001. The recent five-year revision cycle of this standard

has resulted in a more performance-orientated national standard. It is regarded as one of the most stringent national standards for the forestry sector in the world (Janhager, 2002)[c].

- **ISO 14001**

As the application of ISO 14001 has already been dealt with, it suffices to state that this is the most widely applied standard in Canada and is regarded as the generic standard from which more stringent, sector specific standards can develop.

As stated by Mr Janhager ISO 14001 is applicable to any type of industry sector or organization seeking an approach to improving its environmental footprint.

- **FSC (Forest Stewardship Council)**

The statistics indicate that this standard is the least used by the Canadians for certification of their forests (Abusow, 2002).

The FSC is not part of the international ISO system or the national standardization system in Canada and these standards do not follow the rules of the international ISO system or the national standardization system in Canada. Furthermore, the FSC standards do not follow the rules of international trade agreements (WTO) and standards development requirements. They are working outside of the formal standardization system. The FSC is thus an Environmental NGO, which according to Mr Janhager, are trying to establish themselves as the only SFM standards developer and certifier in the world (Janhager, 2002)[c].

6.2.6 Summary

The federal government represents the "single largest enterprise in Canada and the associated potential environmental impacts have been acknowledged to the extent that federal departments have "no choice" - but to develop an EMS as the vehicle by which to drive Greener Governance. This is well supported by legislation. By virtue of existing federal policy, individual federal departments and agencies are tasked with developing and implementing formal EMSs in order to minimize any negative or harmful effects that their activities might have on the environment (Environment Canada, 2000:2.8). Other relevant legislation includes the "Greening Government Operations policy" and the "Auditor General Act", whereby all federal departments had to present sustainable management strategies to their Parliament by 1997, the key vehicle used to attain sustainable development being an EMS.

Increasingly stringent sector specific standards are being developed and are based upon a strong ISO 14001 foundation and "tailored" for the sector in question. This includes the CAN/CSA Z 809/808 standard, which is considered to be the most stringent standard within the forestry sector although recent forestry

statistics indicate that ISO 14001 continues to be the most prevalent standard used for certification of Canadian forests and the other sectors.

The question was posed as to whether the CAN/CSA Z 809/808 standard may be considered better than ISO 14001. Mr Janhager (2002)[c], responded by stating that in comparing these standards, the question is not whether one is better than the other, but rather whether each has a role to play. He stated that the ISO 14001 standard is a globally accepted standard, whilst the CAN/CSA is a nationally applied and accepted standard.

During a subsequent discussion, reference was made to the ongoing "evolution" of sector specific standards. Mr Janhager (2002)[d] alluded to possible changes in ISO 14001 in future, which could include a greater performance based component. The general feeling being that this will provide a "window of opportunity" to develop a global ISO 14001 standard with regionally specific performance criteria, for the respective sectors concerned. Not only do trends appear to indicate an increasing application of sector specific standards, but also the need for incorporation of performance requirements, thus resulting in sector specific standards, which are increasingly performance orientated. Whilst this eludes to future trends, a note of warning was sounded by Professor J Nel (2002)[b], in that should this result in global standards which become increasingly performance orientated, the result could be standards which are unattainable for developing countries, thus putting global markets out of reach for the vast majority of developing countries, such as South Africa.

6.3 THE NETHERLANDS: APPLICATION OF EMS

6.3.1 Introduction

The cornerstone of Dutch environmental policy is the National Environmental Policy Plan (NEPP). This aims to tackle all the existing environmental problems within a single generation. The assumption is that businesses should accept responsibility for their own environmental behaviour. For that reason, Dutch environmental policy attaches great importance to company environmental management. Thus, company environmental management systems occupy an important place in Dutch environmental policy, a policy that puts the emphasis on the need for the business community to face up to its responsibilities towards the environment. (Netherlands. Ministry of Housing, Spatial Planning and the Environment, 1997:10).

6.3.2 Background

The Dutch government is thus encouraging businesses to implement an environmental management system. A specific policy has been developed to

encourage this. This policy is based on the principle of voluntary implementation, as in the Netherlands it is not a statutory requirement to have a company environmental management system (Netherlands. Ministry of Housing, Spatial Planning and the Environment, 1997:14).

The Dutch regard a company environmental management system as a package of policy, administrative and organizational measures that can enable businesses to manage and reduce their environmental impact. A system of this kind makes it possible to continuously improve *environmental performance*.

6.3.3 Elements of the Dutch EMS

According to the Dutch government, an effective environmental management system consists of the following eight elements:

(a) Environmental policy statement:
This lays down the environmental goals that the company has set itself.

(b) Environmental programme:
Each year the company draws this up, which includes the planned environmental measures for that year.

(c) Integration of environmental management into business management:
The environmental policy must be integrated with other aspects of the business management.

(d) Measurements and recordings:
These enable the company to have insight into its environmental impact.

(e) Internal checks:
The company must carry out periodic checks on the implementation of the environmental programme.

(f) Information and training:
Success of a system depends upon the commitment of the workforce, which requires information and training.

(g) Environmental reports:
Reports enable company management to keep itself informed about the state of affairs in the environmental field.

(h) Evaluation:
The entire environmental management system is examined periodically and where necessary, adjusted accordingly.

Implementing this cycle enables companies to continuously improve their environmental performance.

6.3.4 Methodology for Implementation of EMS

Instead of a statutory obligation, the Dutch government is finding other ways of encouraging the implementation of company environmental management (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:15). Specific sectors of industry for example, are intending to develop a model environmental management system for an entire sector of industry. This saves each company having to separately devise an environmental management system. Other measures include the following:

- Policy Intensification:
  In 1993 the Dutch government announced an intensification of their environmental management policy.

- Penalties and Rewards (Incentive based):
  Five new instruments seek to stimulate the business community to implement an environmental management system at an earlier stage. These 5 instruments have been carefully selected to do justice to the different developmental stages of environmental management. In so doing companies that lead the way in environmental management are rewarded for their efforts, whilst the stragglers are goaded into adopting such a system.

- Instrument Mix:
  - The first instrument that the Dutch wish to use to intensify their *environmental policy* is the so called environment and industry Target Group Policy. Within the context of this policy, the Dutch government is concluding agreements with various sectors of industry with a view to achieving a reduction in the environmental impact within the sectors of industry concerned.
  - The second instrument is *certification.*
  - The third instrument for intensifying the environmental management *policy is licensing*. The Dutch reward company environmental management initiatives via licenses that are granted. These environmental licenses contain specific environmental regulations to which the company concerned must adhere to (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:17).
  - The fourth instrument is *the statutory environmental reporting* regulation.
  - The fifth and final instrument is *environmental auditing.* In the near future companies that repeatedly infringe the terms of their licenses will be required to undergo auditing at their own expense.

Thus companies continue to strive for improvement in their environmental management system. The more experience acquired, *the more sophisticated environmental management systems become.* The Dutch government will also continue to be involved in company environmental management in the future. A number of Dutch initiatives incorporated as part of their EMS, will be explored, a number of which go beyond the conventional EMS, to include a so called product–orientated environmental management system and "combizorg" or IEMS (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:18). These initiatives are demonstrated by the following:

6.3.5 Optional Certification of Dual EMS Standards

In the Netherlands, certification is an important way of encouraging company environmental management. *However one must be sure that a certified EMS also means a good EMS.* (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:24). Dutch environmental policy attaches a great deal of value to the certification of company EMS. There are various ways in which Dutch companies can obtain certification.

- They can have their *EMS tested against the ISO 14001 standard.* This international standard is also recognized by the Dutch government as a meaningful standard for environmental management.

- Dutch companies can choose to take part in the arrangement laid down by the EMAS Regulation of the European Community. This includes important deviations from the ISO 14001 standard, which for instance does not prescribe a public environmental statement.

In practice Dutch companies usually opt initially for certification on the basis of the ISO 14001 standard. Only after they have acquired this are they likely to want to take part in the EMAS arrangements, as companies that already have an ISO 14001 certificate can take part in the EMAS regulation via an abbreviated procedure (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:24).

6.3.6 Reporting Requirements

As already referred to, another instrument that the Dutch government is using to encourage company environmental management is the *statutory regulation on environmental reporting.* In this report they are expected to give an account of their environmental policy (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:34).

An environmental report provides a view of a company's environmental performance over the previous year. The government and the general public

must have some way of evaluating how companies are filling in the finer points of their responsibility towards the environment. *An annual environmental report is considered to be the most suitable way of achieving this.* Not all Dutch companies are legally obliged to publish an annual environmental report. These companies are selected according to various sectors.

As regards reporting requirements, two versions are required, one for government and one for the public. The content of the government report must satisfy stringent requirements, whereas the content of the public report is subject to only a few general guidelines. The government report, will, as far as possible, *make other environmental reports superfluous.* Where possible, the government report will replace all the separate reports, which will save a great deal of work (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:35).

6.3.7 Product- Orientated EMS: Product Stewardship ("Cradle to Grave")

An important objective of Dutch environmental policy is reducing the environmental impact of products during their life cycle that is from cradle to grave. New developmental stages are being announced and the Dutch government is developing a product-orientated EMS (Netherlands, Ministry of Housing, Spatial Planning and the Environment, 1997:39).

By expanding the EMS to include product improvement, companies are able to set about improving their products' environmental performance much more systematically. *The business community and the Dutch government are busy elaborating upon this concept and ultimately this must lead to a new generation of environmental management systems that are product–orientated systems.* A product-orientated EMS is simply an EMS that also encourages the development of product management. A product-orientated environmental management system fits into the framework of the international ISO 14001 standard for EMS and will strive to reduce the environmental impact of both the production process and products and services. It is clear that the product orientated environmental management system will have a much greater impact than conventional systems. It differs from process management in that fundamental choices between products and raw materials affect the very core of a company.

Should consensus be achieved, these efforts will ultimately find expression in the formulation of a Dutch interpretation of the ISO 14001 standard. It would than be possible to append an annexure to the Dutch interpretation of the ISO 14001 standard, which the product-orientated component of an EMS must satisfy. This will give companies a foothold in the development of such a product-orientated EMS.

6.3.8 "Combizorg" - IEMS

Another current development in the Netherlands is the so-called "combizorg" or integrated environmental management. This significant combination of management systems consists of quality management systems and safety, health and welfare systems. The aim of the former is to improve overall product quality, whereas safety health and welfare systems are aimed at improving working conditions. By approaching these three systems and their inter-relationships, the priorities in each area can be harmonized with each other more effectively. The Dutch government is anxious to lay down sensible boundary conditions for integrated management. This in effect will bring about a closer collaboration between the different governmental authorities responsible for checking that companies are complying with the appropriate legislation.

6.3.9 Summary

It is evident that the Dutch are in the process of developing and indeed customising an environmental management system which is well advanced in terms of the "evolutionary" scale of the EMS and ultimately aimed toward attaining sustainable development. According to the "Akzo Nobel" graph (referred to in the SASOL case study, Chapter 7 and referenced under Rose), they have progressed beyond the boundaries of a conventional EMS, by addressing:

- Combizorg (IEMS)
- Product-orientated EMS (product stewardship)

The Dutch have illustrated through their "unique interpretation" of the ISO 14001 standard, it is possible to develop and customise ISO 14001 to a point where it incorporates sustainable development criteria. In their adoption of dual systems (namely ISO 14001 and EMAS), the more stringent elements of the two standards, are adopted. The fact that ISO 14001 is robust, allows for flexibility in this regard. This in turn encourages a process of continual improvement, so much so that there is a natural progression from EMS to IEMS (Combizorg) to product stewardship and beyond – to what potentially may result in the development of a system, which is regarded as a Sustainable Management System.

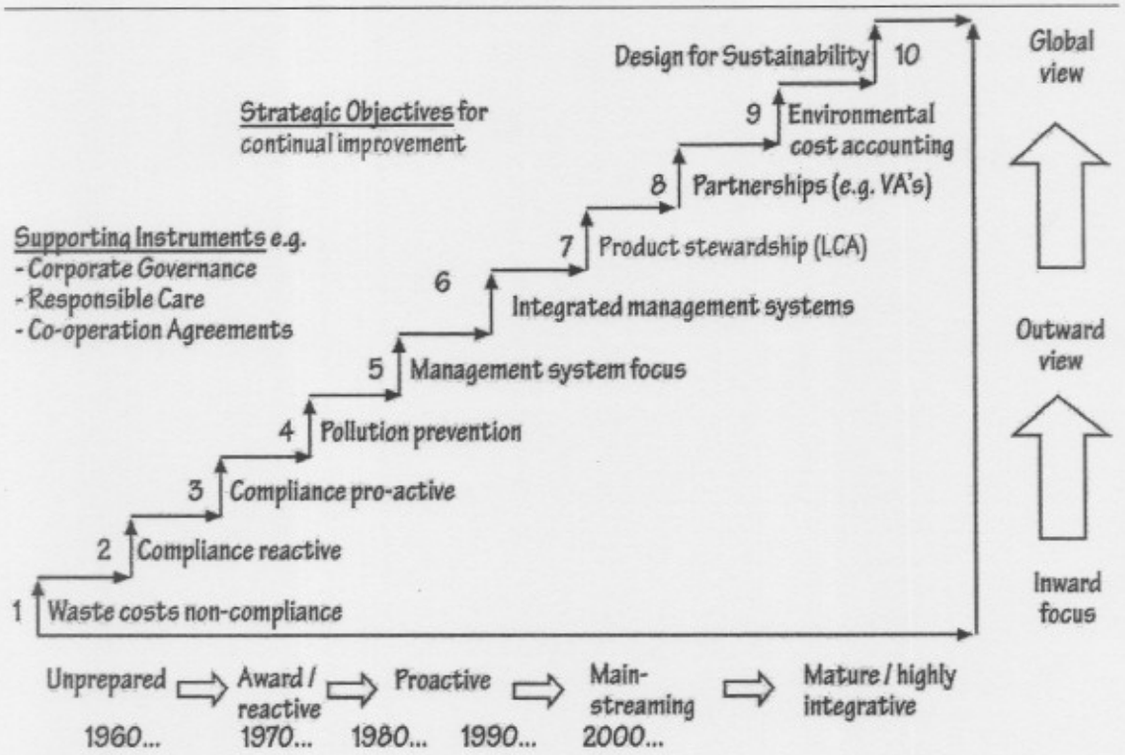

Figure 8: Historical Evolution of EMSs, toward sustainable development (Adapted from the Akzo Nobel Model, SASOL, 2001)[b].

6.4 SWEDEN: APPLICATION OF EMS

6.4.1 Introduction

In 1992, at the Earth Summit in Rio de Janeiro, nearly 180 countries met to discuss progress towards sustainable development. A plan of action, Agenda 21, was adopted. It was also recommended that all countries should *produce national sustainable development strategies*. The target date for countries to have strategies and programmes for sustainable development in place being 2002, which has since been extended to 2005.

A National Sustainable Development Strategy (SDS) is thus being prepared in Sweden. The Swedish SDS will encompass ecological, economic and social (including cultural) aspects of sustainable development. A number of measures are already in place as building blocks for a more comprehensive and consolidated Sustainable Development Strategy, which includes the development and implementation of EMSs.

6.4.2 Background

Strategic approaches in Sweden has led to, for example, changes in legislation and policies, the financing of sustainable development activities and projects, the organisation and financing of sustainable development research, communication and dialogue, decentralisation and the empowerment of people (Sweden, Ministry of the Environment, 2001).

The Swedish Government has initiated what they term "an integrated EMS agenda". This was initiated in 1994-95 and involves over 350 governmental organisations, from Parliament to municipal governmental entities and services in the country (Janhager, 2002)[a].

Indications are that not only are EMSs supported either directly or indirectly by legislation, but that environmental legislation is in some instances being "consolidated", to facilitate the application and implementation of an EMS. An example being the "Environmental Code" developed by the Swedes, which in effect consolidates 15 environmental laws.

Furthermore, legislation is not only forcing government to get its "own house in order" and institutionalise an EMS, but it is evident that its application is cross cutting within the various levels of government, as demonstrated by the "integrated EMS agenda".

6.4.3 Summary

Of note, is the fact that the Swedes "targeted" the government sector through initiating the "integrated EMS agenda" which made provision for the various government tiers. As an augmentary tool to facilitate this process, the Environmental Code, is also noteworthy.

TABLE 4: A COMPARISON OF EMSs AS APPLIED INTERNATIONALLY

	AMERICA	CANADA	NETHERLANDS	SWEDEN
POLICY, STRATEGY AND SUPPORTING LEGISLATION.	In April 2000 Executive Order (E0, 12856), for Greener Governance. The Code of Environmental Management Principles (CEMP) developed for Federal Agencies, in response to the EO. Federal Government required to develop EMSs for many of its facilities. EMS could be encouraged as good business practice. Legislation (refer to policy above) supports the application of EMSs.	Strategy specific. The Auditor General Act amended in 1995 to include reference to the fact that departments are required to present Sustainable Development Strategies (SDS) by 1997. Policy on Greening Government Operations, which includes reference to development and application of an EMS.	Intensification of their environmental management policy announced in 1993. Encourage EMS through NEPP policy, by which business must accept responsibility for their environmental behaviour.	IPP (policy) that is product related. National Sustainable Development Strategy (SDS), developed as part of Agenda 21. Building blocks for the SDS include the development and implementation of EMSs. Government refer to an Integrated EMS agenda for governmental organisations. Environmental Code developed for consolidation of environmental legislation to facilitate application of EMS.
AUGMENTARY TOOLS & INSTRUMENT MIX	CEMP principles developed, based upon ten codes and standards. In addition to the "guiding principles", a CEMP self-assessment matrix developed. Other examples include the development of performance programmes such as the EPA's Star Track and the National Performance Track.	Reference in guideline to sharing best practices and tools.	Includes voluntary agreements, licensing, with various sectors of industry.	Includes the Environmental Code referred to above.
REPORTING & AUDITING.		Reference to other standards, as utilized in various other sectors – and their associated more stringent requirements (than ISO 14001) for reporting and auditing. An example being the FSC.	Statutory regulation on environmental reporting. The government report will as far as possible make other environmental reports superfluous. Environmental statement available. Environmental auditing requirements	Follow up of Environmental Performance through annual progress report. Internal auditing recommended. Credibility and transparency noted as the most important aspects.
RECOMMENDED TYPE OF EMS	No specific EMS is endorsed by the EPA although it has participated in the ISO 14001 process.	According to the Commissioner of the Environment and Sustainable Development, the ISO 14001 to be used as the	Dual EMS. EMAS and ISO 14001 certification is optional.	Not ISO 14001 alone, EMAS also included as a dual standard.

	AMERICA	CANADA	NETHERLANDS	SWEDEN
		benchmark standard. Other standards have been developed which are sector specific, especially for forestry purposes as Canada has the largest certified forest area in the world.		
BEYOND ISO14001 EMS			"Combizorg" (IEMS), and product stewardship (product life cycle) as part of their "unique" interpretation of ISO 14001 EMS.	In developing the SDS, which includes triple bottom line reporting requirements, it is likely that the scope of the EMS will be extended as a building block.
PROBLEMS			None referred to.	None referred to.
COMMENTS		Recognition of the significance of the public sector regarding environmental impacts.	The fact that a country can develop a unique interpretation of the ISO 14001 standard is significant.	The fact that an "integrated agenda" was published, for the application of an EMS by all government departments, is significant. The reference to the EMS as a building block for the SDS is also of significance – given the fact that the scope of the EMS is likely to be extended to accommodate sustainability requirements.

Chapter 7

7

APPLICATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS: NATIONAL CASE STUDIES:

Chapter 7

7.1 THE CAPE METROPOLITAN COUNCIL: (LOCAL GOVERNMENT)

7.1.1 Introduction

The Cape Town Metropolitan Council (CMC) embarked upon the formulation of an environmental management policy in line with its mandate to "ensure the preparation of and compliance with an integrated metropolitan environmental management strategy. The EMS was used as a tool to help implement the City's Environmental Policy leading the City toward environmental sustainability (CMC, 2001:3).

7.1.2 Background

- **Formulation of Policy and Strategy**

  The City of Cape Town adopted an Integrated Metropolitan Environmental Policy (IMEP) and its implementation strategy on 31 October 2001. The City of Cape Town now, for the first time, has a bold and clear environmental policy. The City's political and administrative leadership have committed themselves to the implementation of the IMEP. This is reflected in the approval of IMEP as an overall strategy policy applicable to the municipality

as a whole and by the signing of the IMEP. The IMEP identified a number of broad environmental issues in the City of Cape Town. Each environmental issue is referred to as an environmental theme. There are 14 such themes, ranging from air quality to education and environmental governance (CCT, 2001:2)[b].

The IMEP addresses key environmental issues and sets out the City of Cape Town's commitment to improving Cape Town's environment. The City of Cape Town has prioritised six IMEP *strategies* for implementation. They are:

- Air pollution
- Biodiversity
- Coastal zone
- Litter and illegal dumping
- Quality open space – especially in disadvantaged areas.
- Noise pollution

Monitoring and review are two essential parts of the policy process and the environmental management strategy for the City of Cape Town. This ensures that the policy and strategies that have been put into place to address environmental issues are being affected on the ground. Monitoring and review can be achieved only by the City of Cape Town *measuring the change* in the environment – both good and bad – over time.

7.1.3 Implementation of Integrated Metropolitan Environmental Policy (IMEP)

IMEP will be implemented at the highest level of Local Government in the City of Cape Town. The General Policy Principles will give guidance and act as a framework for environmental governance. Detailed sector strategies will be developed in such a way that plans, actions, targets, indicators and programmes will be implemented to address particular environmental issues. Implementation of IMEP and the sector strategies will occur through, with and by the sectors and line functions of the City of Cape Town in an integrated approach. This will be given effect by:

- Adoption of IMEP as a corporate policy
- Alignment and integration of IMEP with other corporate policies and strategies
- Development and implementation of detailed sector strategies as described in the sector approaches, within five years of the adoption of this policy.
- Development and implementation of six priority sector strategies within two years of the adoption of IMEP (CCT, 2001:6)[b].

The policy will thus be interpreted from its corporate state into a policy for each of the line functions (CCT, 2001:5)[b].

7.1.4 Augmentary Tools for IMEP

A commitment has been made by Local Government regarding the principles of both integrated planning and decision-making and continuous improvement in all its activities and operations that affect the environment. These principles as reflected in (CCT, 2001:7)[b], will be given effect by:

- Adoption of Local Agenda 21 principles.
- Regular environmental monitoring, public State of Environment Reporting (SoE) and other reporting and environmental monitoring tools.
- *The use of effective and recognised Environmental Management Systems (EMS).*
- The development and monitoring of sustainability indicators of performance.
- The application of Cost Benefit Analysis (CBA) and full life cycle cost analysis in the assessment of alternatives and selection of the optimum long-term sustainable solutions.
- Adoption and implementation of the principles of Integrated Environmental Management (IEM) for all projects and activities.
- The application of environmental risk assessment.
- Developing environmental guidelines, where appropriate, for activities, which impact on the environment in the City of Cape Town.
- Requiring adherence to new and existing environmental guidelines from all organizations regarding activities, which impact on the environment in the City of Cape Town.
- The use of appropriate tools in meeting the Best Practical Environmental Option (BPEO) principle.
- Continuing the research and development of tools for the integrated environmental management of the City of Cape Town.
- Annual public reporting on sector approaches and implementation of IMEP.
- Enforcement of laws, by-laws, international treaties and strategies.
- Development of new laws and by-laws.
- Environmental education programmes at all levels of local government.

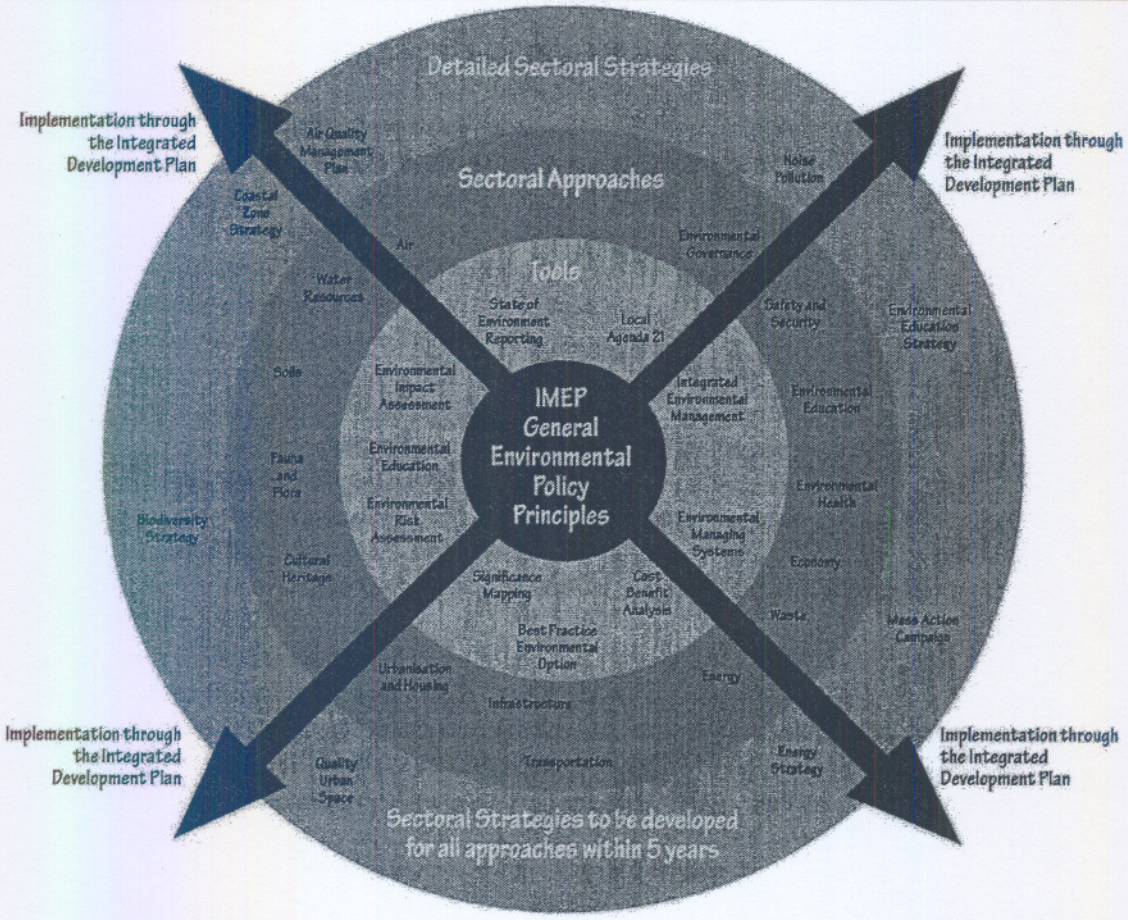

Figure 9: Cape Metropolitan Area Local Authority and the development of their Integrated Metropolitan Environmental Policy (IMEP)
(Adapted from CCT, 2001:9)[b]

As indicated by McCulloch, the Cape Metropolitan Area Local Authority committed itself to environmental sustainability through the adoption of an Environmental Management Strategy for the Cape Metropolitan Area (CMA). One of the driving forces behind the implementation of this management strategy is Environmental Management Systems (EMSs). The EMS was thus used as a tool to assist in the implementation of the City's Environmental Policy leading the City toward environmental sustainability. Principles and goals of the policy will be put into practice in a variety of ways. One of the main ways is thus through the Environmental Management System (CMC, 2001:3).

The City is trying to apply *IEM philosophy* to a broad range of its development initiatives. Beyond "these *IEM foundation stones*, an EMS is seen as an effective way to ensure environmental issues raised are *managed and controlled* during the operational phase of a project". According to McCulloch, this approach fosters better environmental links in a project's life. The underlying philosophy of PDCA (plan-do-check-act) is also evident in the policy process. The policy preparation process, divided into four phases also adopted the broad PDCA approach and illustrates the relationship between the environmental policy and the ongoing process of environmental management, monitoring and review (CMC, 2001:4).

7.1.5 Implementation Strategy for Application of EMS

In 1999 an Environmental Management Systems Branch was created within the Environmental Management Department (EMD) of the former Cape Metropolitan Council (CMC). Following the Local Government elections in 2000, the CMC is now known as the Cape Metropolitan Council Administration (CMC Admin), which forms part of the City of Cape Town. This EMS Branch, also known as the EMS Core Team was tasked with developing and applying an EMS to City Operations within several years. EMS work commenced with some strategic planning exercises and in conducting "ground-truthing" exercises, much was learnt from pilot EMS Projects. The following bullet points were extracted from McCulloch, (CMC, 2001:1), unless otherwise indicated.

- The number of pilot projects was limited to two and operations were selected, namely the CMC Vissershok Landfill and secondly the Macassar Wastewater Treatment Works (Macassar WWTW).

- The EMS Pilot Project work commenced at the Vissershok Landfill in March 2000 and several months later at Macassar WWTW. The EMS development process since then has progressed slowly and relatively smoothly, achieving several milestones.

- The sentiment is that if *the EMS is well integrated with existing management systems,* it will require little to moderate additional work to keep the system running and to gain the benefits that environmental efficiency can bring.

- According to the Local Authority "an EMS allows an organisation to build on current environmental management practices in order to continually control and improve environmental performance".

- According to the McCulloch, the systems approach advocated for EMSs aims to ensure that an organisation's significant environmental issues are identified and are being addressed, in a co-ordinated manner, with sufficient monitoring

- and feedback to establish that progress is made (CMC, 2001:3) and (CCT, 2001:3)[a].

7.1.6 Development and Implementation of the ISO 14001 based EMS

According to McCulloch, the decision was made to manage environmental matters "using proven systems that work, such as the ISO 14000 Series as a basis but not focusing solely on certification". What is also evident is the fact that the main driver is not market related (as is usually the case with ISO certification), but is sustainability driven (CMC, 2001:3). As a result, the following recommendations were made:

- It is believed that certification must not be the sole focus, as this may lead to "window dressing" certification, which may prove unsustainable in the longer term (CMC, 2001:3).

- The City has also considered common corporate approach to EMSs. This consists of developing a singular EMS for part of the organisation and then spreading it or effectively "copying and pasting" the EMS to other similar parts (CMC, 2001:4).

- Concerns raised here revolve around the "buy in" of staff at the operation where an EMS is "pasted". A large portion of the early development and educational processes are bypassed and feelings of ownership and motivation can be substantially reduced."

- In referring to the approach to adopt the EMS, McCulloch refers to both a top-down and bottom-up approach. The top-down approach being used to ensure commitment from Management and the bottom-up approach being used to "ground truth" issues according to those in direct contact with the respective issues. It also ensures more comprehensive "buy-in" (CMC, 2001:6).

- An apparently unique feature is the fact that the SoE (State of Environment Report) played an important role in formulating an EM policy and will continue to update IMEP and IMEP's priority strategies (CMC, 2001) and (CCT, 2002?:2).

- Public reporting is incorporated in the form of a SoE report.

- The policy incorporates principles and goals, which will be put into practice in a variety of ways, one of the main ways being through EMS (CMC, 2001:3).

- When starting the EMS, reference is made to the first step, termed the "initial meeting" or "a meeting of minds workshop", which serves to introduce the

- concept of EMS, establish the team and define the scope and responsibilities (CMC, 2001:4).

- Thereafter the EMS Development Phase is entered into and presented as two parts namely the Initial Environmental Review and the Design Phase.

- As stated the aim of the Initial Environmental Review is to establish *the current state of environmental performance within a particular operation.* From this an Environmental Aspects and Impacts Register will be produced.

- Reference is made to operational procedures, which are documented ways of carrying out specific work functions. It focuses on and records the "best approach" (CMC, 2001: 9).

- There is some move toward integration (IEMS), as reflected by the statement that "there is a definite potential to integrate the EMS audit with other audits that take place at the operation, such as Health and Safety audits (CCT, 2001:14)[a].

- The system has however been designed to meet both the requirements of the SABS ISO 14001 and the new NOSA 5–STAR specifications and not OSHAS which could complicate attainment of this goal (CCT, 2001:5).

- Certification as already referred to, is not their primary goal, improving environmental performance across all council line functions is the current focus.

- Mention is made of the fact that cognisance will be taken of conditions to operate (which include permits and other legislative requirements) and these will be incorporated into the EMS (CMC, 2001:8).

- The need to incorporate "milestones" within the pilot studies, currently being implemented is referred to. As stated "the City is looking out for results-yielding changes, which are readily noticeable and that can happen in the early phases of an EMS development process", so as to ensure that the interested and affected parties "can literally see the immediate difference the EMS is making" (CMC, 2001:8).

7.1.7 Deductions Regarding Implementation of EMS

The following deductions were made:

- In adopting the EMS, it was noted by McCulloch, that the main driver was that of implementing the policy leading the City toward environmental

- sustainability. This is "contrary to the primary motivators which drive the business world, where the sole focus is certification of a standard such as the ISO 14001 to hold or improve market share (CMC, 2001:3).

- Mention is made of the fact that capacity remains a problem and that it is clear that South Africa and its populace largely represent a different socio-economic grouping to that of "First World" countries. When undertaking EMS training it was important to keep this in mind. The reference by McCulloch in this regard being that "human resources were and still are at a premium" (CMC, 2001:2).

- As a result, McCulloch refers to the need for ongoing training and a "train the trainer" programme (CMC, 2001:9).

- McCulloch emphasises the need for a "home grown" rather than a "consultant-developed" EMS, and the associated development thereof is referred to (CMC, 2001:6).

- McCulloch acknowledges the importance of public involvement, as being an important component of the EMS. It is stated that as a result "the relationships between IAPs and the City are expected to improve" (CMC, 2001:3).

- Using the State of Environment (SoE) report as a reporting mechanism, seems effective in that the current state of the environment is compared to that of the previous year, and then published in an annual State of the Environment report.

- The importance of both top-down and bottom-up approach has been referred to.

- The concerns associated with that of a single "cut and paste' type of EMS being developed for the entire organisation, is referred to.

- The importance of pilot EMS projects is noted by McCulloch, as one of the primary points of learning regarding the "intricacies" of developing, implementing and operating an EMS within a Local Government context. Books, reports and advisors, can provide assistance yet can do little to replace on-the-ground experience" (CMC, 2001:2).

Following the implementation of the pilot projects, the need to "roll-this-out" to other areas under jurisdiction is referred to:

- The "fairly extensive common ground between operational requirements and the elements of an EMS is referred to by McCulloch. This includes a permit to operate and its conditions of approval (CMC, 2001:5).

- Concern was expressed as to the ongoing motivation of site staff to implement the EMS, especially given the probable lack of capacity and the fact that the EMS related tasks would in effect add to the existing workload. In this regard there was some discussion as to role of penalties and rewards.

The required "timeframe" is noted as being little understood by McCulloch but is necessary to develop, test and refine an EMS (CMC, 2001:5).

- The need for "tangible results" is referred to and hence the need to develop "milestones" which also assist in measuring progress.

- The fact that management systems create paperwork and the administrative implications in this regard is also acknowledged (CMC, 2001:7).

- Cost implications in the development and ongoing implementation of the EMS was referred to, and included acknowledgement of sponsorship by the Development Bank of Southern Africa (DBSA).

- Primary concerns revolved around the need for monitoring and auditing and the need to measure change so as to gauge whether policy implementation has been successful. The role of the public and the need for public reporting was also indicated in the reference to the incorporation of the SOE.

- Reference was made to tools, which included those of economic instruments, as part of the triple bottom line reporting context.

7.1.8 Summary

The "City fathers" regard the EMS as one of the primary tools that can reduce the impact upon the environment. Amongst the challenges, which face the CMC are those, which pertain to lack of funds and lack of capacity. To date, sponsorship has been by the Development Bank of Southern Africa (DBSA). Whilst the potential to move toward and to develop an IEMS has been alluded to, one obstacle referred to in this regard is the fact that NOSA as opposed to OSHAS is currently applied by the city of Cape Town, which prevents ease of integration of any potential IEMS (McCulloch, 2002).

7.2 Durban Unicity / eThekwini Municipality

7.2.1 Introduction

Sustainable development emerged as a global concept in the eighties and has continued to dominate international and local agendas. International commitment to the "sustainability notion" was concretised at the United Nations Conference on Environment and Development in Rio, 1992, with the signing of Agenda 21. South Africa is a signatory of Agenda 21 and as national governments began to ratify the international agreement, business, unions, government structures and civil society *began to explore the implications on a practical level*.

For local government, the requirements of Agenda 21 were incorporated in what was termed Local Agenda 21 (LA21) and set out in a strategic framework. In developing this framework, the need for an appropriate environmental management system was recognised. This framework together with the proposed environmental management system to be implemented will be explored further.

7.2.2 Background

Phase 1: Durban Metropolitan Environmental Policy Initiative (DMEPI): Formulation of an environmental policy:

In seeking to contribute proactively to a future municipal vision, the Environmental Management Branch of Durban Unicity (now, eThekwini municipality) initiated the Durban Metropolitan Environmental Policy Initiative (DMEPI) in 1998 as part of the corporate Local Agenda 21 programme. Phase 1 of the DMEPI involved a dynamic series of consultations with a broad set of stakeholders and through a consensus approach, led to the development of an Environmental Management Policy for Durban.

This Policy, the result of an *extensive stakeholder consultation process*, committed the eThekwini Municipality to *the establishment of an Environmental Management System (EMS) for the City, focussed on sustainable development. A feasibility assessment with recommendations on design and implementation of an environmental management system (EMS) was commissioned by the Environmental Management Branch.*

Phase 2: DMEPI - Recommendations as to Design and Implementation of Proposed EMS:

Phase 2 of the study makes recommendations as to the design and implementation of an EMS, builds upon Phase One and is in accordance with the legal obligations which include:

- Legal obligations (Development Facilitation Act of 1995) the National Environmental Management Act of 1998 and the Municipal Systems Act of 2000.
- International agreements (Local Agenda 21) and
- Requirements of the Auditor-General (ISO 14001 Environmental Management System standard).
- IDP (Integrated Development Plan) required by law by each local government, which – in effect describes what the Unicity will do with taxpayers money and the associated plans, such as those for disaster management and health related issues.
- The Development Facilitation Act of 1995 requires the aforementioned, which in effect is a 5 year Business Plan that identifies and lists Key Performance Indicators.

Phase 2 of the Durban Metropolitan Environmental Management Policy Initiative (DMEPI) has two distinct focus areas. The first is to assess the feasibility of establishing an environmental management system for the eThekwini Municipality and to provide recommendations on an appropriate system and the steps required for its implementation. The second focus area seeks to identify and initiate projects that accord with the priorities established by this research (eThikwini, 2002:10).

7.2.3 Parameters for the Development of the Proposed EMS

As part of the analytical approach used in the feasibility assessment, a number of tasks were identified which included:

- Assess the present degree of progress in meeting the goals of the 1998 Policy.
- Identify existing systems, structures or activities that might provide a basis for compliance with specific elements of the *ISO 14001 EMS standard*.
- Use the assessments to inform the design of a recommended EMS for the eThekwini municipality.
- Provide specific recommendations for achieving implementation of the proposed system.

Thus the system design recommendations (which follow) aim to build on the 1998 Environmental Management Policy and to assist the municipality in meeting the environmental management obligations and *responsibilities of local government.* The recommended system has been designed to facilitate implementation over a realistic time period and incorporates the necessary flexibility required in the context of structure transformation (eThikwini, 2002:12).

7.2.4 Recommendations for an Appropriate Environmental Management System

A number of drivers have been identified, these being:

- Legislative:
  As already indicated there is a need to comply with international legislation, now captured in national legislation and associated strategies. Thus the driver for implementing an appropriate EMS is both global and nationally driven (eThikwini, 2003?:9).

- Auditing prerequisites:
  Over and above national and provincial policies and laws, local government in South Africa is required to conform to the Auditor General's specification for environmental auditing. These specifications are based on the ISO 14001 standard. To emphasise the scope of the system as well as its integrating function, the term Sustainability Management System (SMS) is recommended.

To emphasise the scope of the system as well as its integrating function, the type of system recommended is that of a Sustainability Management System. It may be defined as "the part of an organisation's overall management system that provides the structure, planning activities, responsibilities, procedures, ongoing evaluation of practices and processes and allocation of resources to ensure that *social, natural and financial capital concerns are afforded due consideration through the promotion of integrated decision-making and action"* (eThikwini, 2002:52).

7.2.5 Proposed Type of EMS, To Be Developed

Based upon the required scope of the EMS, the recommendation was made that a Sustainable Management System (SMS), be developed. It is stated that the concept of sustainable assessment must be viewed within the context of a tool for guiding decision making along a sustainable development path. In comparing this with "the international standard ISO 14001", the statement is made that the (ISO based EMS) focuses more narrowly on environmental management, rather than sustainable development. It is generally accepted that sustainable development encompasses the economic and social aspects of development that are excluded in most definitions of environmental management – and thus ISO 14001 (eThikwini, 2002:33).

Despite the apparent differences in the scope of these two systems, ISO 14001 is considered sufficiently robust and flexible to be developed into a sustainable management system. Thus, it was indicated that although ISO 14001 is an environmental management system it could equally be applied in managing sustainable development issues. This point of view is reflected by the consultants

in the following statement, "This is not to suggest a move away from the sustainable development focus, but rather assumes that a system that can meet the requirements of the ISO 14001 EMS standard can also be used to manage for sustainable development. For this to be the case, the objectives and targets and the policy that form the basis of the system would need to be focussed on the broader concept of sustainability (eThikwini, 2002:34). As a result the scope of the policy was necessarily broadened to incorporate sustainable development. This is *in line with current strategic thinking and compliance requirements by Local Agenda 21 and* the recently developed Long Term Development Framework for the eThekwini Municipality (eThikwini, 2002:36).

The requirements and "expectations" of Local Agenda 21 (LA21), Integrated Development Planning (IDP) and the ISO 14001 standard, are integrated into the proposed system. (The system is linked to the business and may be considered a business-planning framework, which is based on two interlocking review cycles. The first is an annual review cycle linked to the budgeting process and the second a more detailed strategic review cycle on a five-year basis. The system elements refer to the Integrated Development Plan (IDP), Local Agenda 21 (LA21) and ISO requirements, thus integrating these within the plan-do-check-act stages.

The annual cycle begins with the establishment of objectives, budgets and action plans at the requisite Service Unit or area level, with an emphasis upon monitoring. The results of the monitoring operations and tracking of indicators is carried into an annual management review.

On a five-year basis, an in-depth Sustainability Audit, possibly carried out by external consultants, precedes a strategic Review. Strategic Planning begins again on the basis of this review (eThikwini, 2002:6,53-54)

Three spheres of City sustainable management are identified. It is stated that an effective SMS would extend to these three spheres of activity, but would realistically focus initially on the first sphere (internal operations). These three spheres being:

- Internal performance (municipal operations)
- Compliance with regulations and
- Beyond compliance (strategic initiatives to build sustainability).

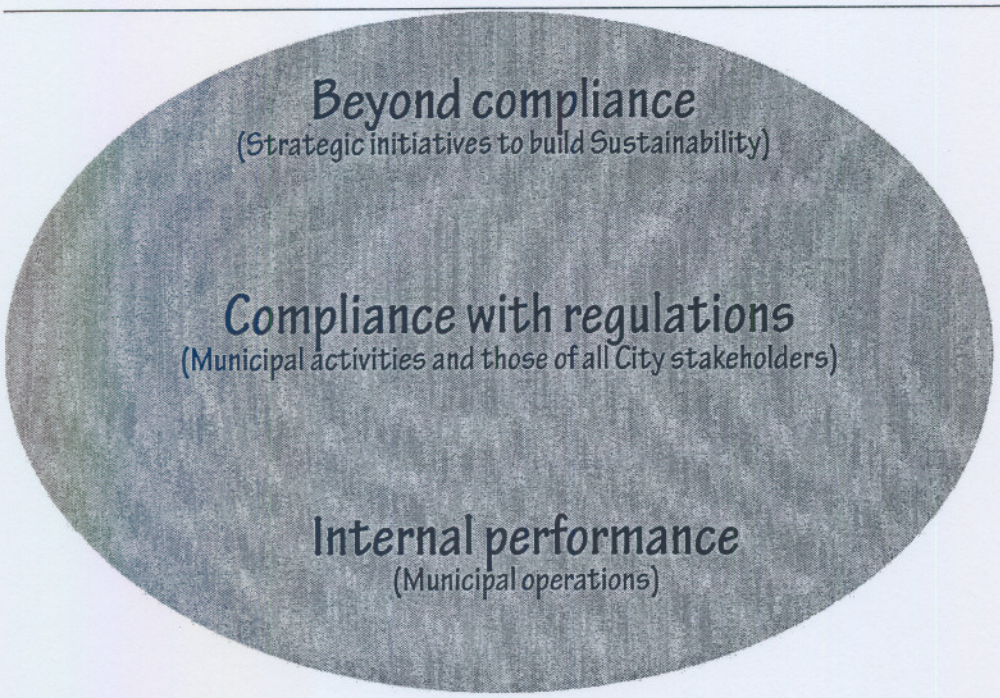

Figure 10: eThikwini Municipality: Development of an SMS: Compliance and Beyond
(Adapted for reproduction from, eThikwini, 2002:53)

The recommended SMS will not exist as a distinct system, but will operate through the integrated development planning, municipal budgeting, performance management and reporting presently being envisaged for the Municipality. (eThikwini, 2002:54). The recommendation is therefore for a "*hybrid" system* that aims to integrate ISO 14001 system requirements into the framework of a sustainable development strategy. It is further stated that the advantage of this integrated structure is in its adaptability to the vagaries of transformation.

7.2.6 Development of SMS Strategies

The social, economic and environmental challenges presently facing the eThekwini Municipality are significant (eThikwini, 2002:16). According to Rich (2002), Durban Unicity (eThekwini municipality) has increased the area under its jurisdiction by 67% and its tax base by only 10%. In aiming for *triple bottom line accountability*, this means that investment, development and operations within a Local Government context must deliver long-term return on financial, natural and social capital (eThikwini, 2002:17).

A combination of strategies can be employed in striving towards sustainable development. It is noted that a more sustainable City (in this instance, eThekwini

Municipality), can be achieved through *a combination of three strategies.* According to (eThikwini, 2002:5,17), these strategies are as follows:

- Initiating incremental or continual improvement
- Redesigning products or product lines, or the services being delivered, or
- Rethinking the way in which people obtain value from the products or services themselves.

These strategies include opportunities to make small, incremental changes (continual improvement), to redesign processes and services, to improve efficiency, and to rethink the role of the organisation and the way it functions. Notably "all of these strategies are already being explored to some degree at various levels of the organisation, *albeit without a conscious awareness of their contribution to sustainable development".* Continual improvement and redesign approaches are being employed at the Service Unit level, and the transformation process has been informed by a radical rethink of the role of local government as a development facilitator, rather than as a service provider (eThikwini, 2002:4).

In brief the aforementioned strategies consist of the following:

a) Continual improvement.
b) Redesign products and processes.
c) Change business model.

These strategies for achieving return on sustainable investment are depicted graphically as curves, elaborated upon as follows.

➢ Strategy (Curve) 1: Continual Improvement

The concept of continual improvement, was formalised in the ISO 14 001 Environmental Management System standard in 1996. This standard requires that companies introduce incremental changes in environmental performance within a standard management system framework (eThikwini, 2002:5). It may usefully be introduced in conjunction with *best practice princi*ples, such as the worldwide Responsible Care initiative of the chemical industry. It is further stated that whilst this option may deliver substantial progress in the early stages, international experience has shown that performance levels out as improvements become smaller and hence more costly. Furthermore, it is stated that organisations facing this situation (flat part of curve) are being forced to consider other approaches, as shown in curves (strategies). Curve 2 indicating the redesign of products and services and curve 3 indicating the change in the business model.

➢ Strategy (Curve) 2: Redesigning Products, Processes And Services

This approach leads an organisation to change actual products, processes and/or services to get them in line with sustainability principles. Because

redesign allows changes to be made earlier in the production cycle, the savings from increased resource productivity are often significantly greater than in the incremental approach (eThikwini, 2002:17-18).

- Strategy (Curve) 3: Changing The Business Model

The third option is a more radical change and involves a complete reassessment of how an organisation generates and provides value to its clients. Changing the business model may imply a shift in patterns of both production and consumption as an organisation moves from a "product-based" orientation to a service business model – seeing value as a flow of services rather than a flow of goods (eThikwini, 2002:8).

- Putting The Options Together

It is stated that the strategies to achieve returns on sustainable investment as outlined according to these options, are already being adopted by various organisations. The strategic role of the Municipal Council is thus to plot an optimal path for sustainable development and to maintain a system that provides feedback for continual *assessment and review* (eThikwini, 2002:19). This includes a "smart" networked city that keeps in touch with its neighbours and the world and the gateway to global export. Durban will need to consider these options carefully (eThikwini, 2003?:8).

Having expounded upon the background, philosophy and associated scope of the proposed SMS, the feasibility of developing such a system upon an ISO 14001 foundation, will be discussed.

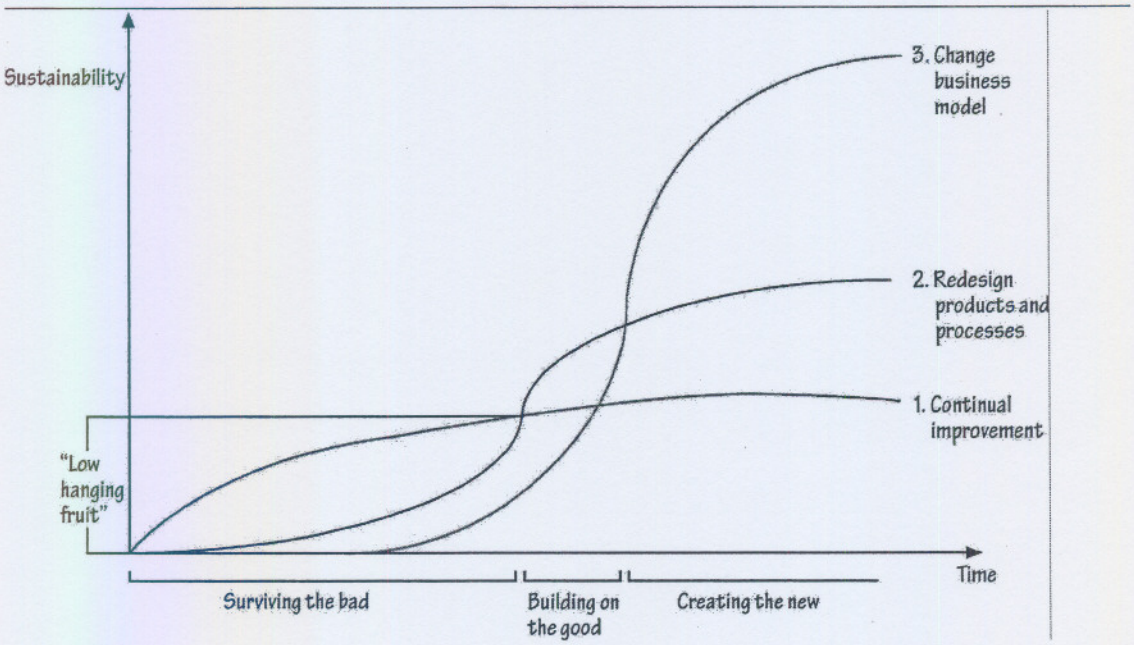

Figure 11: eThikwini Municipality: Development of an SMS: Strategies for achieving return on Sustainable Investment
(Adapted for reproduction from, eThikwini 2002:17)

7.2.7 Tailoring the ISO 14001 based EMS to Meet the Requirements of an SMS

It is stated that a "Sustainable Management System" based on the ISO standard would follow the standard business planning cycles of Plan-Do-Check-Act-Review as encapsulated in the ISO 14001 diagram and "in tailoring an ISO based EMS" the eThekwini Municipality needed to:

- Develop a policy on sustainable development, indicating the specific goals it wishes to achieve.
- Identify ways in which the Municipality's actions promote or detract from sustainable development.
- Put in place programmes to address the problems and enhance the positive impacts of the Municipality's operations.
- Ensure broad stakeholders support of, and involvement in, these programmes and

Develop a mechanism that measures progress and enables review and continual improvement of efforts (eThikwini, 2003?:9).

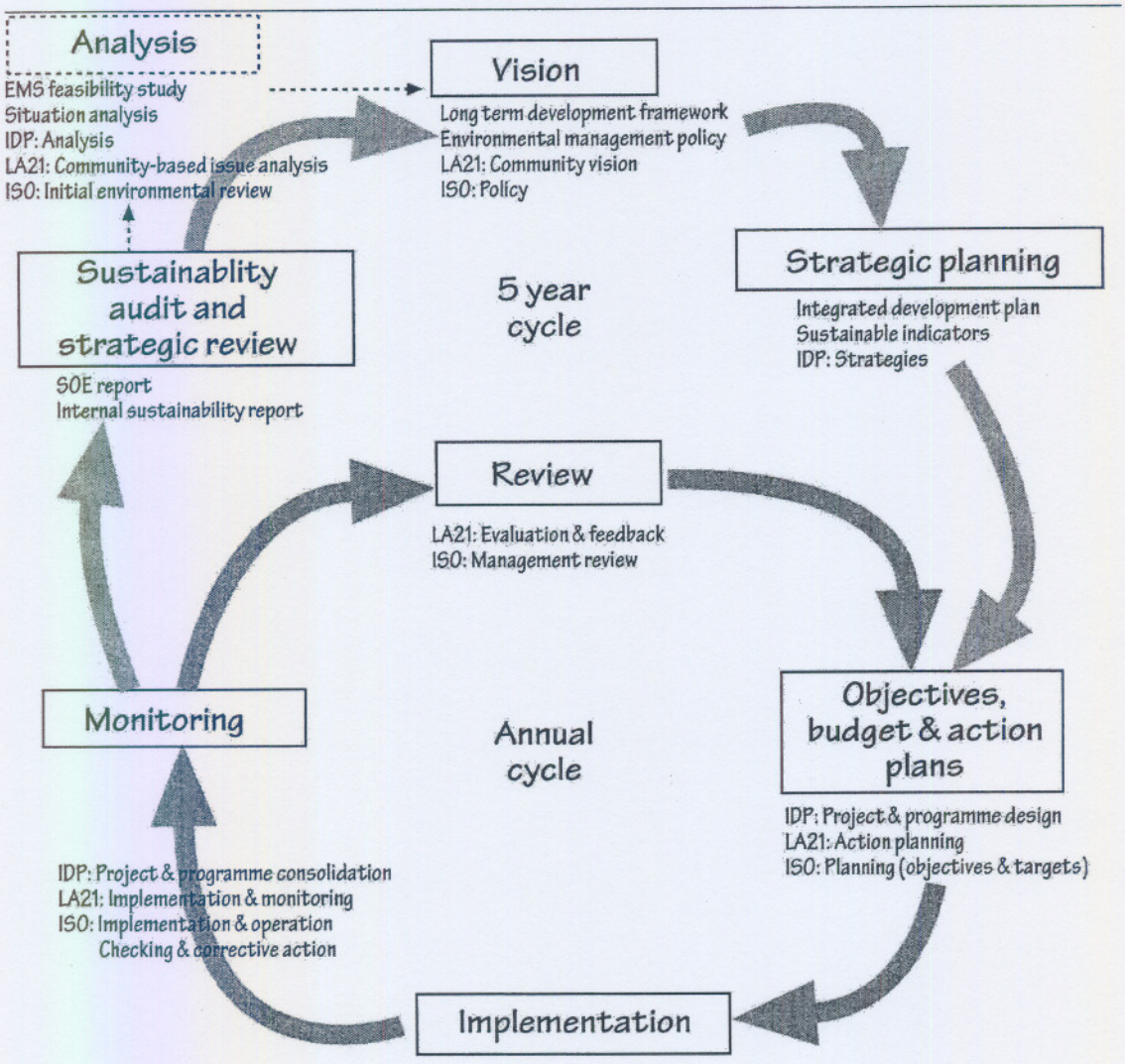

Figure 12: eThikwini Municipality: Development of a Sustainable Management System (SMS) and the incorporation of various Planning Cycles
(Adapted for reproduction from, eThikwini 2002:54)

7.2.8 Recommendations Made Regarding the Proposed System and the Implementation Thereof

The assessment and review focused attention on the current performance in respect of the Environmental Management Policy and the opportunities for using existing systems and activities to address the management system requirements of the international standard ISO 14001. In a general sense the analysis suggests that significant work is already being done in the field of sustainable development, but that much of this work is uncoordinated, with performance not being measured or adequately reported through established targets and

indicators. Opportunities exist for ISO system requirements to be addressed to a large extent by various existing systems and structures, however these require significant review and integration to ensure the coherence of a workable system (eThikwini, 2002:50).

The findings of the review were as follows:

- That the system be focused on the broader concept of sustainable development, rather than limited to performance in environmental management.
- That the system should be *integrated* with existing systems and activities.
- That the system would preferably be operationalised through a corporate structure that *mirrors the strategic* and integrated nature of sustainable development, and reflects *prioritisation* of a corporate mandate.
- That the system should extend over time *beyond internal performance*, to cover the broader challenge of sustainability of the City as a whole.
- In considering a number of significant challenges to implementation, the report recommends *a phased approach* to implementation. This is of particular importance especially as the *capacity to support a full, ISO-compliant EMS at the present stage is questionable*. A set of interim changes to improve the Environmental Management Branch (EMB) was presented and accepted by Council, however these have not been implemented.
- The recommendation is to build the groundwork for such a system over time, and to consider carefully whether *certification* to the international standard would be in the long-term interests of the City (eThikwini, 2002: 51).

In deriving these recommendations, a number of analytical assessments were made.

7.2.9 Analytical Assessments Used To Derive Recommendations

Two areas of analysis informed the recommendations for the management system. Firstly, an assessment was conducted of progress achieved in implementing the Environmental Management Policy since its approval by Council in 1999. Secondly, an analysis was undertaken based on the requirements of the international standard for EMS, namely ISO 14 001. This analysis sought to identify existing systems or programmes that might be used to comply with the ISO environmental management system requirements, *acting as "hooks"* for the developing system, and increasing the likelihood of its acceptance within the organization (eThikwini, 2002:4).

The policy analysis indicated that many of the objectives are being addressed to some degree by existing initiatives, despite a lack of systematic planning and corporate focus on sustainable development (eThikwini, 2002:5).

Areas identified as requiring significant further effort pertain directly to the establishment of an EMS, and include the development of *strategic priorities*, the communications and co-ordination of these priorities within the respective Service Units, and the establishment of a monitoring and review system to ensure progress is measured and reported.

The systems review indicated several existing programmes, activities or systems to be of value in constructing a management system that promotes sustainable development. The analysis indicated that a successful system would need to be integrated into existing structures and activities. The eThekwini Municipality has indicated several existing programmes, activities or systems to be of value in constructing an integrated environmental management system.

7.2.10 Operationalising the SMS

In "operationalising" the SMS, cognisance must be taken of the four cornerstones of a sustainable management system. These four cornerstones being as follows:

- Sustainability indicators, monitoring and review system;
- Training;
- Data and document management system; and
- Audit.

It is stated that an agreed set of sustainability indicators, a monitoring network and periodic review are crucial to retain the integrity of the loosely structured system (eThikwini, 2002:7,58). Attention must be given to the implementation of the four cornerstones of sustainability within the framework of the SMS: In so doing the following components must be addressed:

➢ Sustainability Indicators:

A complex array of *economic, social and natural* variables will need to be clustered into a set of indicators that are practical to measure, informative and accessible to stakeholders. The indicators should thus be designed to facilitate decision-making, as well as providing a warning mechanism for areas of concern. Again these should be integrated into local government requirements, such as the:

- State of the environment reporting;
- Requirements of the IDP performance management guidelines; and
- Relevant international initiatives.

Ideally, the indicators should correlate with the objectives of the various strategies associated with local government requirements.

➢ Training:

Each Service Unit in respect of its own operations should carry out sustainability management.

➢ Data and Document Management System:
Several systems of document management and control currently exist across the Service Units. There needs to be a consolidation of these systems. Reference is made to possible anticipated improvements such as the use of GIS, for capturing, recording and monitoring information and displaying trends in environmental indicators.

Spurred on by the requirements of Local Agenda 21, several municipalities have initiated programmes aimed at the establishment of environmental management systems. However, it is stated that although "a great deal of experience is being gained, it is not presently being shared between cities". The recommendation is made that "there should be an opportunity for greater sharing of knowledge between local authorities.

➢ Audit:
The results of any audit must feed into the various strategies and subsequent strategic planning processes. The purpose of the audit would be to assess the extent to which the municipal operations and the city have achieved progress in respect of sustainable development. Findings of the audit should be correlated with trends identified in the City State of the Environment Report (SoE), and made publicly available.

➢ Recommendations on Institutional Structure:
These institutional recommendations emphasised three basic principles, these being:

- Sustainable development is a corporate responsibility which should be reflected in the structure;
- The implementation of environmental management and sustainable development responsibilities rests with all Service Units; and
- The role of the Environmental Management Branch should focus on providing input on the co-ordination of the SMS, *as well as on the development of strategic indicators to measure sustainability performance*.

It is further stated that the institutional recommendations are based on the assumption that sustainability indicators are the key driver of the system, and will be developed as part of the overall IDP key performance indicators (eThikwini, 2002:60).

A recommendation also made, indicated that a Strategic Team be constituted to carry out the strategic integration of the SMS. The Strategic Team being responsible for:

- Developing sustainability indicators;
- Ensuring the principle of sustainable development is carried through in all development and planning work of the Municipality; and

- Developing a strategic plan for promoting sustainable development and investment in the City.
- The Environmental Management Branch (EMB) would be located within the Strategic Team, providing input to the Team and SMS Coordinating Committee as required (eThikwini, 2002: 63).

➢ Action plan for implementation:

A realistic time period for implementation of the proposed SMS is three to five years. Implementation of the proposed SMS is dependent on the successful completion of institutional changes presently being discussed as part of the transformation process and incorporation of IDP indicators at the highest strategic level of the organisation.

7.2.11 Summary

Concerns have been raised regarding the lack of consistency and standardisation across the various Service Units. Achieving an integrated system, despite the present restructuring initiative, will remain a challenge.

The capacity of the EMB has in fact been eroded to a critical point, so much so that the eThekwini Municipality is presently not in a position to carry out its environmental management responsibilities adequately. This is notwithstanding the expectations of the Auditor-General with respect to environmental auditing, which implies a need for local governments to comply with the ISO 14001 standard (eThikwini, 2002: 51).

In discussions with Jessica Rich (2003), it was noted that the service unit responsible for the development of the SMS cannot "champion it" as this unit is not pitched at a sufficiently strategic level to be influential in this regard. Instead it is anticipated that the SMS will following "restructuring" be given to a service unit which is strategically positioned. In the interim, projects which have a bearing upon the greater SMS are being implemented in a piecemeal fashion in an attempt to "kick start" the implementation of the SMS.

In subsequent discussions, it has been confirmed, that as a result of restructuring the responsibility of implementing the SMS now resides with a different Service Unit, not yet familiar with the task at hand. As a result, the municipality will in the interim revert to an EMS approach, the scope accordingly being narrowed to address only environmental aspects. Furthermore, whilst ISO 14001 principles are followed, eThikwini will not strive toward ISO 14001 accreditation (Rich, 2004).

This case study therefore appears to demonstrate the outcome of severe shortcomings regarding institutional capacity.

7.3 ESKOM: APPLICATION OF EMS

7.3.1 Introduction

ESKOM is broken up into three independent line functions, namely Generation, Transmission and Distribution. All have their respective environmental officers which report to the Corporate Sustainability and Environment (CSE) board (Nelson, 2003). This board was initially known as the Corporate Environmental Affairs (CEA) board. The CSE is responsible for developing policy for implementation at ground level and tracks the performance of these three independent line functions.

7.3.2 Background

An existing EMS was in place prior to the adoption of ISO 14001 principles and as a result it was moulded accordingly, to accommodate these. This is regarded as a better mechanism, rather than "enforcing" a "brand new system from scratch", especially when computer based. In the year 2000, one section within ESKOM was certified (namely the then, CEA), with the remainder striving for compliance (but not certification) with an ISO 14001 based EMS (Nelson, 2001).

The EMS continued to evolve and now incorporates the formerly independent SHERQ based systems. The focus of the original EMS thus changed to integrate these previously separate systems into one overall system. The scope therefore extends beyond that of pure environmental issues. This system may be regarded as a type of IEMS, with external certification currently only being ISO 14001 based. The majority of business units (including regions and head office) were ISO 14001 certified during the course of 2003 (Nelson, 2003).

7.3.3 Development of the Sustainable and Environmental Management System

Based upon an interview with Peter Nelson, a number of components of the EMS which were considered to be of importance were discussed, as follows:

- Policy:

This is regarded as the most important aspect in the application of the EMS. It is through policy that changes are influenced and it is really important that these changes and the apparent success thereof be monitored. Policy influences two "levels", the actual strategic level at which policy is implemented and the operational or "ground level" aspect of any project, which is governed by policy. The CSE thus controls the strategic level where policy is implemented, which in turn governs what happens on site.

➢ Communication:

The importance of communication became evident in a discussion regarding the components of ISO principles. In ESKOM, the EMS utilises an electronic format and in this manner policies are updated on an ongoing basis without being dependent upon amended paper copies and associated filing practices, which would otherwise be necessary. The software to assist the implementation of the aforementioned system was developed by ESKOM and refined over a number of years. This also allows for ready access to CSE related aspects, such as relevant legislation and is readily accessible to all ESKOM staff. A web site, namely www.eskom.co.za is available to the public and includes material pertaining to sustainable development and management.

➢ Incentives and Penalties:

The application of incentives and penalties are regarded as a tool in the implementation of the EMS and were also carefully considered. In applying these, consideration was given to the reporting of incidents on site, which initially was problematic, especially where these involved non-compliance issues. As a result such incidents would often go unreported to the CEA (hereafter referred to as the CSE). As a result a procedure was put in place through the EMS, which ensured that an incident will be reported to the designated authorities and to ESKOM's CSE (prior to government intervention) and that failure to do so will result in the application of penalties. The application of penalties includes the deduction of performance bonuses (*at managerial level*), if performance criteria are not met and improvement is not demonstrated.

The computer is used as a tool for tracking performance and the application of penalties. This includes managing a complaints register, which reflects public opinion and associated perceptions of issues and actual tracking of legislative compliance and monitoring of the relevant indicators. This has proved useful in enabling a comparison of perceived versus actual issues. The aspects register (as part of the EMS) has also been customised to include two parallel sections. One tracks the strategic objectives and targets (for the organisation or business unit as a whole) and the other tracks the strategic objectives and targets (of the CSE). This enables the CSE to verify their role in guiding the respective business units and enables them to pick up trends and to interpret what is happening "on the ground".

➢ Indicators:

It is stated that, "a system is as good as its measurement" and "what you measure you manage". The need to have the correct indicators in place was emphasised. Indicators are considered an integral part of the EMS and are used to track "incidents" (still within legal parameters), "contraventions" (outside the law, resulting in non-compliance) and what is termed "sustainability indicators". These sustainability indicators bring in elements of all three of the aforementioned. Thus the EMS has to track, monitor and interpret the

performance in this regard. These sustainable indicators are regarded as being an integral component of the EMS.

➢ Reporting and Auditing: Augmentary tools

Of particular interest is the fact that audits are based upon the King II Report principles for Corporate Governance, and the Global Reporting Initiative (GRI), is used as a basis for their reporting requirements. These procedures are incorporated as part of their Corporate Sustainability and Environmental system.

➢ Significance Rating and Procedure

It was noted that the "significance rating procedure" for an ISO 14001 based EMS is somewhat nebulous and as a result, ESKOM has developed a procedure for the rating of significance which includes decisions being taken by a panel in an attempt to ensure that both the criteria and the significance rating give as accurate a reflection as possible.

7.3.4 Perceived Shortcomings of Current EMS

The following criticisms are by no means comprehensive in nature, the intention being to reflect a number of points raised during the course of discussions with Peter Nelson (during the period 2001 to 2003), as to what is perceived as being inherent shortcomings of an ISO 14001 based system. These perceived shortcomings being as follows:

- Initially, the reason for only one section being compliant (namely the then CEA) was twofold, namely the cost and the associated business risk entailed in having one certificate. These two factors may thus be regarded as a deterrent in the certification of such a system, as a whole.
- The procedures are considered at times to be too prescriptive in that they inhibit innovative thought.
- The "boundaries" of the area to be certified are decided upon by the organisation and in principle this is considered to be a shortcoming. ESKOM has recommended that auditing of all areas of the organisation be phased in, as a matter of course.
- Initially when questioned, as to the potential for an integrated system (IEMS) for environmental, quality, health and safety (SHEQ) aspects, it was noted by Nelson (2001), that an IEMS has as such not been developed, although various elements such the sustainability index (indicators) constitute a move in the right direction. One of the factors for the lack of such a system was the ongoing conflict between those responsible for applying NOSA (substantive based) and those in favour of OSHAS (ISO 18 000), which is procedurally based). Although NOSA still exists, it is "not as popular" and is considered more of a "body", than a system (Nelson, 2003). This supports, the view held (Nel, 2001), when he noted that many organisations are now changing from NOSA to OSHAS in order to develop and implement an IEMS and apply for certification thereof.

- Whilst the philosophy of the ISO 14001 based EMS is considered sound, the diagram in the guideline was challenged, in that the impression is given of sequential PDCA "steps" as opposed to ongoing interactive and continual confirmation/affirmation between these steps, with the resultant correcting and refinement thereof – so as to ensure continual improvement. This is not a criticism of the ISO 14001 based EMS *per se* but rather an indication of potential misinterpretation of the diagram reflected in the guideline documents for ISO 14001.

7.3.5 Summary

From the various discussions with Peter Nelson, it was emphasised that merely adopting an EMS, in itself does not suffice in ensuring sound environmental management practices. Such a system must be integrated into the existing management system and where applicable, the existing environmental or SHERQ systems. Furthermore such a system can be customised so as to improve upon the efficiency and effectiveness of the ISO 14001 system.

Certain shortcomings such as the costs associated with certification, remain a given and a deterrent. However a number of perceived shortcomings can be overcome, through the incorporation of augmentary management tools or customisation of the standard. These augmentary tools must become part and parcel of management of the system. This includes aspects such as "tracking of performance" through the use of appropriate indicators, the application of penalties and incentives, audits according to King II principles (which includes the recommendation that provision be made for auditing of the entire area of the organisation and not only of those areas, decided upon by management of the organisation in question) and reporting according to the GRI guideline standards.

Thus the EMS must be integrated into the management profile. In maintaining such a system, there is a need for a dedicated individual (or champion), to ensure the ongoing support, commitment and dedication of both management and those on "ground level".

7.4 THE SANDF: APPLICATION OF EMS

7.4.1 Introduction and Background

The need for an EMS arose from the National Environmental Management Act (No 107 of 1998), (Chapter 3, section 11) and its associated statutory reporting requirements in the form of environmental implementation plans (EIPs) and environmental management plans (EMPs). In managing this reporting requirement and the need to identify impacts associated with regulation and implementation, a "system" was required. Although the type of system was not

prescribed, it was decided to develop an ISO 14001 based system. The body formed to drive this process forward was the Environmental Review Forum (ERF) and the business unit decided upon to pilot test the proposed system, was the TFDC (Test Flight and Development Centre) of the South African Air Force (SAAF).

The EMS developed, was designed in-house, "by soldiers, for soldiers" (van Blerk, 2003).

The TFDC, located in the Overberg, south of the village of Bredasdorp, is the supplier of professional flight test services. As an integral part of applying specialised skills and services, the TFDC applies Quality Management, Occupational Health and Safety, Flying safety and Environmental Conservation programmes. The purpose of which is to ensure a high level of quality organisation on behalf of the SAAF at a minimum risk (SANDF, 2001). The TFDC thus engaged in an independent process of developing an EMS and has since obtained certification in accordance with the ISO 14000 international series (van Blerk, 2003). The TFDC as part of the South African public sector is a business unit, which in this instance is in a fairly unique position in that like the "traditional" industrial sector, there is a definite market incentive for certification.

7.4.2 Type of EMS developed

The EMS, developed by the TFDC will serve as a pilot study for application of a generic type of EMS throughout the SAAF. In view of the prohibitive costs associated with ISO certification, only principles of ISO 14001 will be applied to the remaining units. At this stage the market related incentives or potential thereof is not as apparent for the remaining units.

In applying a generic corporate EMS to the SAAF, it was stated by van Blerk (2001), that the principles applied are to be based upon ISO 14001, but that these have been altered to suit the requirements of the organisation. *The application of ISO principles is therefore not strictly applied and concessions have been made.* In developing the EMS, cognisance has been taken of two standards, namely ISO 14001 and ISO 9000. It was envisaged that in future these two standards will be interfaced with one another, thus moving *closer to an IEMS.*

In subsequent discussions with van Blerk (2003), it was stated that whilst a purely ISO 14001 based system will be followed, many bases are "talking" about integrating their SHERQ systems, as an integral part of the generic type of EMS. This demonstrates the extent to which existing initiatives can be incorporated into such a system, over a period of time.

According to van Blerk (2003), the Environmental Review Forum, (originally established as the "think tank" for NEMA's EIP and EMP statutory reporting requirements), was established as a strategic institutional arrangement within the Defence Force, responsible to the Plenary Defence Staff Council on the progress of the EMS.

The development of the EMS was linked to "Organisational Level 2", the level where policy and direction is issued. This level represents the decision-making body. Representation on the Environmental Review Forum (ERF), was at least at Assistant Director's level, with the individual in question, having an articulate knowledge of the core business of the business unit in question and of the associated business outputs.

The ERF had the assignment of first developing the framework of an Environmental Management System (EMS) for Defence in accordance with the ISO 14000 series for environmental management. In developing this EMS, seven environmental issues were prioritised which will be incorporated into Environmental Management Programmes, as part of the EMS. The development of the generic EMS has since been completed and the TFDC has attained certification. The training manuals for implementation of the EMS are currently being finalised, and are aimed at both a strategic and base level.

The next phase will entail the implementation of the EMS at selected bases, which is due to start early in 2004. This will form the "trial period" of the EMS, and for this a cross section of business units has been selected. These include a naval base, a ship, a dry dock, a military hospital, an air force squadron and a training base. These "business units" represent fairly diverse scenarios in terms of capacity and budgetary allocations and have been selected for this reason.

The EMS has been incorporated as part of the SANDF's policy suite, making it mandatory and a legal order to implement and abide by the associated procedures in question.

7.4.3 Deductions

A number of issues were raised regarding the appropriateness of the EMS, during a brief discussion with members of those represented on the forum. These issues and perceived shortcomings are as follows:

- Internally there is unhappiness regarding the fact that the ISO 14001 principles are not applied in their pure form, which may affect credibility of the EMS.

- Although conflict was experienced between members of the forum regarding the development of the EMS, some were of the opinion that "such conflict" may be regarded as necessary and "healthy".

- The proposed application of a "Corporate EMS", simultaneously, as opposed to a phased application per business unit, has been viewed with concern by some key people responsible for implementation of the EMS. The concern in this regard includes issues regarding the apparent lack of opportunity to customise the EMS for each unit and the associated lack of commitment and "buy in" which could result.

- Difficulties have been experienced in communication of the EMS between the Executive level (described as "where things happen") and the "Strategic Level" described as dealing with "future planning".

7.4.4 Summary

In discussions with a representative from the Office of the Auditor General (who wishes to remain anonymous), it was alleged that one of the main failings of the proposed EMS, is the fact that communication between the respective tiers (levels) within the Defence Force is inadequate and as a result roles and responsibilities regarding the implementation of the EMS remains vague, thus affecting the successful implementation of the proposed EMS.

Having identified specific problem areas in the development and application of an ISO 14001 based EMS by the SANDF, the fact remains that as a representative of the South African public service they have been proactive in developing such a system, which was initiated in 1993. As a result the remaining departments can share in the lessons to be learnt.

This case study demonstrates the sentiment that the military sector's environmental impact often outweighs that of most other government departments. Considering the number of weapons, motor vehicles, aircraft and ships, as well as natural resources, under their stewardship, ministries of defence and armed forces in particular, should have an EMS. An EMS is considered the best way to both protect the environment and maintain operational readiness (NATO CCMS, 2000:7).

7.5 SAFCOL: APPLICATION OF EMS

7.5.1 Introduction

According to Marais (1999:1), in response to demands from its customers and in line with its goal of becoming a world-class company, SAFCOL decided in 1996 to have its forestry operations certified in terms of the requirements of the Forest Stewardship Council (FSC). This was a first for a forestry company in South Africa and a new experience for the industry in terms of third party auditing of operations".

7.5.2 Background

"The Forest Stewardship Council (FSC) is an international non-profit organisation founded in 1993 to support environmentally appropriate, socially beneficial, and economically viable management of the world's forests." Membership is open to those involved in forestry or forestry products. All forest products carrying the FSC logo have been independently *certified* as coming from forests that meet the internationally recognised FSC Principles and Criteria of Forest Stewardship. *The primary objective is to provide the market place with an incentive for good forest stewardship.*

The consumer is guaranteed that the product has come from a forest, which has been evaluated and certified as being managed according to agreed social, economic and environmental standards. Products originating from forests certified by FSC accredited certification bodies are eligible to carry the FSC logo, if the chain-of-custody (tracking of the timber from the forest to the shop) has been checked. Marais (1999:2), noted that the timber has to be tracked from the forest through all the steps of the production process until it reaches the end user.

7.5.3 Type of Environmental Management System

According to SAFCOL, the FSC process focuses on the total environment; it does so in an intensive manner and is based upon community or public values, which are in a constant state of flux. To maintain certification within these variables is a mammoth task and without a formal structure, a major corporation would have difficulty doing so. *An Environmental Management System, however, makes this possible.* During the first phase of the FSC certification process this became more than apparent. SAFCOL senior management decided in 1997 to develop an EMS based upon the ISO 14001 standards and the integration of the two "systems" was one of the primary objectives in the design thereof (Marais, 1999:5).

7.5.4 Application of EMS

In applying an EMS considered appropriate for the organization in question, the two standards referred to, that is the FSC and the ISO 14001 based EMS, were integrated. The outcome of these systems have different guarantees, the FSC being product based and ISO 14001 being systems based.

- The FSC Certification Process:

The certification process is initiated through pre-assessments. An important aspect referred to by Marais (1999:3) is that SAFCOL decided to have its five regions FSC certified separately, which proved to be the correct decision as the issues; specifically the social ones vary and are very different region to region. Main assessments were undertaken in each of the five regions and in terms of the requirements of the certification a sample of at least 25% of every region was covered. The assessment team (consisting of three to five experts, both foreign and local) investigated operations in terms of the FSC principles, which typically takes five days per region. The sample area is changed with every surveillance visit.

- The FSC Principles:

Principle 1 – Compliance with laws and FSC principles.
Principle 2 – Tenure and use rights and responsibilities.
Principle 3 – Indigenous people's rights.
Principle 4 – Community relations and workers' rights.
Principle 5 – Benefits from the forest.
Principle 6 – Environmental impact.
Principle 7 – Management plan.
Principle 8 – Monitoring and assessment.
Principle 9 – Maintenance of high conservation value forests.
Principle 10 – Plantations (footnote[2]).

Footnote[2]
According to Menne (2004), the FSC is currently engaging in a process to review their highly controversial principle 10. Up till now this badly conceived principle has allowed consumers of wood products internationally to believe that they were paying a premium to ensure that the wood they were buying was the product of a forest managed "sustainably" or more recently only "responsibly" so as to safeguard forest biodiversity and indigenous community rights, when nothing could have been further from the truth.
As a result a National Initiative for South Africa to establish national standards for FSC forest certification has been launched. In terms of the new set of National Standards to be developed for South Africa, and the revised FSC principle 10, it should no longer be possible for industrial timber plantations to be falsely certified as forests.

The certification process assesses activities and documentation against these principles. The assessment also controls company policy against any national standards and subsequently activities against such policy and standards.

Where there is consistent non-conformance in any particular field, a "major" Corrective Action Requirement (CAR), will be raised and the organisation cannot be certified until such has been complied with. For lesser non-conformances, a "minor" CAR can be raised and the organisation has to submit an action plan, detailing how they intend addressing the issue. This specifically is followed up, during annual surveillance visits and, where sufficient progress cannot be shown, such a minor CAR can be upgraded to a major CAR, and unless satisfactory progress is achieved within a time frame set by the assessor, certification can be suspended or cancelled. *A major reassessment is undertaken every 5 years.*

- Developing the ISO 14001 EMS:

SAFCOL already had a full compliment of *policies and operating procedures* for all its plantation activities at the time the EMS was initiated. It was decided to incorporate all of these into *the ISO procedures* and the objectives were:

- To enforce and promote the idea that environmental management is an integrated part of all activities and not something separate;
- To standardise operating procedures throughout the operations;
- To prevent accumulation of documents; and
- To introduce proper document management throughout.

The integration of existing operating procedures into the EMS proved to be the correct decision, the only disadvantage being the fact that the process of developing procedures *takes substantially longer.* Principle 7 of the FSC principles requires that the organisation implements an environmental management system, although it is not prescriptive in terms of what kind of system is to be implemented, but obviously requires a system that provides for full control of environmental impacts. As a result an ISO 14001 based system was developed, which had to take cognisance of the FSC requirements and incorporate existing operational procedures. The development of SAFCOL'S environmental policy and its associated objectives and targets, developed as part of the ISO based EMS were continuously tested against the requirements of the FSC standards. The two systems concurred, the integrated system being considered a hybrid.

A comparison of the two standards follows, in view of the fact that sector specific standards were not included in the comparison of standards in Chapter 4. It is however important to bear in mind the fact that the two standards fulfil a different role and that ultimately a "hybridised" type of system as already referred to, appears most appropriate.

7.5.5 ISO 14001 and FSC Comparison

The table below demonstrates the basic differences between the ISO 14001 and the FSC standards. These differences are based upon discussions and observations made during this case study and are thus not official in nature.

Table 5: A Comparison between ISO 14001 and FSC standards

FSC	ISO 14001
Performance And Compliance Based	**Compliance Based**
Prescriptive. The external auditors set criteria. An attempt is made to harmonise globally based criteria with that of the country in question.	Procedural and Systems based.
The criteria must reflect economic, ecological and social (triple bottom line) aspects.	The criteria are decided upon by the organisation in question and need not incorporate all three aspects, but are rather decided upon through the objectives and targets.
Objectives and targets are decided upon according to the criteria.	Objectives and targets are decided upon by the organisation in question.
The area to be audited is decided upon by the external auditor. The area must be representative of the operation of the entire organisation.	The area to be audited and the associated boundaries are decided upon by the organisation.
The area to be audited frequently extends beyond the operational boundaries, because of the dynamics of socio-economic requirements and associated criteria.	The area to be audited seldom extends beyond the plant boundary, unless otherwise specified.
The frequency of the auditing is prescribed; both an internal and an external audit must take place annually.	The frequency of auditing is not prescribed and can be decided upon by the organisation
FSC tracks chain of custody that is the product life cycle, from raw material to manufactured material.	ISO can be expanded to include a product life cycle; it does not automatically include a chain of custody.
The sub contractors and the contractors are included in the tracking of the chain of custody.	ISO can be expanded to include the sub-contractors and contractors; it need not do so and in fact seldom extends beyond the boundaries defined within the organisation.
Standard incorporates a logo (eco labelling).	Separate ISO standard for eco-labelling.
The main purpose of this standard is to guarantee that the product is produced according to the prescribed criteria	The main purpose of this standard is to certify the organisation and not the products produced.
In meeting the prescribed criteria, continual improvement of the organisation's system is not prescribed.	A commitment to "continual improvement".
Principle 7 of the FSC refers to the need for Environmental Management Systems which results in some organisations running both ISO 14001 (systems based) and the FSC (product based) concurrently). This is evident from case studies referred to later.	

7.5.6 Observations and Deductions

Despite the fact that the two systems concurred, a number of challenges were present, such as the incorporation of certain elements of the FSC, which are considered more stringent than that of the ISO 14001 based EMS. The EMS thus had to be customised to incorporate these elements, some of which proved fairly challenging because of their dynamic socio-economic nature, as reflected below:

- As already noted, the integration of the two systems and the incorporation of existing operational procedures is a time consuming process.

- The FSC process requires maximum transparency and in terms of this, SAFCOL subjected its Environmental Policy to public scrutiny (Marais, 1999:7).

- Another aspect of particular importance referred to by Marais (1999:7) is the fact that with the FSC addressing the total environment, SAFCOL had to include this element in its EMS and thus included the socio-economic environment.

- Because the social environment is extremely difficult to define, the boundaries were extended beyond the so-called "battery" or operational area. For the most part the "defined area" was outside the physical boundaries of the organisation's operations. *The first issue to deal with is just how far beyond those physical boundaries to address issues.*

- It was found to be almost impossible to quantify social impacts, both in terms of significance and the aspects that are responsible for the impacts.

- In addition to the socio-economic aspects, other challenges referred to by Marais (1999:9), included "gray areas" where national standards apparently do not exist or are controversial. The forestry industry is currently addressing these with the co-operation of both governmental and non-governmental organisations.

- As regards monitoring, it was found that certain data is lacking. SAFCOL will most likely be left to both develop and implement such monitoring programmes. The EMS allows for this flexibility and is also ready to accommodate these requirements.

- The need for capacity must be taken into account, as in this instance the project leader was not relieved of other duties and associated responsibilities, which made successful implementation very difficult.

- The observation was made that there is a need for a local certification body, as at that stage, there was no local organization accredited to do forest certification, which resulted in high certification costs. Since this report (Marais, 1999), it has been established that a local FSC certification body now exists.

Deductions included those of a positive nature, such as the fact that:

- Certification has provided SAFCOL with access to environmentally sensitive markets.

- The EMS was found to be sufficiently flexible to allow for the development and inclusion of requirements such as a monitoring programme.

7.5.7 Summary

SAFCOL in effect undertook to integrate three management systems, namely their existing management system, ISO 14001 and FSC, with FSC certification being attained and ISO certification being intended. Perhaps of most significance in the application of dual certification systems (standards) and the fact that the two standards (ISO 14001 and FSC) have a different role and purpose although both are essentially market driven. The ISO 14001 standard provides a "systems guarantee" and the FSC standard provides a product or "outcome guarantees", as ISO cannot be placed on product-labels, which is important to the consumer buying a certified product (Marais, 2002)[a]. As stated by Marisa, the ISO 14001 EMS provides for significant assistance in the maintenance of such certification (FSC) whilst it also puts SAFCOL firmly on the road to the elusive sustainable use of natural resources though proper management of its operations.

Together, they fulfil the business and operational requirements of the company, whilst at the same time ensuring a move toward sustainable development (Marais, 2002)[a]. Thus it is evident that an ISO based EMS can be customised and hybridised to accommodate the requirements of other standards which are *sector specific,* thus demonstrating itself to be both robust and flexible.

Postscript:
SAFCOL's intention at the time was that the process would not stop there and that as a result of goal posts continuously being moved, it would require the company to stay ahead of the pack in terms of best practices and continual improvement.

In subsequent correspondence with Marais (2002)[b] it was noted that SAFCOL has since privatised and is now known as Komatiland Forests (KLF), and is not ISO 14001 certified, as originally intended. The first phase of the audit was

undertaken for ISO 14001 certification, where after the process was suspended, due to the "whole privatising business".

7.6 SASOL: APPLICATION OF EMS

7.6.1 Introduction

Founded in 1950, SASOL today employs over 26 000 people. The SASOL group of companies comprises diversified fuel, chemical and related manufacturing and marketing operations, complemented by interests in technology development, engineering and project management. SASOL also has extensive interests in oil and gas exploration and production, in crude oil refining and in marketing of liquid and gaseous fuels. Committed to an expanding globalisation programme, SASOL has growing interests in Europe, Asia, Australia, Africa and the Americas.

From the above it is evident that SASOL's main driver in striving toward sound environmental management practices is market related and as a result of increasing pressure brought to bear through globalisation. SASOL is continuing to expand, much of which is internationally. What follows is some background as to the development of the current environmental management system within SASOL.

7.6.2 Background

According to the Safety, Health and Environment (SHE) report, it is stated that, "a milestone in SASOL's pursuit of achieving business excellence was the establishment of the SASOL Safety, Health and Environmental (SHE) Centre. The SHE Centre's vision and mission is to strengthen and better co-ordinate the Group's resources in safety, health and environmental management. Thus the overriding objective of the SHE Centre is to provide guidance, knowledge, support and risk management on safety, health and environmental issues (SASOL, 2000:19).

To give meaningful expression to SASOL's vision of managing all safety, health, environmental and related risks and social impacts, the Group continues to strive for *implementation of environmental management systems based on the ISO 14001 standard and in the medium to long term to proceed towards a more formal,* integrated safety, health, environmental, risk and quality (SHERQ) management system with a view to improving cost-effectiveness and sustainability (SASOL, 2000:22). The basis of SASOL's envisaged SHERQ strategy is encapsulated in 11 guidelines formulated for SHE policy implementation (SASOL, 2000:19). These being as follows:

- Commitment and leadership

- Organisation
- Accountability
- Management systems and standards (such as ISO 14001)
- Risk management (ensure that potential and actual safety, health and environmental risks are assessed as early as is practicable possible.
- Legislative compliance
- Training
- Safety, health and environmental aspects
- Continual improvement
- Monitoring, auditing, self-assessment and reviewing
- Reporting and communication

7.6.3 Development and Implementation of the EMS

The existing environmental policy provides the framework for organising, managing and reviewing all safety, health and environmental (SHE) issues and responsibilities at a corporate level and for all business operations worldwide (SASOL, 2000:26).

According to SASOL (2000:55), ISO 14001 certification is not achieved in 80% of business units, however more than 90% of site primary impacts are already managed using ISO 14001 principles and more certification is targeted for 2001. The long-term objective of SASOL operating and business divisions is to integrate the safety, health, environmental risk and quality (SHERQ) management systems into a custom-made system for a particular business and to then ensure that it is certified in terms of the applicable ISO standards (SASOL, 2000:28).

The environmental management systems as referred to, are thus based upon the ISO 14001 standard and in the medium to long term will proceed towards a more formal, integrated safety, health, environmental, risk and quality (SHERQ) management system. Other standards such as Responsible Care are incorporated in this system and various initiatives have been launched to entrench the Responsible Care ethic into risk management activities. The objective is to control and improve the safety, health and environmental (SHE) aspects *of SASOL's products throughout their life cycle* in an affordable and responsible way, taking cognisance of the associated environmental risks. As regards integrated Environmental Management Systems, with few exceptions, certified IEMS's do not exist. The primary reason being that Safety management favours the application of NOSA (National Occupational Safety Association) five-star awards and the more sought after NOSCAR (SASOL, 2000:27). According to Baloyi (2001), this may be regarded as the primary obstacle in developing IEMS.

The two exceptions with regard to certification, being one small business unit, which attained IEMS certification and the other at Secunda (which whilst still operating according to NOSCA), is developing the structures of OSHAS, so as to ensure a truly integrated system. The undertaking has been made to ensure that SASOL Secunda achieves integration. In subsequent discussions with Nel (2001)[b], it was noted that the larger organisations (including SASOL) are now adopting OSHAS 18000, so as to expedite the development of an IEMS

The chronological development of the ISO 14001 based EMS and the link with the SHEQ systems can briefly be described as follows:

- Development of SHEQ systems, developed with Safety Management Systems in the forefront in the 1950s;
- Safety was initially driven by NOSA;
- EMS emerged in the late 1980's;
- SASOL (SHE) corporate policy, 1999;
- Currently integration of systems (IEMS) is generally low and
- Striving toward certified IEMS (Baloyi, 2001).

The following goals have been set for the future and include short, medium and long term goals (SASOL, 2000:101).

Short Term Goals Includes:

- To develop a company-specific template for reporting in accordance with the Global Reporting Initiative's GRI Sustainability Reporting Guidelines and to establish accurate data management systems and databases to measure performance and to facilitate reporting.

- To adopt SASOL public participation guideline for the facilitation of improved communication with stakeholders.

Medium Term Priorities (3 – 5 Yrs) Includes:

- To develop an integrated SHE risk management system
- To improve data quantification and accuracy on VOCs and CO_2 emissions.

Long Term Priorities (5 Yrs+) Includes:

- To conduct life cycle assessments on key SASOL products.
- To integrate joint ventures and acquisitions to comply with the SASOL guidelines

7.6.4 Current Management System

As yet an IEMS cannot be adopted throughout SASOL as a practical option. Reference is made instead to the current management system and the

components thereof. The current management system consists of the following components:

- Policy;
- Commissioning documentation;
- Partnership; and
- BD&I model;

SASOL Technology consists of 21 business units, which have been certified. It is responsible for the development and refinement of both the BD&I model and Management System currently in use in SASOL. With the ongoing expansion of SASOL, both nationally and abroad, this system is already operational in a number of overseas countries (Rivas, 2002).

Of the aforementioned, only the BD&I model will be enumerated upon, as to a large extent it is also linked to the other components. The BD&I Model may be considered to be both an integral and significant component of the Management System. It was developed approximately ten years ago and the refinement thereof is ongoing, so as to ensure that best practices are incorporated on an ongoing basis, through a process of continual improvement (de Bruin, 2003).

7.6.5 The Business Development and Implementation Model (BD&I)

The BD&I model is a collection of best practices and includes a systematic approach for the development and implementation of new business opportunities. The execution methodology is based on the traditional "stage gate" process associated with project life cycles. The phases including pre-feasibility, feasibility, basic development, execution, start up, evaluation and operation. The objective of the model is to improve decision-making and provide a master plan for businesses and project visualisation. The BD&I model is thus geared toward project development and implementation, an important component of any corporate EMS. A key feature of the BD&I model is that it facilitates alignment between business/operational issues and project/technical issues ensuring that the right actions are executed at the right time (SASOL, 2001:2)[a].

Thus the BD&I Model provides a consistent master plan for the execution of all projects, indicating project phases, objectives, main deliverables and key gate criteria. The key gate criteria, being associated with "deliverables" and "control or forcing measures" which must be in place prior to proceeding further with the implementation of the project. Whilst the concept of "forcing measures" is not a new one, it is an important concept, which has been successfully incorporated into a model and refined and updated over time.

Another feature of the BD&I is the fact that it incorporates various "tracks", which are followed by different users, "Business/Operational, "Engineering" or "Project

Management. Each track has different deliverables and associated "stage gate criteria" which enables the "tracker" to follow and integrate with the other associated required deliverables, timeously (SASOL, 2001:7)[a].

In the design of the model, provision has been made for "criteria" for passing through each gate. This is a quality check to ascertain whether the work done meets the objectives set for the specific phase and to determine risks associated with the further development of the project and proposed recommendations to mitigate these risks. The BD&I model thus follows a generic phase-gate process, which can also be described as a Plan-Do-Review (PDR) process. This process is repeated for each phase. This underlying philosophy is not dissimilar to that associated with the ISO standards, namely plan-do-check-act (SASOL, 2001:10)[a].

The use of other standards, such as Responsible Care by certain business units within SASOL has already ensured a move toward product stewardship. Other augmentary tools include those, which pertain to reporting requirements and access to information, such as the Global Reporting Initiative (GRI), referred to as one of the short-term goals. Other tools, referred to include those, which are risk and liability based. In striving toward the ultimate goal of an IEMS, use is made of software programmes, such as ISOTOP and SAP EHS Module. The choice here is a paperless implementation of an IEMS.

7.6.6 Summary

In general it can be stated that SASOL is a vast organisation, the drivers for sound environmental management practices, being based upon clear market related requirements. Whilst the progress made in developing an appropriate EMS is evident, clearly within such a large organisation, a number of shortcomings exist and include the following.

- Because of the vast nature of the organisation, some business units lag behind whilst others have moved well beyond the conventional realms of an EMS towards product stewardship. In striving to attain this goal, concerns included the need for data on specific indicators and an associated databank.
- The problems associated with an IEMS have already been referred to and in subsequent discussions (as noted); it appears that an Integrated Environmental Management System will receive far more attention in future. The OSHAS standard will thus be adopted, overcoming integration problems associated with NOSA. The driver for this decision being as a result of pressure associated with global market trends.

It is evident that there are a number of important forces driving companies such as SASOL to improve their SHEQ performance, which includes the following:

- Emerging international standards;
- Increasing potential liabilities;
- Changing legal requirements;
- More demanding stakeholders;
- Heightened pressure on profitability; and
- Changing basis of competition.

As a result, an increasing number of business units should be seen to be developing an appropriate IEMS, within an appropriate Corporate Management system.

The progression is clearly demonstrated in Figure 8 (referred to in Chapter 6), which according to Dr. M. Rose (2003), was developed by Frikkie Botha of SASOL on behalf of the Akzo Nobel Company in the Netherlands.

7.7 DWAF: APPLICATION OF EMS WITHIN FORESTRY

7.7.1 Introduction and Background

After the achievement of democracy in South Africa in April 1994, South Africa started developing *a forestry policy that embraced the Rio principles* and provided for the reconstruction of the forestry sector in South Africa. This policy, which gave rise to a White Paper on Sustainable Forest Development culminated in 1998 in the passing of South Africa's National Forest Act. It is *consistent with the Rio principles* on forests, in that it seeks to:

- Promote the sustainable management and development of forestry for the benefit of all.
- Create conditions necessary to restructure forestry in State forests.
- Provide special measures for the protection of certain forests and trees.
- Promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes.
- Promote community forestry.
- Promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

According to Peter (2002), in order to achieve these objectives and more especially to promote the greater participation by persons disadvantaged by unfair discrimination, the Department of Water Affairs and Forestry, South Africa, developed Participatory Forest Management (PFM) as best practice. This form of joint or co-management draws on international models and is already well developed and at least partially implemented throughout the State managed forests in South Africa.

7.7.2 Existing Management System for South African Forests

Prior to the change in Constitution (1994), South African had a history of developing sophisticated scientific models to ensure that there was a minimum deviation from the natural turnover rates, age-class disintegration and species composition of the forests in which harvesting takes place. These models formed the basis for the design of management systems, for the sustainable utilisation of parts of the country's indigenous forests for timber and some non-timber forest products. These models are applied in the forests of the Southern Cape, where harvesting of timber is permitted in a quarter of the total area of the region's forests and where the only notable volumes of timber and ferns from South African indigenous forests are harvested.

The yield regulation system used in the identification of suitable trees for harvesting enjoys recognition in the international scientific community, as being among the best systems in the world for tropical and sub-tropical forest. Such models required for sustainable yield determination in multi-age, multi-species forests are very complex and can only be developed over many years of research and monitoring of the ecosystem.

The harvesting and extraction techniques needed to ensure minimum possible disturbance and the removal of only single trees from different sites in the forest, are in turn, both sophisticated and costly (Peter, 2002).

7.7.3 FSC Certification

According to Peter (2002) as a result of these achievements in the development of and implementation of yield regulation systems and a participatory approach to forest management, the Department of Water Affairs and Forestry is pursuing certification from the Forestry Stewardship Council (FSC), for its management of the indigenous forests of the Southern Cape.

It is stated that aside from the obvious benefit that FSC certification offers as *a monitoring tool*, the certification of the forests offers many other potential benefits. These would include further access to foreign markets for forest-based products and enterprise from these forests. Despite the low volumes that are harvested, this "opening up" of markets in developed countries for products from these forests, holds potential for the local and regional economy, which is already well established on forest based enterprise, most notably high quality furniture production and eco-tourism.

It was further stated by Peter (2002), hat should DWAF: Forestry succeed in obtaining FSC Certification, this will present a further step in demonstrating its commitment to the Statement of Forest Principles and serve as a shining

example of a developing African country, which is a world leader in sustainable forest management.

This has indeed been demonstrated as in a communication with Lucas (2003), the Area Manager (DWAF: Southern Cape), where reference was made to the fact that FSC certification for the Knysna and Tsitsikamma forests was attained in December 2002, an area comprising 36 000 ha of indigenous forest and 5 000 ha of "Fynbos".

7.7.4 Methodology and Proposed Implementation of the FSC based EMS

The certification process is initiated through pre-assessments. DWAF Forestry selected SGS from Oxford in the United Kingdom to undertake the pre-assessments. The pre assessment recommended by the *Societe Generale de Surveillance* (SCC), resulted in a Corrective Action Requirement (CAR), which has the least number of findings for any forest in South Africa.

The audit (to retain certification), took place from 12 to 14 May 2003. Only one minor corrective action request (CAR) was opened with 6 observations, in comparison with the previous year's 6 minor CAR's and 15 observations. The auditor indicated that this is an outstanding performance and so far the best in South Africa, compared to all the other certifications audited by them (Lucas, 2003).

In a media release (dated 21 May 2003), reference is made to the fact that the Knysna and Tsitsikamma forests are one of two forest areas that have been certified in Africa. The Southern Cape (Knysna) and Tsitsikamma Indigenous Forests, managed by DWAF are the only FSC certified Indigenous Forests in South Africa – thus confirming the Department's commitment to sustainable forest management (Lucas, 2003).

7.7.5 Summary

Whilst there are numerous market related benefits, as a result of certification (which gives rise to international recognition for the systems of timber and non-timber harvested from forest products), the main driver is compliance related, in that DWAF wishes to give effect to the provisions of the National Forests Act, 1988 (Act No 84 of 1998), which seeks to promote greater participation in forestry and the forest products industry, by previously disadvantaged people and other local stakeholders. As a result DWAF has been devolving the management of forests (state owned land) through a process of decentralization.

As part of this process it is anticipated that other forests within the ambit of DWAF regulation will follow FSC principles and that any sale of state forests, will make provision for a condition, which will include abidance to FSC principles.

In commenting on how the certification became a reality, it was stated by Lucas (2003), that certification would not have been possible without the Participatory Forest Management Approach (PFMA), developed and implemented by DWAF throughout the country.

This demonstrates that existing initiatives can facilitate and act as a "hook on" for certification.

7.8 DWAF: WATER QUALITY MANAGEMENT: PERFORMANCE ASSESSMENT SYSTEM

7.8.1 Introduction

In January 2001, a workshop on environmental management systems, was presented by DWAF, Directorate: Social and Ecological Services (known subsequent to restructuring, as the Sub directorate: Environment and Recreation), at which the guest speakers were Jean Bilodeau (Canadian Ministry) and Professor Johan Nel (Centre for Environmental Excellence, from the Potchefstroom University (PU for CHE), (Bilodeau, 2001)[a] and (Nel, 2001)[c].

Representatives from various directorates attended, including the Directorate: Water Quality Management and as a result the idea of developing and applying some sort of EMS for their Directorate was "born". In due course, Professor Johan Nel was appointed as the main consultant for the development of a phased ISO 14001 based Management System, specifically for the Directorate: Water Quality Management. The project was initiated during March 2002, with project closure anticipated in August 2004.

7.8.2 Development and Implementation of the ISO 14001 based EMS (Performance Assessment System)

A DWAF region, namely Gauteng was decided upon for the pilot study. The management system decided upon is business process orientated, but based upon ISO 14001 philosophy with a phased approach and a pilot study (Gauteng region) as already referred to. In as much as the key to developing such a management system depends upon identification of key business processes and associated critical activities, the following points are important:

- A business process is a collection of activities (tasks) that takes one or more kinds of input and creates an output that is of value to the end user.
- Thus a series of activities (tasks), combined make a business process.

➢ <u>Phase 1 Of The Management System Approach Includes The Following</u>:

- An initial review and planning procedure (IR & P).

- Identification of key business processes and significant business sub-processes.
- Identification of critical activities.
- Identification of critical WQM issues through using legal register and other registers.

➢ Future Phases Will Include The Following:

- Legal review;
- Identification of aspects/critical control points;
- Generation of objectives and targets;
- Review of aspects, objectives and targets;
- Formulation of roles, responsibilities and authorities;
- Generation of a management plan;
- Finalisation of a management plan;
- Generation of an Initial Review (IR) document; and
- Review of the IR document and registers.

This project is on track, with the envisaged implementation date being May 2004. As a result of restructuring the management system now resides under Planning, and is now termed a Management System for Water Quality Management (Moodley and van Wyk, 2004).

7.8.3 Summary

Within the Department, the then Directorate: Water Quality Management may be considered proactive in developing the management system in question. Subsequent to restructuring, the implementation thereof during 2004 will be ongoing, as the functions of the Department remain unchanged.

This system is regarded as a performance based management system, the purpose of which is to improve efficiency of the functions pertaining to the Directorate, in question. As a result the system is not regarded as a true EMS, although it is based upon ISO 14001 principles and philosophy. It may however be considered to be a useful type of forerunner, within the Department, as the findings and "lessons learnt" from this system will prove beneficial in developing an overarching EMS for the water sector of DWAF and ultimately for DWAF in its entirety. It is important to note that the management system was developed for a specific business unit within the Department, and does not represent a generic type of overarching EMS. As a result it will not be included in the table, which follows.

This case study was however included, in that although it cannot strictly be regarded as an EMS, this system follows a business process approach, similar to that of some IEMS's. Furthermore, this management system takes into consideration a number of trends which are emerging globally, such as the

increasing emphasis upon risk and liability, a business activity based approach and the increasing emphasis upon performance based systems, thus enabling the measurement of performance over time. As a result, this management system will prove invaluable to DWAF as a pilot study, in the development of an appropriate (and ultimately) an overarching EMS.

TABLE 6: COMPARISON OF NATIONAL CASE STUDIES REGARDING APPLICATION OF EMSs

	CMC	ETHIKWINI DURBAN UNICITY	ESKOM	SANDF	SAFCOL	SASOL
POLICY & STRATEGY	Formulation of environmental management policy in line with mandate to ensure compliance with integrated metropolitan environmental management strategy. EMS a tool to implement policy. Policy interpretation from corporate into policy for each line function.	The Durban Metropolitan Environmental Policy Initiative (DMEPI) initiated in 1988, as part of Agenda 21 – which led to the development of an Environmental Management Policy for Durban. Phase Two of the DMEPI had two distinct focus areas, one being to assess feasibility of establishing an EMS for the Durban/ eThikwini Municipality.	Integrated with existing management system policy.	Implementation of EMS through Level 2 MTF policy.	SAFCOLS – environmental policy tested against FSC standards, as a result of certain elements being more stringent than ISO 14001.	Development of SHE corporate policy.
AUGMENTARY TOOLS			Includes software to update legislation and software to facilitate a trend analysis for environmental performance. Development of environmental indicators.			Includes software, ISOTOP IT and SAPEMS. Also an emphasis on risk-based assessment tools.
REPORTING & AUDITING (Public involvement)	Unique feature SoE report, formulate EM policy.	The system is to be maintained optimally so as to provide feedback and	Includes a Complaints register and awarding of penalties if non-conformance is		In accordance with more stringent FSC standard. Requires transparency	SASOL follows the GRI (Global Reporting Initiative).

	CMC	ETHIKWINI DURBAN UNICITY	ESKOM	SANDF	SAFCOL	SASOL
		continual assessment and review. In "operationalisin g" the SMS, the results of any audit must feed into the strategic planning processes.	not reported. This is related to performance bonuses of ESKOM managers.		and public scrutiny. Period of auditing specified.	
TYPE OF EMS	ISO 14001 Principles, not for certification.	A hybrid system which integrates ISO 14001 requirements into a sustainable development strategy. Thus an ISO 14001 based system is tailored to meet the requirements of a sustainable management system (SMS).	ISO 14001 as the basis.	ISO 14001 principles, not for certification and not pure ISO 14001 Application.	SAFCOL ISO 14001 as vehicle for integration with other standards and their requirements, such as FSC. The system developed is considered to be a hybrid ISO 14001 based system which integrates the requirements of the current management system, ISO 14001 and the FSC.	ISO 14001 as the basis.
METHOD-OLOGY	CME integrate into existing management system. Development of generic system for "copy-paste" application. Use of pilot studies. Indicate milestones.	The requirements of Local Agenda 21, Integrated Development Planning (IDP) and the ISO 14001 standard are integrated into the proposed system. The SMS will not exist as a distinct system, but rather as an integrated system. The system is integrally linked to the planning framework and review cycles of the Unicity.	Integrate into existing EMS.	Integrate into every day management. Development of pilot study and certification for generic and simultaneous application throughout SAAF, not a phased approach. Application ISO14001 principles.	Integrate existing EMS and FSC system with management system. Thus integrate 3 management systems.	Apply to business units, with defined boundaries. Integrate into SHE now SHERQ corporate policy.
IEMS	Some move toward integration especially with audits.	No formalised system. Implementation of Sustainability criteria may result in some	The current system may be regarded as a type of IEMS, as it co-ordinates and	Aim in future for closer integration between ISO 14001 and ISO 9000.	SHE, but not yet IEMS.	SHERQ – some move towards interfacing, but still separate.

	CMC	ETHIKWINI DURBAN UNICITY	ESKOM	SANDF	SAFCOL	SASOL
		integration.	integrates the various SHERQ systems.			
BEYOND EMS (ISO 14001)	N/A	In theory a very advanced EMS, which can qualify as an SMS.	Move beyond scope of ISO 14001, by integrating and incorporating other SHERQ systems. Use is made of more stringent reporting requirements such as (GRI) and auditing principles (King II).		Abidance to certain components of FSC, which are more stringent than ISO 14001.	Depends upon business unit in question. Some moving towards product-stewardship & sustainability assessment.
PROBLEMS	Capacity and "Add on" to existing job description. Application – if too euro centric not always successful. Application of NOSA – could be problematic for IEMS. Procedure versus substantive.	The capacity of the EMB (section) whose mandate it is to implement the SMS) has been severely eroded. Furthermore the service unit responsible for "championing" the SMS, as a result of restructuring is not "pitched" at a sufficiently strategic level to be influential in this regard.	The current dual systems regarding NOSA and OSHAS were initially problematic for IEMS. No longer problematic. Mention made of grey areas in legislation. Data lacking, need for development of environmental indicators.	Problems are experienced in communicatio n between Executive Management (budget) and Strategic management (implement). Many regard the unphased approach as being potentially problematic.	Capacity and "champion" required. Cost a factor, especially as regards audits and foreign expertise as requirement for FSC.	In move toward integration, the use of OSHAS in some business units and NOSA in others remains highly contentious.
COMMENTS	Focus on performance across line-function – not the actual system or certification procedure. "Home-grown" expertise versus consultants.	The potential strength of the system rests with the four cornerstones, namely monitoring and auditing, data, training and the use of sustainability indicators. Thus a performance based component. In addition to this the integration of the system with other legislative requirements (such as the IDP) and	The use of the GRI and King II reporting requirements for incorporation into the system should facilitate a move toward an SMS. The reference to a shift in focus (integration of existing systems) - as opposed to a whole "new system" is heartening. Reference was	The extent of application of ISO 14001 principles may differ from line function to line function and should be determined so as to ascertain effectiveness and credibility of EMS. The TFDC is one of the few (if not the only department) so far		Use of wedges and forcing measures, so as to ensure that business unit does not regress in application of sound environmental management principles.

	CMC	ETHIKWINI DURBAN UNICITY	ESKOM	SANDF	SAFCOL	SASOL
		incorporation into planning cycles is admirable. The problems (as reflected above) rest with the operationalisation thereof.	made to "risk" and "key risk areas" as a driver.	advanced with a type of overarching EMS, which is also market driven, as opposed purely service related.		

8

A PROPOSED ENVIRONMENTAL MANAGEMENT SYSTEM FOR DWAF

8.1 SECTION 1: INTRODUCTION

Shortcomings were reflected in Chapter 5, as identified by various authors, from the literary research. The application of EMSs by various organisations, were reflected in the case studies in chapters 6 and 7. The purpose of this chapter is to make deductions and observations regarding apparent trends in the application of EMSs from a review of these case studies. These deductions are reflected in the first section of this chapter, which assisted in the development of a proposed EMS for DWAF, the elements of which are elaborated upon in the second section of this chapter.

From the literary research conducted, and in response to the objectives cited, it is apparent that an EMS would be beneficial for DWAF, as a representative of the South African public sector. An EMS may well be regarded as a necessity in facilitating compliance with legislation, as reflected in the following deductions.

8.1.1 The Primary Drivers for an EMS

The main drivers prompting the application of an EMS by the South Africa public sector is compliance driven, as opposed to the traditional market related forces generally associated with an EMS. A number of case studies demonstrated that potential market forces exist, even within the South African public sector (as demonstrated by the SANDF case study), although to a lesser extent. Within South Africa, the development of increasingly stringent legislation, which influences environmental management, is ongoing.

The indication is that as a result of legislative requirements alone, the South Africa public service sector, like their international counterparts, will "have no choice" (as referred to in the Canadian case study), but be forced to develop and implement an EMS and (like the American federal agencies) be driven to acquire the necessary knowledge, in this regard.

Compliance with legislation as a driver must be viewed not only within the context of national legislation but also in terms of international legislation. The primary example in this regard, is Agenda 21 (considered the blueprint for sustainable development), of which South Africa is a signatory. Having established the main driver for applying an EMS within the public sector and the associated benefits in this regard, the purpose of this study was to compare various EMSs and to give an indication as to an appropriate system for DWAF.

8.1.2 Comparison of EMSs

In comparing the better known environmental management standards, reference included those, which have since been superseded by ISO 14001, the most prevalent and widely applied standard, today. The indication is that whilst certain

standards such as the EMAS may be regarded as more stringent than ISO 14001, the general sentiment is that the differences between the respective (and better known) standards is minimal in that their underlying philosophy and associated elements are largely similar. It is generally concluded that ISO 14001 is the most widely applied and the most "accessible" standard "both sides of the Atlantic" (NATO-CCMS, 2000:8). It is thus best suited for the application of an environmental management system. This is particularly valid in the case of South Africa, where few EMS standards other than ISO 14001 are applied – the exception being certain sector specific standards, such as the FSC, usually applied in conjunction with ISO 14001 as dual standards.

Despite the fact that ISO 14001 remains the most widely adopted standard, certain countries such as America have indicated that no particular environmental management system is officially endorsed, whilst other countries base their EMS upon simplified ISO 14001 principles, or utilise a dual certification system, at times resulting in a hybridised type of ISO 14001 based EMS.

Where these dual standards are applied as in the case of SAFCOL, the two respective standards (in this instance, ISO 14001 and FSC) have a different role, purpose and outcomes guarantee. As stated in the SAFCOL case study, ISO 14001 provides a systems guarantee, whilst the FSC provides a product or outcomes-based guarantee. Together they fulfil the business and operational requirements of a company whilst at the same time ensuring a move toward "sustainable development". The case studies reviewed in this regard included examples from Canada, Sweden, the Netherlands and South Africa (SAFCOL). Reference was made to SAFCOL, which proposed a hybridised ISO 14001 system, which in effect would integrate three management sytems, namely the organisation's existing management system, the FSC and ISO 14001 systems. An ISO 14001 based EMS is to form the overarching system. Of particular interest is the fact that reference is made to Principle 7 of the FSC, which makes provision for an environmental management system, which it was decided would be ISO 14001 based.

A similar proposal is recommended for DWAF, which currently makes use of FSC principles for the forestry component. Given the high costs associated with certification of standards, it is proposed that DWAF initially only attain FSC certification, whilst operating an ISO 14001 system as the overarching EMS, with the option to later implement dual standard certification. Intermediate certification can be attained through the proposed DEAT/OAG model, which was elaborated upon in Chapter 3, EMS the Theory: Drivers for the development of EMS in South Africa with particular reference to the Public Sector.

8.1.3 Progression of an Environmental Management System

Having established both the need and the type of standard regarded as most appropriate for the application of an EMS, it was evident from the literary research that a number of shortcomings are associated with an ISO 14001 based EMS. A conventional ISO 14001 based EMS will thus fail to meet the requirements of the perceived criteria for sustainable development. It was however also evident from the literary research that such a system can be customised and tailored to overcome these shortcomings. In fact it was evident from the study that an ISO 14001 based EMS has the potential (in theory) to evolve to a point where it is considered to be a sustainable management system (SMS). The Durban / eThikwini case study being of particular relevance in this regard.

The potential for improvement of an EMS and the associated evolution thereof is depicted in the Akzo Nobel diagram, which is referred to in the SASOL case study. This "evolutionary" EMS concept was demonstrated by various international case studies, through their incorporation of elements such as product stewardship and "combizorg" (an IEMS type of EMS). The aforementioned case studies include SASOL (national) and the Netherlands (international), which demonstrated the effect of broadening the scope of a conventional EMS system and its associated policy, to develop a system, which "qualifies" as a SMS.

In tracking the ongoing evolution of an EMS as an environmental management tool, of particular interest within a South African context, is the fact that initially the application of an IEMS was fraught with difficulties when including the Health and Safety standard, NOSA, which is not compatible with either ISO 9000 or ISO 14001. Although a uniquely South African problem, NOSA has apparently been introduced to other countries such as Australia and it is assumed that similar difficulties were experienced. Larger organisations within South Africa are now adopting OSHAS so as to ensure that a suitable IEMS can be adopted in keeping with global market trends.

As regards the ongoing "evolution" of an EMS, it is encouraging to note from the case studies (particularly the Netherlands), that a country can set standards which surpasses the conventional EMS minimum requirements, resulting in their own unique interpretation of the ISO 14001 standard, which automatically includes aspects such as "combizorg" (IEMS) and "product stewardship".

8.1.4 Incorporation of EMS into the Existing Management System

The need to ensure that the EMS operates effectively at all levels of the organisation and becomes an integral part of the existing management system cannot be over emphasised. The EMS must be linked to the strategic management level if there are to be sufficient funds and resources available to implement the EMS and if there is to be effective decision-making, which prioritises the associated actions. The objectives and targets associated with these actions must be implemented as part of the organisation's Business Plan and must incorporate short, medium and long term planning.

Various case studies referred to the need for an EMS to become an integral part of the organisations business plans and strategies. The Durban/eThekwini (case study, in particular referred to the need to incorporate the EMS at a strategic level.

The need for "hook-ons" for the proposed system within the existing management system to facilitate implementation was referred to in several studies, including the Durban/eThikwini study. What also emerged is the fact that if an EMS is to succeed, it must become an integral part of the "day-to-day business", of an organisation and must not be seen as solely a "greening operation", as referred to in NATO-CCMS (2000:10).

In developing and implementing an EMS within an organisation, reference was made to the fact that in many instances various initiatives already exist which are in keeping with the principles and objectives of an EMS, but which remain largely uncoordinated or formalised, frequently resulting in a fragmented approach to sound environmental management practices. A number of these so called "initiatives" within DWAF will play a significant role in developing an appropriate EMS and implementation strategy. The opportunity exists for the utilization of existing structures and systems as "hook-ons", from which to garner information, so as to avoid unnecessary duplication or use of capacity, whilst at the same time ensuring quicker integration into the existing management system and facilitating "buy in" by management. The primary "internal hook on" identified, is the Environmental Management Framework (EMF). This as noted was developed with the specific purpose of ensuring sound environmental management practices and makes provision for the future development and application of an EMS. Thus, the EMF will in the interim continue to serve as the vehicle by which sound environmental management is practiced, until such time as the EMS has been developed to the point whereby it will become the internal overarching environmental management system.

Use will also be made of existing information and monitoring systems and information garnered from others, such as the performance system (WQMPS),

based upon ISO 14001, which included aspects such as an assessment of key risk areas associated with activities and processes, in keeping with global trends.

The pilot DEAT/OAG model will serve as an "external hook on" for incorporating the EMS into an existing framework which ensures ongoing benchmarking between government departments and report-backs to Parliament regarding environmental performance. As noted the decision to accept the model is pending by the DEAT Committee for Environment Co-ordination (CEC). The model also makes provision for "intermediate benchmarking levels" whilst striving toward a level which is considered synonymous with an ISO 14001 based EMS.

8.1.5 Counteracting the Shortcomings

In ensuring the ongoing development and progression of an EMS, it became evident from the literary research that certain trends are evolving which counteract the effects of the perceived shortcomings.

These trends include the incorporation of performance-based measures, resulting in an EMS, which is not only procedurally based (as with the traditional ISO 14001 based EMS), but also substantively based. The need to measure improvement has thus become an increasingly important prerequisite. The role of indicators (both institutional and resource based) in facilitating the measurement of performance is potentially significant, as the fulcrum of sustainable development, remains targets, which are coupled to indicators. Here the distinction must be made between institutional performance-based indicators and sustainable indicators, both of which can be positioned within an EMS. The institutional performance-based indicators are used to measure the performance of the management system; the sustainability indicators are used to manage the actual resources. For targets to be established, they need to be quantifiable (measurable). The need for fixing targets was emphasised at the 2002 Earth Summit (Hugo, 2002). The project manager (Stephan Janhager) in charge of developing the Canadian forestry standard, CSA 808, also eluded to possible changes in ISO 14001 in future, which could include a greater performance-based component (Janhager, 2002)[d]. Within a global context, this is considered highly contentious, as this would almost certainly have a detrimental impact upon the accessibility of developing countries to global markets (Nel, 2002)[b] . As a result, it is more likely that the performance-based component will be applied within a national context.

The need for a performance-based EMS was also referred to by both SAFCOL and SASOL (case studies) whom referred to the need for the development of "appropriate indicators", by which to measure performance. The general consensus of opinion being "what we measure, we manage". Whilst performance based EMSs, including those, which are developed for specific sectors, are emerging as a global trend, a note of caution was sounded by the OAG when

prioritising the development of the various components of an appropriate EMS for the public sector. The need for a robust environmental management system with secure institutional (internal controls), is regarded as being of primary importance particularly within the context of developing countries, so as to ensure against system failure. Thus, as part of the way forward for DWAF, the recommendation is that the two approaches be developed in tandem in that an ISO 14001 based EMS be developed which includes performance based measures and incorporates appropriate "internal controls", to secure the system. In developing the EMS, cognisance will be taken of trends and observed shortcomings so as to ensure that various tools can be incorporated to overcome identified shortcomings. These augmentary tools can include various environmental management tools such the Global Reporting Initiative (GRI), risk assessments, various economic tools and a whole host of other management tools.

8.1.6 Developing Countries and Application of EMSs

Having established the need, type and potential of an EMS to assist the public sector in striving towards greener governance, one major challenge remains (especially with developing countries such as South Africa), this being the lack of capacity, which is both skill and cost related. Thus certification and the associated high costs incurred in this regard, becomes a factor for developing countries. Interestingly enough, this proved a point of debate even within a developed country such as Sweden, where the potential burden upon the taxpayer and the justification thereof was questioned. Thus, it was proposed by the Swedes, that third party auditing within the government sector be dropped in favour of auditing by a designated government body.

This points to another observable global trend, namely that of the increasingly prominent role, played by the Auditor General in the auditing of state departments, which includes environmental accountability. There is also evidence of increasing legislative support in this regard, an example being the reference made in the Canadian case study to their amended and now more stringent Auditor General Act. Furthermore it was stated that an EMS would aid departmental commitment in an "improved reporting to Parliament" initiative. (Environment Canada, 2000:2.7).

Within South Africa, all national departments, provincial government departments, municipalities and other statutory entities are subject to audit by the Auditor-General in terms of section 188 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996), to be read with sections 3 and 5 of the Auditor-General Act, 1995 (Act No. 12 of 1995). Traditionally auditing pertained only to financial auditing. This is changing as the OAG is intending to conduct a legal compliance audit which in the future will include a report on the management of *environmental findings"* of all government departments (OAG, 2003)[a]. The Auditor General Act (Act No. 12 of 1995), is currently being

amended to include the term "sustainable" which by implication will ensure that provision is made for "environmental performance" *auditing* (Hamid and Heunis, 2003).

A pilot study is currently being developed whereby links are being established between the DEAT (as the mandated lead agent for the protection of the environment) and the Office of the Auditor General, in developing a model which will allow for benchmarking of state departments and their associated environmental performance against their respective EIPs and EMPs as required by NEMA, with associated report-backs to Parliament. Approval of the proposed model, as a way forward for all state departments is pending by DEAT's Council for the Environment Committee (CEC). This is regarded as an important "hook on" and will be expounded upon in the second section of this chapter.

Finally, as regards auditing it suffices to state that there are increasing expectations by various stakeholders, as was demonstrated by the American case study, where the American Environmental Protection Agency compared compliance, environmental and financial auditing as a result of these increasing expectations (EPA, 2001).

8.1.7 Summary

What is evident from this study is that in response to the drivers, the potential and opportunity exists for the development and application of a generic type of EMS, considered appropriate for state departments such as DWAF. The apparent robustness and flexibility of the ISO 14001 based EMS has the potential to evolve to a point where it may be considered a sustainable management system (SMS).

As part of the way forward, self-regulation should be encouraged and nurtured, so as to ensure that the successful implementation of an appropriate EMS is not dependent upon external auditing, alone. As a result closer links must be forged between the "business unit", the Subdirectorate: Environment and Recreation (whose mandate it is to implement the EMF and the EMS) and the internal auditor of DWAF. The department is very fortunate in having an internal framework by which to drive the process forward (namely the EMF) and in having an external model and mechanism which, not only makes provision for benchmarking of environmental performance by various government departments but also makes provision for a type of "intermediate certification" and the incorporation of a level which is synonymous with an ISO 14001 based EMS. Commitment by management should also be assured given the fact that the task of the internal auditor includes giving an account of environmental performance.

Although the development of EMSs within the public sector and in particular DWAF, may still be in its "infancy", the environment is conducive for the development thereof. The task, which lies ahead is nonetheless substantial and the implementation strategy must make provision for a phased approach, which will ensure that the proverbial "elephant" is digested in a "piecemeal" fashion.

8.2 SECTION 2: ELEMENTS OF THE PROPOSED EMS FOR DWAF

8.2.1 Background

There is a greater awareness now, than in the past, regarding the need for the public sector to move toward compliance. As a result there is a gradual progression toward such "systems", the need being to channel, co-ordinate and integrate this energy and existing initiatives so as to optimise the system and to prevent duplication of tasks.

In analysing the current situation, it suffices to state that no "overarching" departmental EMS currently exists within DWAF. Each business unit within the organisation is responsible for compliance and as a result, a number of initiatives have been developed to facilitate compliance with both national and international legislative requirements. The Sub-directorate: Environment and Recreation, is the business unit within DWAF whose mandate it is to ensure that sound environmental management practices are applied by the water sector component of the Department. It is envisaged that this mandate with time may also incorporate the forestry function. This subdirectorate is responsible for the development and implementation of the Environmental Management Framework (EMF) referred to earlier, of which Phase One has been completed. Phase Two will make provision for the development of an EMS. It is anticipated, that in the interim the EMF will be used as the vehicle by which to introduce and further establish environmental management tools (including an EMS), until such time as the EMS has developed to the extent that, it can serve as the overarching environmental management system.

As noted, within DWAF appropriate frameworks exist both internally and externally to facilitate the development and application of an EMS, both in the interim and beyond. The proposed internal framework (vehicle) being the EMF referred to earlier, and the proposed external framework is the DEAT/OAG model, which is pending approval by DEAT (Chapter 3: Drivers). The external framework will compliment the development of the proposed EMS, as the methodology includes similar elements, which includes the following:

- A risk assessment approach, based upon the functions, activities and processes associated with the department in question.
- Acknowledgement of the importance of policy and legislation and a need to assess the appropriateness in this regard.

- The strategy for implementation to include that of a phased approach, as part of the ongoing continual improvement process.
- A need to ensure effective communication between the three tiers of government.
- A need to develop a generic type of system for the public sector, which will facilitate both accountability and co-operative governance.
- The need for institutional (internal) controls as a means to secure the system and entity, prior to the incorporation of performance measures, which can be done in tandem or as a further phase.

A number of other systems and elements have been developed to facilitate compliance by DWAF. These systems can serve as "hook- ons" by which to "phase in" the proposed EMS, or alternately serve as systems from which to garner information. Those selected for further discussion are considered the most important, although the recommendations made do not reflect a comprehensive synopsis of the elements available for potential utilization, incorporation and integration with the proposed EMS.

8.2.2 Introduction

In analysing the various elements to be expounded upon, it is important to take cognisance of not only the legislative requirements, but those of restructuring and decentralisation. The importance of legislation in moulding the current DWAF management system is evident. It is stated that departmental endeavours from 1994 were dominated by the development of new policies, legislation and programmes of implementation in respect of its three legally mandated functional areas of activity, namely Water Resource Management (WRM), Water Services (WS), and Forestry (F), (RSA, 2002:2)[d].

By the end of 1998 the Department had set in place three new policies and four new laws which jointly and severally herald fundamental changes in the ways in which South Africa's water and forest resources, and the provision of water-related services will be managed and regulated. In addition to the aforementioned, the Department, in common with all other parts of South Africa's public service in all spheres of government, has been engaged in extensive institutional and organisational restructuring to meet the needs of the new South Africa. Nationally applicable policies and laws have necessitated the development of a suite of internal policies and implementation strategies to facilitate the transformation of the Department (RSA, 2002:3)[d].

Thus, not only must the Department contend with the challenges of new and more stringent legislation, but also challenges associated with restructuring and the process of decentralisation.

8.2.3 Legislation and Associated Elements of the Current Management System Considered Useful In the Development of the EMS

Cognisance must thus be taken of existing systems currently operational within the Department, which can act as "hook-ones" for integration of the EMS into the existing management system thereby minimising duplication and facilitating "buy in" and commitment from management and the managers of the respective line functions.

It is imperative that the proposed EMS becomes an integral part of the Department's current management system and associated strategic objectives. This will ensure that the risks and liabilities associated with the respective business functions and their associated activities can be prioritised as strategies, targets and objectives and can be integrated as part of the Business Plan.

Elements chosen for further discussion as "hook-ons" for the proposed EMS are as follows:

- Statutory reporting mechanisms.
- Investigation of the DEAT/OAG pilot model initiated to improve statutory reporting requirements.
- Investigation of a performance based system (WQMPS), currently being piloted by a DWAF Directorate.
- Monitoring and information systems within DWAF.
- Internal and external auditing requirements.

In the following paragraphs, reference is made to legislation (as the driver) and the associated elements, which can be used as "hook-ons" for the proposed EMS for DWAF.

8.2.4 NEMA: The CEIMP and the DEAT/OAG Pilot Study

As already noted, NEMA (No. 107 of 1988), (Chapter 3, section 11), requires that statutory reporting requirements in the form of Environmental Management Plans (EMP) and/or Environmental Implementation Plans (EIP) be gazetted by provincial and national departments every four years and that environmental performance in terms of these be reported upon annually. DWAF must prepare a Consolidated Environmental Implementation and Management plan (CEIMP), as the Department has activities and functions as a developer (hence an EMP must be prepared) and as a regulator (hence an EIP must be prepared), which impacts upon the environment. With regard to DWAF, in terms of subsection 15(2)(b) of NEMA, 1988, the Environmental Implementation and Management Plan as recommended by the Committee for Environmental Co-ordination (CEC) was gazetted and became effective from the date of publication, this being 14 December 2001 (RSA, 2001). The EIMP is reported upon annually and the second annual report was approved by DWAF's Director General on the

12 September 2003 and submitted to DEAT's CEC and their Director General. It is readily accessible via DEAT's web site, namely, www.deat.gov.za (Moeketsi, 2003).

Currently, this statutory reporting format is being revisited by DEAT who have requested the assistance of the OAG in formulating and piloting a suitable reporting model. The proposed model is being piloted by DWAF and the Department of Minerals and Energy and is referred to as the DEAT/OAG pilot model.

As noted (Chapter 3), the proposed model is based upon the Canadian Financial Management Capability Model and has been amended to include 6 levels, the highest level (level 6) being considered synonymous with an ISO 14001 based EMS, although some consider that in theory it is possible to incorporate an EMS at a "lower level". For those still striving toward certification (the vast majority of South African departments and their respective business units), this model makes provision for intermediate certification by the OAG.

According to Hamid (2003), the model advocates the use of "internal controls" to strengthen the institutional "entity," so as to prevent system failure, considered by the OAG to be the primary problem for developing countries. It is proposed that in applying this model, the first step will include the identification of risks associated with the department's business and business related activities, resulting in the development of a risk based business plan. The intention of the Auditor Generals Office is to audit the various government departments and provinces whilst at the same time empowering the respective departments to undertake internal audits and thus be more involved in the proposed model.

8.2.5 Important Characteristics of the Proposed Model derived from the Pilot Study

- The model allows for benchmarking, thus comparison and measurement of environmental performance between the respective departments and between their respective business units.
- It incorporates the use of institutional controls.
- It incorporates a risk-based approach, based upon the functions, activities and processes associated with the department in question.
- It increases accountability, as (pending approval by DEAT's CEC), the OAG will audit environmental performance using the model to report-back to Parliament.
- It promotes internal auditing.
- It allows for intermediate certification.
- It incorporates and makes provision for ISO 14001 certification.
- It promotes co-operative governance.

- It makes provision for the testing of policy and associated legislative mandates.

This model compliments the development of the proposed EMS in that it acts as a framework by which to incorporate the proposed EMS and in principle many of the elements are similar, as already referred to. This model may be regarded as the primary external "hook on" as it has been designed and piloted to ensure that provision is made for the incorporation of both "intermediate certification" of an EMS by the OAG and for certification of an ISO 14001 based EMS. This model (whilst making provision for the incorporation of an EMS), does not as yet, give guidance as to an appropriate type of EMS for the public sector. Other than reference to the fact that an EMS be based upon ISO 14001 principles and incorporate "internal controls", as identified by the Auditor General's Office.

Whilst this pilot model is regarded as the primary "external hook on", other legislative requirements and their associated systems will serve as catalysts ("drivers") in the development of an environmental management system. These include the following:

➢ Public Finance Management Act

In terms of Chapter 5 (section 38) of the Public Finance Management Act, reference is made to the fact that "effective, efficient and transparent systems of financial and risk management and internal controls" must be present within the organization in question (RSA, 1999). Compliance with the PFMA requires an annual report-back on the key risk areas. Currently this is the responsibility of the internal auditor. The Act (PFMA) also supports Corporate Governance and the associated King II report, referred to in Chapter 3. Thus, an EMS should facilitate compliance with the aforementioned legislation.

➢ The Auditor General Act

According to Hamid and Heunis (2003), this Act (as referred to in Chapter 3, EMS the Theory: Drivers for the Development of EMS in South Africa with Particular reference to the Public Sector), is currently being amended to include the term "sustainable development" which by implication will ensure that environmental performance will be included in audits undertaken in future.

➢ DWAF's Own Enabling Legislation

The Department's own legislation and in particular the NWA upholds the principles of sustainable development. The NWRS was written to give effect to the NWA and in so doing refers to the importance of developing adequate information and monitoring systems. These may be regarded as important to any

system, as data contributes to decisions made at a strategic level and the associated objectives and targets decided upon, can be attributed to the accuracy of information received and the associated trends, which emerge through monitoring. Progress regarding the development of these monitoring and information systems is demonstrated by the extract provided by Braune (2003), for (RSA, 2003:7)[a] , as follows:

"To support the devolution of Water Resource Management and Water Services, as set out in the National Water Act, 1998, the DWAF has undergone a major restructuring in both Head Office and Regions, in April 2003.

The Policy & Regulation Branch at Head Office has an information management component whose role it is to develop systems and programmes for data and information acquisition, assessment and management and to co-ordinate their implementation by the DWAF. As an initial step in this co-ordination role, a business analysis of information systems is undertaken across the whole Department to lead towards an Information Systems strategy by March 2004.

More focussed and integrated information systems should obviously also lead to more streamlined national reporting. In this regard the DWAF has also initiated a joint project with the World Water Assessment Programme (WAAP) under the umbrella of UNESCO. This is to establish a SA Water Sector Reporting Framework, which will attempt to incorporate the many existing reporting needs like the CEIMP report. A feasibility report is to be ready for the African Ministers Council for Water (AMCOW) in Addis Ababa in December 2003".

From the aforementioned extract, it is important to note that data requirements will contribute to regional, national and international programmes. In addition to the extract referred to, it is important to note that the forestry component of DWAF is also developing an information and monitoring system, which is compatible with the rest of the Department. The need for accurate and adequate information cannot be over emphasised and the requirement in this regard appears to have gained momentum in that the Spatial Data Infrastructure Bill (B44 of 2003), (Pautz, 2004), has the primary objective to ensure that all information (data) produced by the respective departments is compatible and optimises the use of available resources (Beaumont, 2003).

8.2.6 The Water Quality Management Performance System

This management system currently being developed for a single business unit within DWAF, namely the Directorate: Water Quality Management. Characteristics of the WQMPS include the following:

- It is based upon ISO 14001 principles.

- It includes a strong substantive component to enable the measurement of performance.
- It follows a phased approach.
- It includes a risk-based assessment, which is based upon the activities and processes associated with the functions of the business unit in question.

This system will prove to be an exceptionally useful system in that the formalisation of a generic type of EMS for the DWAF water sector can be modelled upon the findings of such a system. Furthermore some "buy in" by management will have been achieved as regards eventual application of a generic type of EMS.

8.2.7 The Environmental Management Framework

As already referred to, the EMF will as the internal environmental management framework, continue to position, develop and refine various environmental management tools for application within DWAF including components of an EMS, until such time as the proposed EMS can be implemented in its entirety. The EMF will thus champion an interim EMS, making use of existing "hook ons", and allowing for further development of components of the proposed EMS, until such time as the EMS can be implemented by the department as a "stand alone," overarching environmental management tool. The purpose of an interim EMS is to allow for a smooth and gradual transition, until the proposed EMS can be implemented. There are in fact no substantial differences between the two, the interim system serving as a preliminary system, which takes "advantage" of existing systems as "hook-ons" and of knowledge, gleaned from the pilot studies. Perhaps crucially, it is hoped that such a system will through a gradual transitionary process *ensure "buy in"* from management, *integration* into the existing management system and ultimately a system, which through optimisation is both cost efficient and effective.

What follows is a diagram, which whilst not comprehensive, gives an indication as to legislation considered to be a "driver" or catalyst in the development of an appropriate EMS for DWAF. An indication as to the respective roles and responsibilities is given which includes the currently tenuous link between the DEAT CEC and Parliament. The link between the OAG and Parliament is acknowledged as being currently well established.

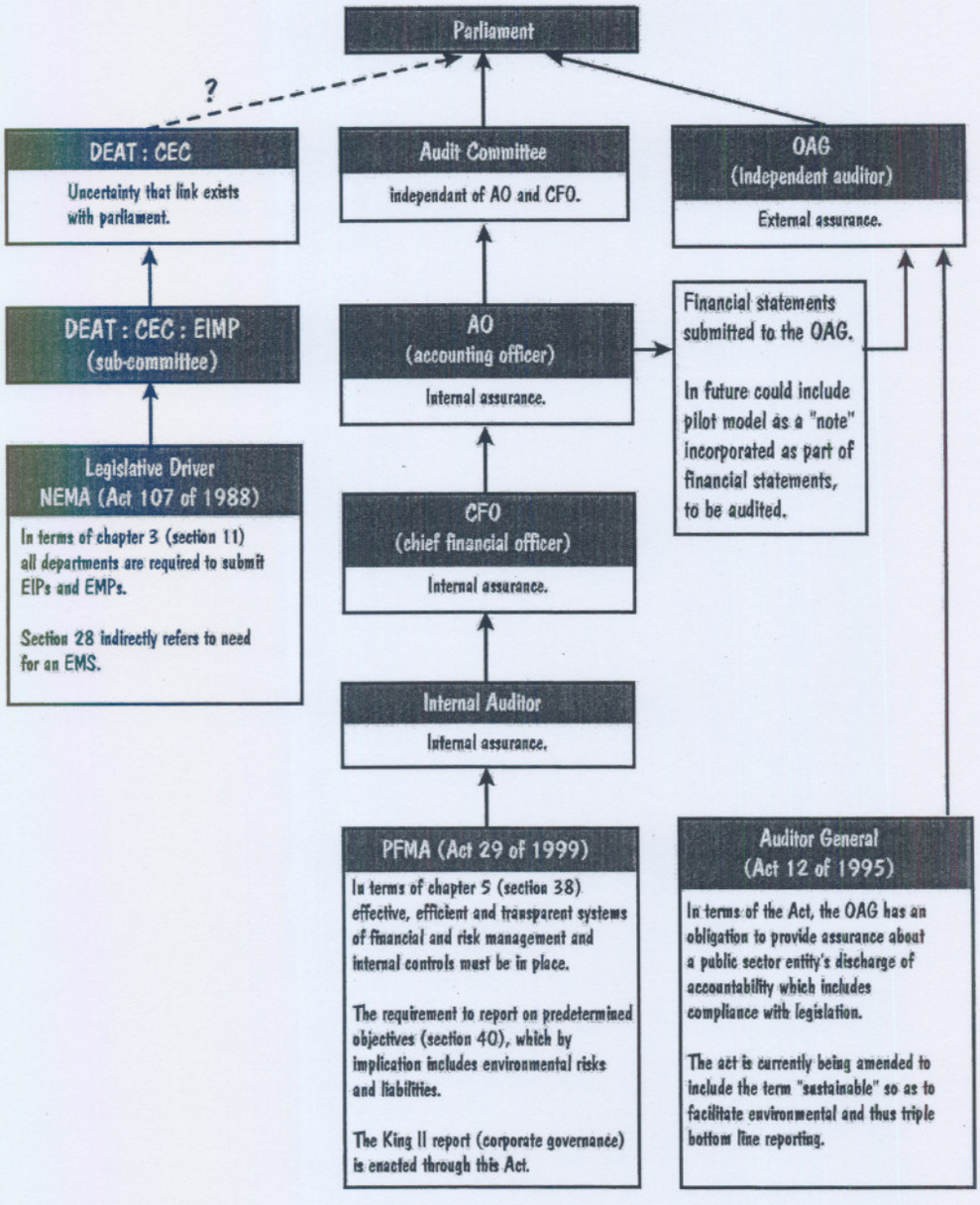

Figure 13: Legislative Drivers for sound Environmental Management Practices

(Based upon presentation given by the Office of the Auditor General, South Africa, refer to Hamid, 2003).

8.3 SECTION 3: THE PROPOSED EMS FOR DWAF

Having identified legislation and associated "systems" which can serve as "hook-ons" for the EMS within DWAF, the type of EMS and its associated elements will be discussed in more detail.

8.3.1 Type of Standard - Dual Standards for DWAF: Forestry

It is proposed that DWAF adopt an ISO 14001 based EMS as the overarching standard for the water sector, with dual standards being adopted for the forestry line function. In this regard it is proposed that an ISO 14001 based EMS integrate and incorporate the performance requirements of the FSC (a product based standard for marketing purposes, the principles of which are already applied by certain business units within the forestry section). In referring to the FSC standard, principle 7 requires that the organisation in question, implement an environmental management plan or system, which although not prescriptive in nature, in this instance will be an ISO 14001 based EMS. The resultant system may be regarded as a hybridised type of ISO 14001. Where dual standards are applied as with the two respective standards (ISO 14001 and FSC) these have a different role and purpose. As stated in the SAFCOL case study, ISO 14001 provides a systems guarantee, whilst the FSC provides a product or "outcomes-based" guarantee. Together they fulfil the business and operational requirements of a company whilst at the same time ensuring a move toward "sustainable development".

Given the high costs associated with certification of standards, it is likely that DWAF will initially only proceed with FSC certification, whilst operating a hybridised type of ISO 14001 as the overarching EMS, with the option to later implement dual standard certification. Intermediate certification for ISO 14001 can be attained through the proposed DEAT/OAG model, which was elaborated upon in Chapter 3.

8.3.2 Roles and Responsibilities - Dual Role: Operator and Regulator

As alluded to earlier, DWAF has a dual role in that it is currently both "operator" and "regulator". It is of prime importance that DWAF uses the EMS to ensure that both roles (and their associated environmental impacts) are adequately addressed. Thus cognisance must be taken of the three-tier government operational levels within DWAF and their associated strategies and time frames. Reference has been made to anticipated changes, which the Department will experience over the next ten years. There is a need to facilitate these changes through the EMS and to heed the implications thereof. This includes a greater emphasis upon the role of DWAF as regulator in future with associated

requirements for monitoring and auditing, as a result of decentralization of functions.

Links and ongoing communication between role-players (National, Provincial, Local Government, Catchment Management agencies, including communities and Water User Associations, must be operationalised and institutionalised, along with the necessary training, awareness and capacitating programmes. Monitoring, auditing and associated reporting requirements must be put in place. These communication links must also be extended to include co-operative governance both nationally and across our borders, as will be discussed under "Inter-governmental planning and co-operative governance".

- Different sectors

DWAF is developing four sectoral strategies, as outlined in the NWRS. These pertain to the agricultural sector, the industrial, mining and power generation sectors and the forestry sector (RSA, 2002:3)[b].

Thus, the role of DWAF as a regulator covers various sectors, the associated tools, instruments and procedures differing with each. The EMS must in time, incorporate and distinguish between these different sectors. The emphasis upon the type of regulation is also likely to change over time, *toward co-regulation*. Certain business units within DWAF are already developing tools and incentive measures in this regard. The EMS must also be responsible for driving this process forward.

8.3.3 Links with Local Government

The EMS must ensure that adequate links are put in place with Local Government and that current concerns in this regard are addressed. The CEIMP second annual report indicates that forums at Local Government level do not adequately address environmental issues.

Co-operative governance is an important aspect (and in addition to limited capacity) possibly the greatest challenge to face the government sector in ensuring that an effective system is put in place. Despite this, an attempt is being made by DWAF to strengthen links with Local Government, especially through the Water Services function, which links up with the Integrated Development Plans (IDPs) and which is addressing devolution and decentralisation of services to the Local Government sector. Certain conditions are associated with funding, which attempts to ensure that environmental legislative commitments are met.

Given the fact that Local Government is responsible for implementation of plans, programmes, policies and projects, sustainable development rests with this sector of government. It is therefore critical that the EMS be used as the

management tool to ensure that integrated environmental management is practiced at ground level between all role-players thus assuring that a type of "master plan" concept evolves for regional planning and development.

8.3.4 Inter-Governmental Planning and Co-Operative Governance

The Department (DWAF) must in terms of Chapter 3, section 11 (3), of the National Environmental Management Act, No 107 of 1998 (NEMA) submit a consolidated environmental implementation and management plan (EIMP), as the Department has activities and functions that both impact and manage the environment. The primary purpose of the EIMP is to assist the Committee for Environmental Co-ordination (CEC) in aligning DWAF's environmental management policies and functions with that of other Government Departments and *visa versa* (RSA, 2001:3). Thus co-operative governance is of prime importance.

This statutory tool is likely to be extended to incorporate the findings of the DEAT/OAG pilot model; thereby going a step further to benchmark the environmental performance levels of the respective departments. This model, as already noted is pending approval by DEAT CEC.

It has been stated by DEAT CEC that it will not suffice for each department to have an EMS in place, without moving toward co-operative governance. It has however also been stated, that each department in having an EMS in place, which fulfils the requirements of its mandate, will by default ensure that co-operative governance will not fail. It is anticipated that the Department of Environment Affairs and Tourism will "unpack" further, the roles and responsibilities associated with co-operative governance. It is envisaged that both the DEAT/OAF "model" and the proposed EMS will be tested against the policy, which drives it and against the associated departmental mandates.

Policy as already indicated in the various case studies, is regarded as the foundation of an EMS. In facilitating co-operative governance it may well be wise to re-establish an inter-ministerial committee, which would allow for alignment of policies prior to submission of proposed legislation through DEAT's CEC, via their Law Reform committee. In addition to the aforementioned and pending approval of the proposed DEAT/OAG model, it is further recommended that the model make provision for "testing" of policy and associated mandates, providing a type of "gap-analysis" in this regard. It is further proposed that provision be made for the EMS to include a reiterative cycle of testing against the corporate policy of the business unit in question, so as to ensure that the associated policy is in line with the strategic targets and objectives.

The aforementioned measures should facilitate sustainable development. For sustainable development to be feasible, development must not be viewed only at

a strategic level and in terms of a project-by-project basis but must also be viewed in a broader regional developmental context, through links with the respective Integrated Development Plans (IDPs). At a strategic level the NWRS has ensured that various other national strategies are incorporated in the planning process (RSA, 2002:36)[b]. An important component of the monitoring and assessment strategy of the NWRS will be to develop co-operative, collaborative relationships between the Department and other organisations that also operate water-related monitoring, assessment and information systems (RSA, 2002:24)[b]. The aforementioned can be facilitated through the proposed EMS.

8.3.5 towards Self Regulation and Internal Audits

The importance of co-regulation has been referred to, within the context of DWAF as a role-player with different sectors. Of increasing importance is the significance of self-regulation in the future, especially given the lack of capacity to enforce legislation. It is therefore recommended that internal audits and the frequency thereof, as well as the associated outcome and corrective action become an important component of the EMS. This is supported by the King II Report, which states, "companies should have an effective internal audit function" (IOD, 2002: 33, 4.1.1). This, in conjunction with the proposed role played by the Auditor General in assessing the respective government departments and reporting to Parliament, should facilitate improved environmental management and performance by the respective government departments.

In developing the proposed EMS, it is as well to take cognisance of the legislative requirements associated with the PFMA, especially with regard to internal auditing (which includes) environmental aspects. As a result, closer links must be forged between the Sub-directorate: Environment and Recreation (responsible for championing the EMS) and the internal auditor of DWAF. The Subdirectorate should develop the necessary expertise in environmental auditing to guide and assist the internal auditor in their task.

8.3.6 Substantive / Performance Component

As part of the development of a substantive component of the management system (EMS), performance indicators can be included to facilitate the process. Performance indicators can be aligned with (amongst others) an existing "hook-on" in the form of the annual Agenda 21 report and programme. According to Hugo (2002), South Africa was one of the original 22 countries that participated in the Agenda 21 programme and tested 134 indicators, the outcome of which indicated that 54 can be used in South Africa and a requirement of a further 30 not included on the list was recommended by South Africa. The majority of the listed indicators had a strong social or economic component. It is therefore recommended that the environmental indicators developed by DWAF for

programmes such as the River Health Programme be incorporated as part of this list and be implemented via the EMS. This should also facilitate triple bottom line reporting as referred to in the King II Report, embracing the economic, environmental and social aspects of a company's activities (IOD, 2002:9,17). Some degree of co-operative governance has already been attained in that both DEAT and DWAF have worked closely on the indicator programme.

Indicators are used as threshold values for product stewardship both nationally and abroad, and whilst benchmarking is required globally, South African conditions differ from those benchmarked internationally, making comparison difficult. Thus indicators used could facilitate the comparison between international and national conditions.

The DEAT/OAG pilot model, which makes provision for an EMS, recommends "internal controls" against which to benchmark performance of the respective departments. This may also be considered as a type of performance measurement. The environmental performance is thus based upon the extent to which the department in question can fulfil its mandated functions. The extent, to which "internal controls" are in place, facilitates this and can be incorporated as part of the proposed ISO 14001 based EMS.

8.3.7 Institutional Stability

One of the envisaged and important components in assuring sound institutional stability is that of having "internal controls" in place so as to secure the "sustainability" of the proposed system. This was highlighted by the DEAT/OAG pilot study (OAG, 2003)[b] and as a result reference will be made to characteristics and criteria considered important in this regard. According to Smith (2004), there are four characteristics associated with the application of "internal controls". These are:

- Internal control is a process; it is a means to an end and not an end in itself. Internal controls are a collection of policies and procedures adopted by management to achieve certain goals,

- Internal control is effected by people. It does not consist solely of policy and procedure manuals and forms. It involves people at every level of the organisation carrying out an assortment of tasks,

- Internal control provides only reasonable, not absolute assurance that management's goals will be achieved. Internal controls have inherent limitations which means that things can go wrong,

- Internal controls set out to achieve objectives in three categories which are

Separated but interlinked. Thus "internal control" is a process effected by the company's board of directors, management and other personnel, and designed to provide reasonable assurance regarding the achievement of these categories, namely:

1. Economy, efficiency and effectiveness of operations
2. Internal financial control
3. Compliance with applicable laws and regulations

Having dealt with the characteristics thereof, typically it can be stated that "internal control" measures, should have the following components to be successful:

- Controlled environment
- Competent, trustworthy personnel
- Segregation (division) of duties
- Isolation of responsibility
- Access/custody controls
- Source document design
- Comparison and reconciliation

The Office of the Auditor General, for the purpose of the pilot study, decided to simplify the prerequisites, to represent only four criteria for internal controls. These being as follows:

- Roles and responsibilities.
- Allocation of competencies.
- Information systems in place.
- Checks and monitoring systems in place.

These criteria are also represented in the figure which follows, namely Figure 14, extracted from the findings of the pilot study (OAG, 2003)[b] .

The importance of securing "buy in" from top and middle management so as to ensure that the associated resources (both funding and skills), are secured, cannot be over emphasised. Thus, strategies should be aligned so as to optimize the associated funding requirements with the objectives and targets of the proposed EMS. It is thus imperative that the proposed EMS incorporates the aforementioned internal controls to optimize the "institutional stability" of the organisational "entity" in question. With internal controls in place, the risks and associated liabilities can be better controlled, resulting in an operational environment, which is more predictable. This may be referred to as a "controlled environment", as reflected in Figure 14.

Having secured the institutional stability of the system, other elements such as those, which pertain to performance (substantive) related issues, can be phased in as part of a process of continual improvement.

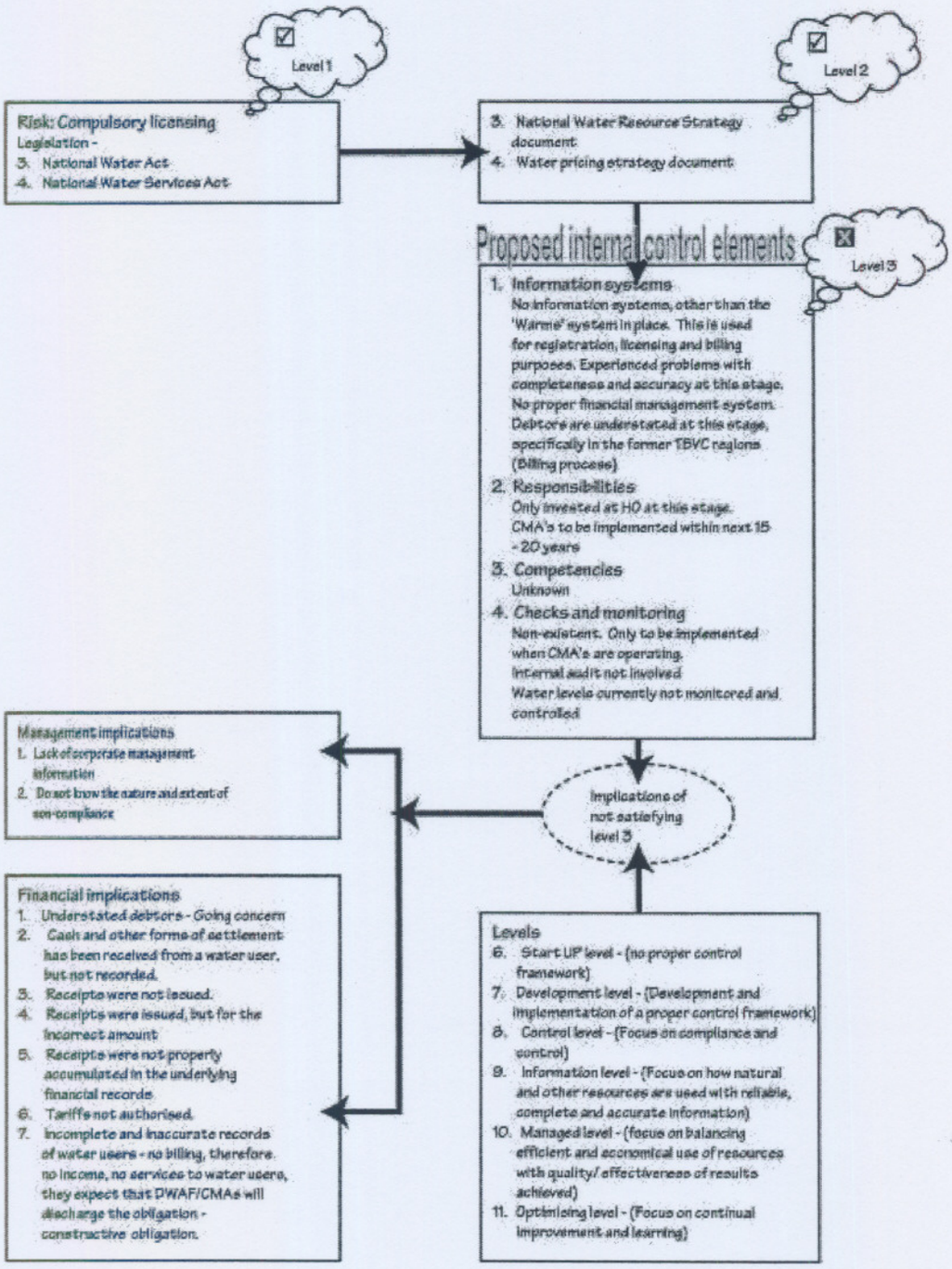

Figure 14: Piloting of the proposed DEAT/OAG model, which makes provision for risk assessment and internal controls
(Adapted from the Office of the Auditor General, South Africa, 2003[b])

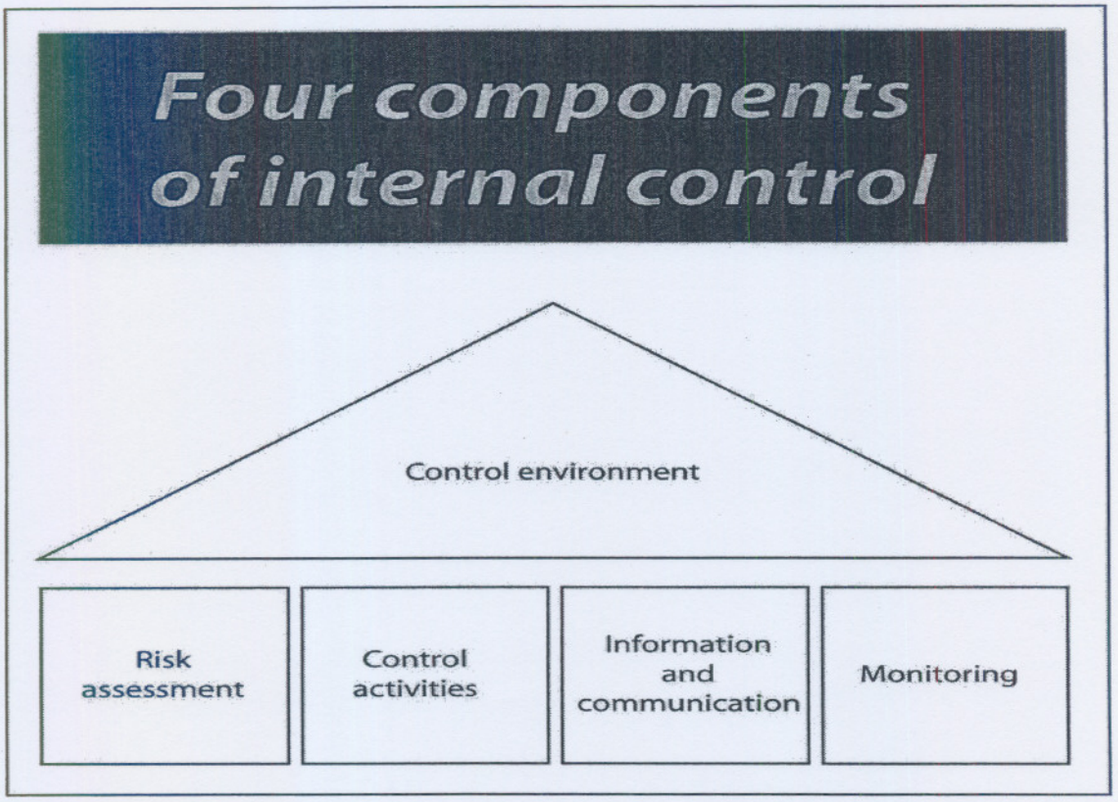

Figure 15: Four Components of Internal Control
(Adapted from the Office of the Auditor General, South Africa, see Hamid, 2003)

8.3.8 Risk Based Assessment

The link between risk assessment and internal controls and the need to have an appropriate *system* in place to manage these, is referred to in the Public Finance Management Act (No 29 of 199) and was highlighted in Chapter 3 of this dissertation. This is supported in the associated code, the King II Report, which refers to the need to "maintain a sound system of risk management and internal control" (IOD, 2003:30, 3.1.4). Reference is made to the fact that risk should be assessed on an ongoing basis (IOD, 2003:31, 3.2.2), so as to remain current, particularly if the concept of co-operative governance is to be applied.

It can be deduced that risk based assessments have become increasingly important because of the need to minimise liabilities and as a result of increased accountability, which applies particularly to the public sector. Increasingly stringent legislative requirements also serve to demonstrate the increasing emphasis upon risk. As a result, the proposed EM system includes a type of Initial Review, so as to identify key risk areas and address any requirements timeously and internally, prior to giving an account thereof, through external statutory reporting requirements. The DEAT/OAG pilot model (already referred to) also includes a risk assessment, so as to identify key risk areas of the organisation in question. This is based upon the associated activities and processes of the organization in question. Through implementation of this model, it is further proposed that in meeting the requirements of co-operative governance, departments be clustered according to key risk areas identified, thus optimizing all available capacity and concentrating upon these selected key risk areas.

This concept and the associated need for co-operative governance in identifying and mobilizing capacity to overcome identified key risk areas and thus move closer to sustainable development, is demonstrated in figure 16 (Heunis, 2003)[b]. Departments with "common risk areas", are referred to as "cluster" departments. The proposed EMS would thus incorporate these elements and be generic for all government departments, whilst at the same time allowing for customization and optimization for the respective departments requirements, demonstrated in Figure 17.

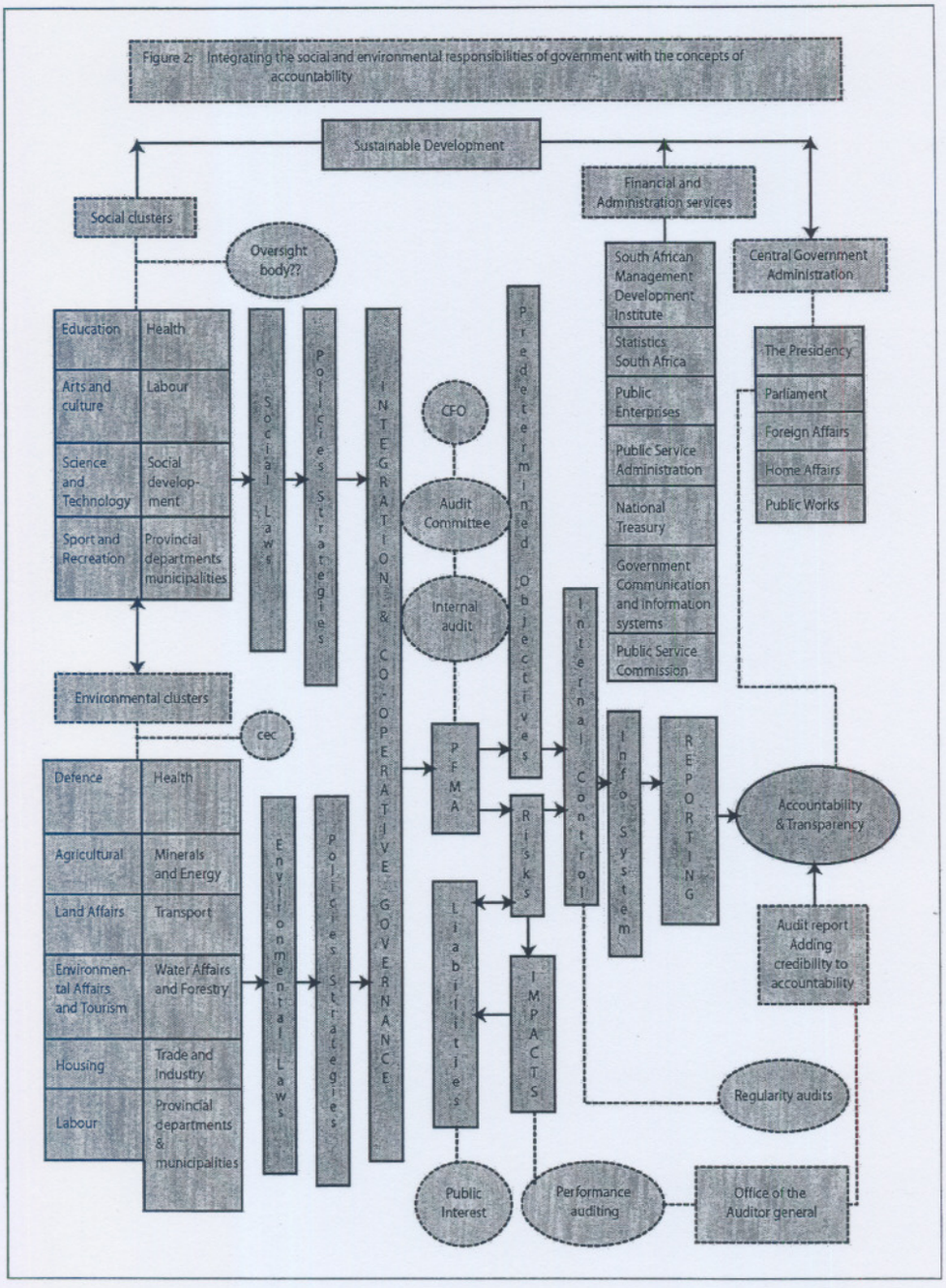

Figure 16: Co-operative Governance and Integration of Social and Environmental responsibilities through clustering of identified risks by mandated departments
(Adapted from the Office of the Auditor General, South Africa, Heunis, 2003[b])

Arts and Labour

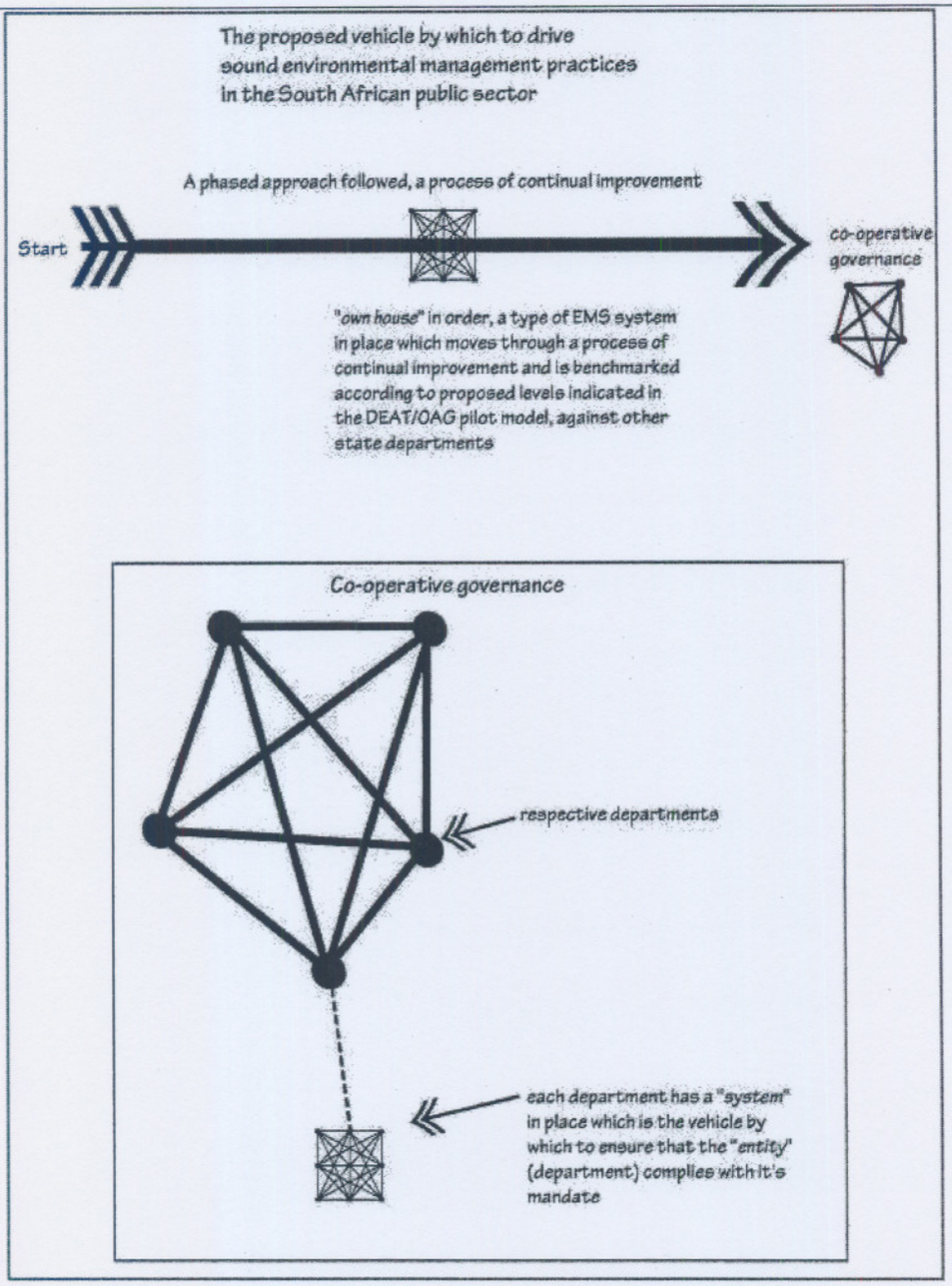

Figure 17: The application of a generic EMS to facilitate benchmarking with other state departments

(Based upon brainstorming session hosted by the Department of Environment Affairs and Tourism, CEC: EIMP, on the 10 October 2003, pending decision to implement DEAT/OAG pilot study, RSA, 2003[b])

8.3.9 Augmentary Tools

In developing an EMS, which complies with legislative requirements and with a view to ensuring that the EMS can over a period of time evolve to become a SMS, a number of augmentary tools are recommended.

One such tool being the Global Reporting Initiative (GRI), which in its development has taken into account both the Corporate Governance principles associated with the King II report and ISO 14001 principles. Like ISO 14001, it also allows for incremental improvement and what is more, a special section is currently being compiled specifically for application by the public sector (Baker, 2003 and 2004). In addition to the aforementioned reasons, the GRI will prove very useful, as there are a whole host of reporting requirements, which must be undertaken by DWAF, in response to both national and international legislative requirements. These statutory reporting requirements have become an area of increasing concern due to the lack of capacity experienced within the government sector. The need for accurate data upon which to base these various reports is of concern. The Spatial Data Infrastructure Bill (B44 of 2003), (Pautz, 2004), should ensure that as a result of co-operative governance, optimal use will be made of the available data.

Both the CEIMP and the DEAT/OAG pilot model have been discussed as some length. It suffices to state that it is recommended that the GRI and its associated principles and criteria be applied by the department so as to facilitate reporting. Whilst any number of augmentary tools can be selected to refine environmental management practices such as those which deal with risk based assessments, only the GRI will be dealt with in some detail, given the fact that it deals specifically with reporting requirements which gave rise to the DEAT/OAG pilot model, which in turn serves as the "external framework" or "hook on" for the proposed EMS. The Global Reporting Initiative (GRI) makes provision for the following:

- Is in keeping with international prerequisites and criteria.
- Takes cognisance of both King II (Corporate Governance) and ISO 14001 requirements.
- Is constantly updated, currently there is a section being developed especially for the public sector.
- Was developed with sustainable reporting in mind, thus is triple bottom line based.
- Is flexible and allows for continual improvement in that "incremental reporting" can be used.
- The GRI is also performance based, in that indicators are used to facilitate triple bottom line reporting.

The 11 principles upon which the framework is based are as follows:

- Transparency
- Inclusiveness
- Auditability
- Completeness
- Relevance
- Sustainability context
- Accuracy
- Neutrality
- Comparability
- Clarity
- Timeliness

These principles are grouped in four clusters (GRI, 2002:23), as indicated in the figure below. These:

- Form the framework for the report (transparency, inclusiveness, auditability);
- Inform decisions about what to report (completeness, relevance, sustainability context);
- Relate to ensuring quality and reliability (accuracy, neutrality, comparability); and
- Inform decisions about access to the report (clarity, timeliness).

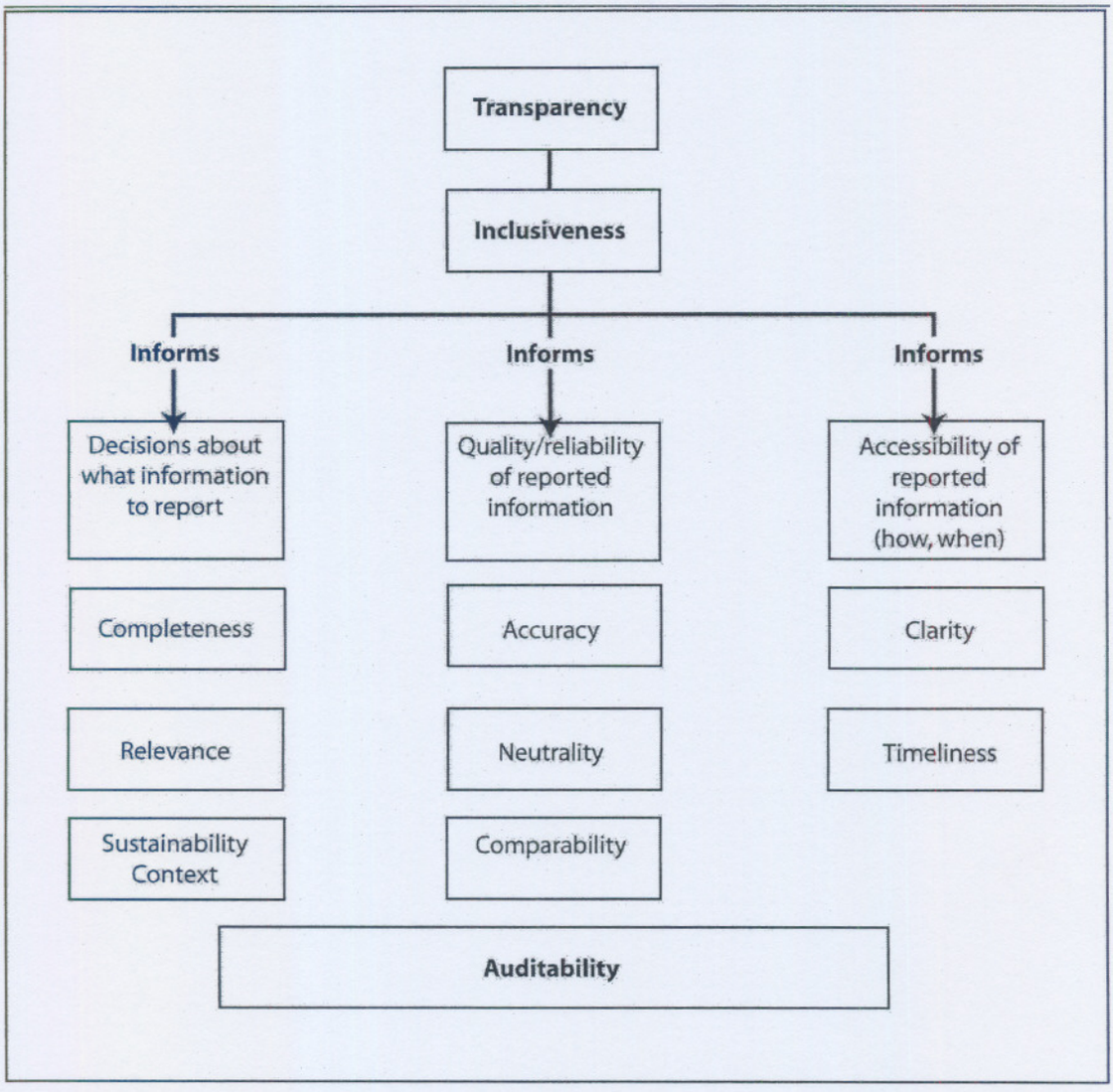

Figure 18: Global Reporting Initiative: The 11 Reporting Principles
(Adapted from Global Reporting Initiative, Sustainability Reporting Guidelines, GRI, 2002:23)

The ability to link sustainable reporting (through the GRI) with that of financial reporting is demonstrated in the extract, which follows

According to (GRI, 2002:68), "Sustainability reporting has the potential to provide critical information for business analysis that is normally absent from financial reports". This surely also allows for a closer link between budget allocation and determining objectives and performance targets, which must be incorporated into the EMS. The GRI encourages all organisations – regardless of size, sector, location, or sophistication – to begin using the guidelines. An incremental

approach is an integral part of both the organisation's and GRI's learning process, and as a result it remains feasible for all departments, as this process is regarded as an essential ingredient in the continual improvement of all components of GRI's reporting framework (GRI, 2002:75).

8.3.10 Other Augmentary Tools

Reference has been made in some detail, to only one augmentary tool, namely the GRI, as a result of its compatible nature with the proposed EMS and the "external framework", namely the DEAT/OAG pilot model, which will incorporate the EMS. Its philosophy and criteria are such that it takes cognisance of the latest legislative prerequisites for statutory reporting requirements.

In addition to the aforementioned and as an integral part of the proposed EMS, the system should incorporate environmental management tools which make provision for alignment with environmental legislative requirements, includes "forcing measures" in the form of "stop/go" points and "wedges" so as to prevent regression in environmental performance. This tool should facilitate sound environmental management practices, as demonstrated by the BDI model developed by SASOL, which assists any of the respective role-players and prompts them as to their roles and responsibilities as regards environmental management. A very important component of this augmentary tool will be project management.

Other augmentary tools exist, which facilitate the application of an ISO 14001 based EMS, electronically, such as certain software, including that of ISOTOP (Buchalter, 2002). In this regard it is important to ensure that the potential users all have access to an appropriate computer.

8.3.11 Evolutionary EMS - Towards an SMS

The proposed system must make provision in its scope to allow ultimately for the development of a system which can be considered to "qualify" as a sustainable management system (SMS), as "sustainable development" is not a mere buzz word and is incorporated into legislation, therefore requiring compliance. The proposed system thus allows for a process of continual improvement (as with ISO 14001) to a point where it may be considered to qualify as a SMS as a result of expanding the scope and associated "sustainability" criteria adhered to.

An attempt has been made in the proposed EMS to address identified shortcomings through the purposeful incorporation of augmentary tools, which are in agreement with "sustainable development" principles.

8.3.12 Summary

In the envisaged way forward for the Department regarding the application of an appropriate EMS, certain elements of the current management system were identified and discussed; in the light of their potential utilization either as pilot studies from which to garner information and/or for application as "hook-ons" for the proposed EMS.

What was evident from the literary review, is that as a result of legislative compliance requirements, the time is "ripe" to develop and implement an EMS for the government sector, and that many of the drivers and indeed the augmentary tools available to enhance the system, have similar philosophies and principles which substantiate sustainable development. This includes the GRI, corporate governance requirements, ISO 14001 principles and those required for financial and risks systems associated with the PFMA.

The primary purpose of the proposed EMS may thus be regarded as a mechanism by which to co-ordinate and direct the various initiatives already underway and to guide future initiatives toward "sustainable development". Given the existing initiatives and the associated time frames involved in developing and implementing an appropriate EMS, an interim EMS is advocated which makes use of the associated "hook-ons", until such time as the EMS can become an overarching environmental management system within the department. A definite distinction is not made between the two systems, as the elements will be fairly similar. The interim system merely making use of "existing hook-ons" until such time as these "hook-ons" become part and parcel of an EMS, which has acquired sufficient status to be "self supporting" and "sustainable".

Many of the elements identified, are in keeping with global trends. This includes a need for a "performance based system", which ensures improved checks and balances through risk assessments, monitoring, auditing and reporting requirements.

In taking into account global trends, cognisance was also taken of the need to ensure that local needs are addressed, particularly within the context of a developing country. The most important element in this regard, is that of "internal controls", as referred to by the Auditor General's Office. The proposed EMS must take cognizance of the role of DWAF as both implementer and as regulator. The role of regulator is becoming increasingly important, as a result of decentralization. The importance of "closing the loop" through auditing and monitoring and associated corrective actions, will become increasingly important for DWAF. In keeping with global and national trends, self-regulation and co-regulation will become increasingly important.

In developing the EMS it is important to ensure that this is the tool whereby both co-operative governance and sustainable development are managed. As a result the need to engender communication between all three levels of government is important. This is particularly the case with Local Government, as it is Local Government, which is responsible for implementation of the policies, plans, projects and programmes. As a result there is a need for the proposed EMS to ensure that links are maintained with the respective Integrated Development Plans of Local Government and that the respective government departments at all levels attempt to work toward integrated environmental planning. In order to do so, it will be necessary to ensure that the proposed EMS is generic, is comparable and allows for links with local government to be established, maintained and enhanced. Only than will sustainable development become a reality. It is crucial that this be achieved especially during the planning phases, as it is during this phase that most impacts can be identified and mitigated.

Finally, accountability will rest with the Department in making sure that the application of the proposed EMS is successful. The position of the Subdirectorate: Environment and Recreation responsible for championing it, is perhaps not ideal, given the fact that their "position" within the organogram subsequent to restructuring, has resulted in a small business unit which is under capacitated and which now resides at a subdirectorate level. The lessons to be learnt from the Durban/eThikwini case study come to mind, in that whilst an SMS can be excellent "in theory and on paper", those responsible for championing the system must be correctly positioned within the hierarchy, if they are to enjoy both financial and managerial support. However, the Subdirectorate, Environment and Recreation remains optimistic, given the unfailing support of their Director and the fact that in general the Department is not averse to change or unaware of the need to facilitate sound environmental management practices. Of vital importance is the fact that the proposed system becomes an integral part of the current management system and incorporates the associated strategic cycles of short, medium and long term planning. In incorporating adequate "checks and balances" it will be of particular importance in future to secure links with the internal auditor, as a means to move toward self-regulation.

This chapter has put forward a proposed EMS, which in principle should meet the requirements of a public sector organisation such as DWAF.

In the chapter, which follows (Chapter 9: Testing the proposed DWAF Environmental Management System against Identified Shortcomings), the proposed EMS is tested against identified shortcomings and criteria for sustainable development. Thus, it is hoped that this will demonstrate the extent to which the proposed EMS considered appropriate for DWAF, can overcome the perceived shortcomings and evolve to a point where it is considered to "qualify" as a sustainable management system (SMS).

Chapter 9

9

TESTING THE PROPOSED DWAF ENVIRONMENTAL MANAGEMENT SYSTEM AGAINST IDENTIFIED SHORTCOMINGS:

9.1 INTRODUCTION

The shortcomings identified, were referred to earlier (Chapter 5, Perceived Shortcomings associated with Environmental Management Systems), and are based upon the literature review. In view of the fact that these shortcomings have already been dealt with in, the purpose of this section is to test the perceived shortcomings against the proposed DWAF EMS (hereafter referred to as "the system"), so as to gauge whether or not the proposed system has the potential to overcome the identified shortcomings.

The first section tests shortcomings identified by Welford (1996), as a similar order to that of Chapter 5, is followed.

9.2 TESTING THE PROPOSED EMS AGAINST SHORTCOMINGS IDENTIFIED BY WELFORD

9.2.1 Discrepancies In Application

The proposed EMS system still allows for discrepancies in the quality of application by the respective departments and their associated business units. However, the system makes provision for benchmarking and peer review with other state departments, through the proposed Auditor General's model, which is regarded as an integral part of the proposed EMS. This, coupled with the fact that the system makes provision for a risk-based approach should largely overcome discrepancies in quality.

9.2.2 Setting Own Targets and Objectives for Environmental Performance

The setting of targets and objectives when based upon a risk based approach and associated assessment of business activities should remove any possibility of mere tokenism, which is the concern. Thus the proposed system cannot be regarded as being "fundamentally flawed" in this regard.

9.2.3 Auditing Of System – Not of Environmental Performance

The incorporation of substantive elements such as indicators will allow for measurement of performance in relation to the targets decided upon, thus ensuring that it is not only the system which is managed, but also the associated environmental performance. In addition to this benchmarking of environmental performance with other departments is an integral part of the proposed DEAT/OAG pilot model, which makes provision for the application of an EMS as demonstrated in Chapter 3: Drivers.

9.2.4 Lack of Data and Data Integrity

As regards the lack of data, this problem is acknowledged and addressed through legislation, which in the longer term will ensure that the necessary data banks and systems are in place, to facilitate the collection and collation of data. This includes the requirement that each department be responsible for establishing a National Data Base. The recent bill, namely the Spatial Data Infrastructure Bill (B44 of 2003), not yet proclaimed as an act (Pautz, 2004), should further facilitate this. The Department's own enabling legislation (such as the National Water Resource Strategy) makes provision for the development of both information and monitoring systems.

The concern has also been expressed that in having inadequate data regarding threshold values, the organisation in question can achieve minimum levels of compliance whilst having appalling records in environmental terms. As regards data pertaining to actual threshold values (a problem highlighted by Welford), the current co-operative governance programme with DEAT regarding environmental indicators should assist with setting threshold limits, which are aimed at environmental protection. Furthermore, the proposed system makes provision for the incorporation of a risk based approach, which in conjunction with peer benchmarking of environmental performance and associated review of objectives and targets should overcome concerns pertaining to "compliance at the cost of the environment".

9.2.5 Possible Smokescreen and Marketing Ploy

The proposed system through its inclusion of an Initial Review (IR) and through its incorporation of augmentary environmental management tools and principles (such as the Global Reporting Initiative), in conjunction with the DEAT/OAG pilot model and associated benchmarking of departments and "report-backs" to Parliament on environmental performance should result in a system which remains focussed upon key risk areas. Thus the potential for such a system to be used as a possible smokescreen is minimised.

9.2.6 Institutional Factors and Capacity

Reference was made to the fact that a theoretically good system can fail institutionally. A proposed "hook-on", the DEAT/OAG pilot model incorporates "internal controls" so as to assure soundness of the institutional entity. It is also recommended that the EMS be integrated at strategic management level and that strong links be forged between middle and top management and with the internal auditor. The need to secure communication between the three government tiers being especially important, particularly at local government level. Institutional capacity, also termed the "fourth pillar of sustainability" remains of utmost importance and must be reviewed on an ongoing basis, to ensure that authority, accountability, and adequate resources are available.

9.3 TESTING THE PROPOSED EMS AGAINST SHORTCOMINGS IDENTIFIED BY THE EPA AS REGARDS AUDITING

The concern raised, was essentially that an EMS audit is a *voluntary and internal* arrangement and does not require an organisation *to maintain compliance, but in fact audits the actual system and not compliance with legislation.*

The proposed EMS system makes provision for the incorporation of and integration with the DEAT/OAG pilot model, which makes provision for identification of key risks, peer review and a report back to parliament. These measures should ensure that environmental concerns are not only identified but also prioritised as part of the business management activities, processes and practices. In addition to the aforementioned, the EMS makes provision for closer links being forged with the DWAF internal auditor, responsible for various auditing requirements including that of environmental and financial auditing. This should ensure that EMS audits are focussed on identified key risk areas, which by default should result in increased compliance, as legislation is developed to overcome risks.

It was noted that there is a need to distinguish EMS audits from other forms of auditing, given the fact that currently there are certain misconceptions and expectations as to the scope of an EMS audit. As a result, it was recommended that financial audits and compliance audits act as possible models for EMS audits. The proposed EMS should engender increased accountability whilst at the same time ensuring that closer links are forged through the internal auditor (DWAF) between the respective audits.

9.3.1 Purpose and Scope of ISO 14001 Based EMS Audits

In contrast to financial audits of publicly traded business, EMS auditing remains a *voluntary, internally* driven practice for better managing an organization's environmental responsibilities and impacts (EPA, 2001:34).

ISO 14001 requires implementing organizations to *make at least three policy commitments*, these being to:

- Compliance;
- Prevention of pollution; and
- Continual improvement.

The standard's definition of these commitments in turn influences how auditors assess whether an EMS conforms to ISO 14001 (EPA, 2001:78).

9.3.2 Commitment to Compliance

Commitment toward continual improvement and compliance should be encouraged through the incorporation of a risk based approach as an integral part of the EMS, which will serve to identify the risks and liabilities associated with the business activities in question. In having a risk-based approach, compliance should be more easily achieved, as objectives will be prioritised and reality based. The proposed EMS will also be an integral part of strategic planning and the associated Business Plan, thus allowing for commitment which includes budgeting for the required resources (EPA, 2001:111).

9.3.3 Prevention of Pollution

Increasingly stringent legislation, coupled with various environmental governance instruments are taken cognisance of through the proposed system and will facilitate pollution prevention management.

9.3.4 Continual Improvement

One of the concerns expressed as regards an ISO 14001 based EMS, is the fact that the extent of "continual improvement" depends upon the business and the associated objectives and targets decided upon. The proposed EMS, as a result of its integration with the proposed DEAT/OAG model ensures that continual improvement and associated environmental performance are tested annually with report-backs to Parliament. As a result of the risk-based assessment, the objectives and targets decided upon will be reality based and incorporated as part of the management plans and strategies. Continual improvement should therefore be ongoing and will extend beyond mere tokenism.

9.3.5 Elements Other Than Scope of Audit

- Audit Privilege Laws
  The extent, to which these laws have been "tested" in South Africa, was not apparent from the literature review.

- Auditing And Public Disclosure
  As stated ISO 14001 only requires public disclosure of a firm's environmental policy statement, not data on its environmental performance or key EMS information.

  The proposed EMS makes use of augmentary environmental management tools such as the Global Reporting Initiative (GRI), which incorporates principles such as transparency, which in conjunction with the model developed by the OAG (pending approval by DEAT), makes provision for benchmarking and report-backs to parliament with regard to environmental performance. *The annual statutory reports required by NEMA (EIPs and EMPs) regarding environmental performance are accessible to the public and in future could either become an integral part of the proposed DEAT/OAG model or remain as a "stand alone" report. The proposed model will thus facilitate the link between auditing and public disclosure.*

- Performance Based System
  One of the primary observations is the reference to the need for a performance-based system. The traditional ISO 14001 based system is not performance based which exacerbates "measuring what must be managed". The proposed system overcomes this difficulty by including performance based measures, such as indicators and uses the DEAT/OAG pilot model to benchmark against other departments using reference levels which indicate the extent to which internal controls are in place within the organisation in question to deal with the identified key risk areas.

- Third Party Auditing (Verification) and Accreditation Bodies and Associated Stakeholder Expectations
  A number of problems are associated with third party auditing for certification of an EMS. The primary problem being the associated cost implications. The proposed system thus makes provision for second party auditing, the recommendation being that the Auditor Generals office undertake this task through application of their proposed model, thus obviating the cost implications. The proposed model also makes provision for certification, should thus be considered feasible by the organisation in question. This is optional, as it makes provision for comparison of environmental performance through benchmarking with other departments according to specified levels. This, in conjunction with the associated report-backs to Parliament, should ensure increased credibility and accountability without the associated cost implications of certification.

- Does not go far enough in tackling urgent environmental issues
  If a risk based approach is followed, this will result in objectives and targets being prioritised, which should facilitate addressing urgent environmental issues. There are recommendations that common key risks identified, be linked to "cluster departments" so as to facilitate co-operative governance and concentrate and focus resources.

9.3.6 Auditing Recommendations

Several areas were identified where the current system should be strengthened to address present and future challenges (EPA, 2001:100). These included the following:

- Continual improvement;
- Management system criteria;
- Greater transparency;
- Reporting requirements; and
- Registration system and accreditation bodies.

These are dealt with as follows:

- Continual Improvement:
  One of the concerns expressed as regards an ISO 14001 based EMS, is the fact that the extent of "continual improvement" depends upon the business and the associated objectives and targets decided upon. The proposed EMS, as a result of its integration with the proposed DEAT/OAG model ensures that continual improvement and associated environmental performance are tested annually with report backs to Parliament. As a result of the risk-based assessment, the objectives and targets decided upon will be priorised and incorporated by management plan in business plans and strategies. Continual improvement should therefore be ongoing and extend beyond mere tokenism.

- Management System Criteria
  These to include internal controls, such as those referred to by the Auditor General.

- Transparency
  Compliance with South African legislation in conjunction with recommendations made regarding appropriate reporting mechanisms such as the application of the GRI (Global Reporting Initiative), should overcome concerns regarding transparency requirements.

- Reporting Requirements
  The proposed system, recommends that the required reports be consolidated and streamlined in keeping with the recommendations of the Dutch case study. Currently, a large number of environmental reports are required and

the establishment of databanks in keeping with the NWRS, should facilitate the reporting process.

The concern is that an ISO 14001 based system only makes provision for public disclosure of the policy. The proposed system will make provision for greater transparency and access to information through measures such as the streamlining and consolidation of the various environmental reports and ensure that public disclosure extends beyond the policy level.

- Accreditation Bodies (Registration)
  In South Africa accreditation bodies are strictly controlled through SACCAS. For DWAF, as a representative of the public sector, certification is not an option for the foreseeable future, in view of the associated costs and additional burden upon the taxpayer. Proposals instead are for second party auditing, to be undertaken by the Auditor General's office, which will lend credibility and accountability to the process and allow for interim certification, peer benchmarking and reporting to parliament as part of the advocated EMS.

- Third Party Auditing (Verification) and Accreditation Bodies and Associated Stakeholder Expectations
  The proposed model also makes provision for certification, should thus be considered feasible by the organisation in question. This is optional, as it makes provision for comparison of environmental performance through benchmarking with other departments according to specified levels. This in conjunction with the associated report-backs to Parliament, should ensure increased credibility and accountability without the associated cost implications of certification.

9.3.7 Summary

From the literature review it became evident that the "traditional ISO 14001 based EMS" is not considered to be adequate as a "sustainable management system" in that its scope is limited to the environment and it does not fulfil all the criteria identified for a sustainable system. The proposed system makes provision for these criteria by extending the scope of the traditional system to include elements such as triple bottom line reporting and the cradle to grave concept. Through a process of continual improvement in incorporating the identified "sustainability criteria" and augmentary environmental management tools, the system can be customised and hybridised, to the point where it may be regarded as meeting the requirements of a SMS.

Whilst a number of shortcomings inherent to an EMS have been identified, the potential exists for the proposed EMS to overcome the identified shortcomings and in so doing to strive toward sustainable development within the public sector.

The role of DWAF in future, will as a result of decentralization increase in significance as regulator, with the associated need for increased monitoring and auditing. The links between internal auditing (including environmental auditing), with other audits will be strengthened through the internal auditor, which it is hoped will result in a more integrated approach. The challenge being not only the co-ordination of such a system but the ongoing capacity demands and requirements, which if not adequately managed could result in the failure of such a system.

It has been stated that government, including state and federal regulatory agencies are increasingly looking to the EMS as a tool whereby to meet broader and different expectations (EPA, 2001:117).

9.4 TESTING THE PROPOSED DWAF EMS AGAINST CSIR SUSTAINABILITY CRITERIA / PRINCIPLES

The previous chapter identified various shortcomings associated with a conventional ISO 14001 based EMS system. The potential of the proposed DWAF EMS to overcome these shortcomings was then discussed.

Whilst it is true that there is no single, clear interpretation of sustainability and what it entails (EPA, 2001:118), it can be stated that the proposed EMS system has attempted to include sufficient safeguards to ensure that DWAF moves toward sustainable development. To demonstrate this, the proposed system will be tested against the sustainability principles identified by Wilkinson (2001).

9.4.1 Principle 1: Guiding Vision and Goals

Policy

The sentiment remains that policy is the foundation upon which an EMS is based. However the statement is made that environmental policies need not be guided by a clear vision of sustainable development. In this regard the conventional EMS was judged as being *non compliant*. With DWAF, the National Water Act (of 1998), is based upon Agenda 21, so subsequent policies and programmes should be in keeping with these prerequisites. It is the implementation thereof that must be monitored.

The statement was made that an EMS can only be as good as the underlying "business reason", which as a result of increasingly stringent legislation such as the Corporate Governance requirements now emerging, should be clearly defined.

The proposed EMS will include a review of "policy" as part of the plan-do-check-act (PDCA) cycle and the proposed DEAT/OAG pilot model has made provision for a gap analysis on policy and legislation.

9.4.2 Principle 2: Holistic Perspective

Whilst it is true that issues should be prioritised according to national concerns, global concerns remain embedded in the concept of sustainability.

The proposed risk based approach of assessing the organisation's activities together with increased accountability associated with Corporate Governance requirements and reporting to Parliament, via the Auditor General, should result in a more focussed assessment, the resultant outcome should thus have a more realistic and holistic perspective.

9.4.3 Principle 3: Essential Elements

Reference is made to inter-generational equity which takes into account, future generations. According to the CSIR, the EMS is generally regarded as being *non compliant* although is *partially compliant* in respect of the potential for continual improvement.

With regard to inter-generational equity, the NWA policy has undergone a paradigm shift, referring to equity and the need to balance scare water supplies for the future. The objectives and targets will thus be incorporated as part of the EMS.

9.4.4 Principle 4: Adequate Scope

This addresses time and space issues. The statement is made that the implications of human activities on the environment tend to be longer than anticipated. Thus the EMS is considered to be only *partially compliant* because the implications thereof are not considered.

This acknowledged, it can be stated that DWAF's EMS will through the ongoing development and refinement of various analytical tools, take cognisance of inter-generational impacts resulting from the implementation of projects, policies and programmes and will attempt to address these through a process of continual improvement and the establishment of a monitoring programme and associated database. The risk based analysis used to assess the sequence of activities to be undertaken by the respective business units in question, should also allow for improved assessments within a time and space context. The proposed management system, will deal more comprehensively with time and space issues, especially as these in future will be linked to a risk based analysis of the associated activities, processes and their potential liabilities.

9.4.5 Principle 5: Practical Focus

As stated, one of the more challenging aspects of pursuing commitment towards a sustainable future is devising a means of measuring progress towards that goal. Although it is stated that the EMS is *fully compliant* in this regard, the ISO based EMS is not a *performance* based (substantive) system.

However the proposed system will make provision for the inclusion of substantive elements, such as indicators, which through monitoring will allow for the measurement of progress towards a specific goal. The motto, "manage what you measure" is considered to be an integral part of the proposed EMS. Further to this, it is stated that, "while eco-efficiency is becoming an increasingly widely accepted idea, there is no universally agreed system for measuring and reporting on it" and that "where indicators are used, their diversity renders environmental reports useless".

The recommendation is therefore for the application of global indicators (as recommended by Agenda 21) as well as the additional South African indicators, be incorporated. This should allow for the compilation of data, which is both nationally and internationally comparable. It should also enable ongoing monitoring, research and identification of threshold values, which can be incorporated into product stewardship programmes thus enabling ongoing evolution of the EMS toward an SMS. It is further recommended that certain DWAF programmes such as the River Health programme, associated with the current management system, be incorporated into the proposed management system. Reference is also made in the NWRS to the ongoing development and refinement of various information and monitoring systems. The benchmarking levels associated with the proposed DEAT/OAG pilot model may also be considered a form of measuring progress.

9.4.6 Principle 6: Openness

According to Wilkinson (2001:33-35), the EMS is *fully compliant* in this regard. However, whilst this applies to the policy of an ISO 14001 based EMS, accessible to other information is "upon request only".

The proposed EMS of necessity will extend beyond these boundaries so as to comply with current South African legislative requirements regarding transparency and reporting. The proposed EMS makes provision for augmentary reporting tools such as the GRI, which in conjunction with the statutory reporting requirements (EIPs and EMPs referred to) and coupled to the proposed DEAT/OAG model, will ensure greater openness as to environmental performance.

9.4.7 Principle 7: Effective Communication

It is stated that the communication process is central to any assessment process. Wilkinson, (2001:35-36), found ISO 14001 to be *fully compliant* with this principle.

From the aforementioned discussion, regarding "openness", there is some disagreement in this regard. Thus the approach to be adopted and the associated institutional structure must ensure that internally, the information flow ensures a *top down* and *bottom up* approach and that an adequate external communication strategy is developed, which includes the aspects already referred to.

9.4.8 Principle 8: Broad Participation

Reference was made to the need for broad participation. The ISO 14001 based EMS being evaluated as *non compliant (Wilkinson, 2001:39-40).*

According to the South African legislation requirements, there is a need for the involvement of both interested and affected parties (IAPs), which will be incorporated into the EMS procedural requirements. A number of augmentary tools are being developed to facilitate this requirement, one such tool being that of the GRI (Global Reporting Initiative), which takes cognisance of both ISO 14001 and the King II Report principles and is considered to be based upon reporting criteria which are accepted worldwide.

9.4.9 Principle 9: Ongoing Assessment

It is stated that an assessment should be iterative because information and associated values change over time. Thus strategies should be flexible. The ISO 14001 based EMS was rated by Wilkinson, (2001:37-38), as *fully compliant* in this regard, no doubt because of the PDCA philosophy and the associated cycle of continual improvement.

The proposed EMS system includes review of the policy (as part of the PDCA cycle), as this gives the respective "business units" their mandate. The proposed EMS also stresses the need for review of post implementation assessments. As a result of the reiterative cycle and the associated process of continual improvement, the findings must be linked to the various strategic planning cycles, namely annually (short term), three yearly (medium term) and the long term planning (10 – 15 years) cycles associated with DWAF. The recommendation is made that in addition to these strategic planning cycles, provision be made for the monitoring of perceptions, which allows for input by IAPs, within a space-time context, as addressed in Principle 4.

9.4.10 Principle 10: Institutional Capacity

A commitment for the provision of ongoing and sufficient resources is required. The ISO 14001 based EMS is regarded as being *fully compliant* in this regard.

The importance of this principle cannot be over emphasised and is not as simplistic as frequently thought. The Durban/eThikwini case study demonstrated the potential severity of such a problem, in that despite having an EMS which can be regarded as very advanced in thinking and design, the implementation thereof is dogged with problems as a result of lack of capacity. The challenge remains for all state departments to get sufficient "buy in" from management and to hold sufficient sway within the Department to ensure adequate funds and staff are available to undertake the associated tasks. As a result, the proposed EMS is integrally linked to the current management system and its associated strategic planning and cycles.

The proposed management system functions as a typical 3 tier hierarchy which includes national (responsible for the development and formulation of policy and strategy), the region (responsible for implementation thereof), including the Catchment Management Associations and Water Utilisation Associations, which once empowered (capacitated) will take over the regional functions (activities). Provision is also made for links with local government (municipalities) through links with other tools such as Integrated Development Plans (IDPs). This typical 3 tier *hierarchical* system of government is compatible with the proposed EMS.

In addition to the aforementioned a number of "internal controls" were identified by the Auditor General's Office as part of the DEAT/OAG pilot model (OAG, 2003)[b], of which the EMS is an integral part. These four internal controls will strengthen institutional capacity if applied consistently throughout the process, and in brief consists of the following:

- Roles and responsibilities.
- Allocation of competencies.
- Information systems are in place.
- Checks and monitoring systems are established.

9.5 TESTING THE PROPOSED DWAF EMS AGAINST NATIONAL ENVIRONMENTAL STRATEGIC (NES) CRITERIA:

9.5.1 Introduction

The purpose of the previous chapters was to give an indication as to the type of EMS considered most appropriate for DWAF and the public sector in general. This has been tested against identified shortcomings and sustainability criteria, extracted from the literary research. What follows is testing of the proposed EMS

against National Environmental Strategic (NES) criteria, which are in line with Agenda 21, the blueprint for sustainable development.

9.5.2 Background

Reference has been made to Agenda 21 and to the associated prerequisite for signatory countries to develop their respective National Environmental Strategies. (NES). In Chapter 5 reference was made to shortcomings experienced with the implementation of these strategies, in view of the fact that environmental management systems are frequently used as the vehicle for implementation of these and similar strategies.

This chapter will therefore test the proposed EMS against the identified NES shortcomings and give an indication as to the perceived link between the two. *The primary shortcomings in the implementation of environmental strategies have been identified as being market, government and institutionally related (World Bank, 1995:15).* As regards Government failures, it is stated that where environmental resources are not correctly priced, serious distortions in resource use and allocation can occur with associated degradation of the environment. As regards institutional failures, it is stated that, "Most national environmental strategies and action plans identify institutional weaknesses as a vital factor contributing to the perpetuation of environmental degradation". Furthermore, "in many countries overlapping responsibilities among agencies at different levels of government may send contradictory signals to polluters" (World Bank, 1995:15).

9.5.3 Proposed Methodology To Overcome Identified Problems

With regard to the implementation of a NES, reference is made to "successful environmental strategies" being dependent upon three key elements these being:

- Identifying priority problems;
- Defining priority actions; and
- Ensuring effective implementation (World Bank, 1995:vii, 2).

In addition to the aforementioned key elements, various strategic considerations have been identified as important when defining priority actions to address environmental problems: These include:

- Building constituencies for change;
- Actions are at times not taken, because of weak institutions or inadequate data and knowledge;
- Finding the right mix of instruments. It is stated that no single instrument can on its own achieve all the required environmental objectives;
- Using existing projects. Governments often find it easier and less costly to use existing projects rather than start totally new environmental programmes; and

- Obtain quick victories. Environmental programmes need to achieve some early success, however modest, in order to build confidence and credibility (World Bank, 1995:29).

It is stated that preparing environmental strategies on the basis of rigorous analysis and priority setting will alone, not guarantee effective implementation. Experience demonstrates that environmental improvement occurs when there is public pressure for change and governments have the necessary commitment and capacity to respond. Furthermore, to ensure successful implementation, it is important for the strategic process to integrate environmental concerns with broader development objectives, involve participation by key stakeholders, ensure well-functioning institutions, mobilize the necessary financial resources and include provisions for adequate monitoring and evaluation.

In implementing the above, environmental measures should be integrated into broader national development strategies. If the measures are unrealistic they will not be effectively applied. Similarly, environmental goals need to be realistic and linked to cost. As regards stakeholders, it is suggested that environmental strategies have a better chance of being successfully implemented when a wide range of stakeholders from the public and private sectors participate (World Bank, 1995:35).

With regard to the strategy, consultation should involve those who are responsible for environmental problems, those who are adversely affected, those who control the instruments for solving the problems, and those who have relevant information and expertise. This includes developing a communications strategy (World Bank, 1995:38), and establishing steering committees and working groups (World Bank, 1995:35).

9.5.4 Managing the Strategy

In managing an environmental strategy, a further set of criteria has been identified. Possibly one of the most critical aspects identified is the need for cost to be linked to environmental objectives and incorporated as part of the strategic management cycles. In improving institutional performance, three criteria have been identified and are referred to below:

<u>Improving Institutional Performance:</u>
Without a clear legislative framework and effective institutions, well-conceived policies and actions to address priority environmental problems cannot be "translated" into practice. Most national environmental strategies emphasise 3 key areas for improving institutional performance. These being:

- Assigning clear institutional responsibilities;
- Establishing consistent and transparent legislation; and

- Ensuring effective implementation capacity (World Bank, 1995:39). This includes:
  - Clarifying institutional responsibilities;
  - Establishing consistent and transparent legislation;
  - Building implementation capacity, which includes aspects such as matching management responsibilities with funding and available expertise, creating a system of incentives and penalties;
  - Mobilising financial resources;
  - Monitoring and evaluation. As stated national environmental strategies need to be continuously updated and refined to reflect new information and changing environmental conditions and priorities. In this way, the planning and implementation of key actions can be adjusted to address emerging issues before they become too costly (World Bank, 1995:47). Finally, monitoring and evaluation are essential tools for the reformulation of national environmental strategies and actions plans; and
  - Performance indicators, to compare how actual measures of environmental quality, relate to the targets or objectives established in standards set by policy-makers. Many countries have developed indicators, "to support routine monitoring". Environmental data can also be used to help integrate economic and environmental issues within the broad context of policy making for national development (World Bank,1995:49).

9.5.5 Testing the Proposed EMS against the Methodology Used to Overcome Shortcomings

The aforementioned criteria have been identified to assist with the development of sustainable National Environmental Strategies (NES). The proposed EMS is tested against these criteria for two main reasons, one being that an EMS is frequently the vehicle used to implement this type of strategy, the other, because every department and its associated mandate is reflected in national strategies, which in turn must be mirrored in its management systems. As already noted, it is stated that most national environmental strategies are dependent upon 3 key areas for "successful environmental strategies". These being as follows:

i. Identify priority problems.
ii. Priority actions.
iii. Effective implementation.

In testing the key elements for implementation of an environmental strategy, the following:

In ensuring key areas (i) and (ii), the emphasis upon a risk-based Initial Review as part of the proposed EMS should ensure that these criteria are adequately

addressed. A risk-based approach is also incorporated as part of the DEAT/OAG pilot model (refer to chapter 3), of which the proposed EMS is an integral part. Furthermore, it has been recommended that the proposed pilot model make provision for "clustering of departments" according to key risk areas, which would facilitate co-operative governance and optimise resources. The identification of key risk areas and associated clustering of departments can be used to facilitate integration of national environmental strategies with development plans and strategies, such as IDPs. This should enable the prioritisation of associated actions, not only at a departmental level but also at a national level.

The proposed EMS emphasises the need to facilitate links with Local Government and associated regional development plans such as Integrated Development Plans (IDPs). This should ensure a better understanding of the allocation of resources (both natural, financial and skills based) and their associated availability, thereby preventing government failure in implementation of environmental strategies. The aforementioned measures should also facilitate the prioritisation of associated national targets and objectives, which in turn are incorporated into the EMS.

As regards effective implementation (key area iii), provision has been made for both internal and external "hook-ons" (the EMF and DEAT/OAG pilot model, respectively) as discussed in the previous chapter. Effective implementation includes the incorporation of internal (institutional) controls identified by the Office of the Auditor General, which should counteract concerns pertaining to institutional failure and associated perpetuation of environmental degradation.

9.5.6 Testing of the Proposed EMS against Strategic Considerations

In addition to the aforementioned elements, various strategic considerations have been identified as important, when defining priority actions to address environmental problems, which include:

a) Building constituencies for change.
b) Actions not being taken, because of weak institutions or inadequate data and knowledge.
c) The right mix of instruments being required. It is stated that no single instrument can on its own, achieve all the required environmental objectives.
d) Using existing projects. Governments often find it easier and less costly to use existing projects rather than start totally new environmental programmes.
e) Obtaining quick victories. Environmental programmes need to achieve some early success, however modest, in order to build confidence and credibility (World Bank, 1995:29).

In testing the proposed EMS against these criteria, the following:

a) The proposed EMS as a result of decentralization and restructuring will have to be flexible and robust so as to adapt to changes. In this regard particular emphasis has been placed upon strengthening links with Local Government. Local Government is now assuming responsibilities previously undertaken by national government.
b) The proposed EMS makes use of "hook ons" which take the form of existing management systems such as the monitoring and information systems, which are a requirement in terms of the NWRS. The will facilitate the construction of a database which in conjunction with monitoring and auditing will build up the database on an ongoing basis.
c) The fact that no single instrument can achieve all the required environmental objectives has been acknowledged. In this regard a number of augmentary tools were recommended such as the Global Reporting Initiative (GRI), for reporting requirements and risk-based assessment tools. The proposed EMS as the overarching tool for driving sound environmental management practices will also co-ordinate and incorporate tools (other than the traditional command and control instruments) which are currently being developed for certain business units. Environmental governance has thus shifted in emphasis towards an innovative hybridization of multiple instruments and tools, which takes cognizance of sustainable development (SAJELP, 2001:14). This is in keeping with foreseeable trends alluded to by Treasury at their Environmental Fiscal Reform workshop held in Pretoria, on the 17-18 November 2003.
d) Existing projects will be used as "hook- ons". Reference has already been made to the use of the EMF as the internal "hook on" and the DEAT/OAG model currently being piloted by DWAF, as "hook-ons". Should DEAT not approve the model, DWAF must take "ownership" of the model and "internalize" this model.
e) The proposed EMS acknowledges the need for "quick victories" or what has been termed "low hanging fruit" by the Durban/eThikwini municipality. In this regard the strategy proposed, makes provision for a phased approach, with each phase designating "milestones" to be achieved and where possible, associated and measurable "quick victories".

9.5.7 Improving Institutional Performance

It is stated that without a clear legislative framework and effective institutions, well-conceived policies and actions to address priority environmental problems cannot be "translated" into practice. Most national environmental strategies emphasise 3 key areas for improving institutional performance. These being:

(i) Assigning clear institutional responsibilities;
(ii) Establishing consistent and transparent legislation; and

(iii) Ensuring effective implementation capacity (World Bank, 1995:39).

This includes:

- Clarifying institutional responsibilities.
- Establishing consistent and transparent legislation.
- Building implementation capacity, which includes aspects such as matching management responsibilities with funding and available expertise, creating a system of incentives and penalties.
- Mobilising financial resources.
- Monitoring and evaluation. As stated national environmental strategies need to be continuously updated and refined to reflect new information and changing environmental conditions and priorities. In this way, the planning and implementation of key actions can be adjusted to address emerging issues before they become too costly (World Bank, 1995:47). Monitoring and evaluation are considered essential tools for the reformulation of national environmental strategies and actions plans.
- Performance indicators. Performance indicators compare how actual measures of environmental quality, relate to the targets or objectives established in standards set by policy-makers. Many countries have developed indicators, "to support routine monitoring". Environmental data can also be used to help integrate economic and environmental issues within the broad context of policy-making for national development (World Bank, 1995:49).

In testing the EMS against these criteria for improving institutional performance, the following:

(i) The need to "assign" clear institutional responsibilities has been referred to as an important component of the EMS implementation strategy (refer to Chapter 10: Conclusions and Recommendations).

(ii) With regard to consistent and transparent legislation, refer to (v).

(iii) The proposed EMS acknowledges the need for ensuring *effective* implementation capacity and as a result has been linked to the various strategic management planning cycles and associated Business Plan, so as to ensure that the necessary capacity is planned and budgeted for.

(iv) Reference was made to "assigning" institutional responsibilities in (i), which differs from "clarifying" institutional responsibilities. With regard to the clarification of institutional responsibilities, the DEAT/OAG model currently being piloted (which makes provision for an EMS), also allows for "testing" of departmental mandates.

(v) The proposed EMS recognises the need for ensuring that legislation is both consistent and transparent. As a result it refers to the incorporation and strengthening of the existing DEAT CEC: Law Reform committee. This function of the body includes the perusal of legislation prior to approval, so as to ensure consistency with existing legislation. It also increases awareness and transparency of proposed legislation. The proposed EMS also makes provision for a review reiterative loop of departmental policies. This function is also recommended as an integral component of the DEAT/OAG pilot model, to test departmental mandates against policy and legislation.

(vi) The proposed EMS is as mentioned, linked to the strategic management cycles thereby ensuring that funding and capacity are incorporated as part of the Business Plan, thus matching management responsibilities with funding. In referring to the need for a system, which allows for incentives and penalties, the proposed EMS takes cognisance of the need for the incorporation of a mixture of environmental governance instruments and will incorporate existing DWAF initiatives in this regard.

(vii) The need to mobilise financial resources has been identified as an integral part of the functioning of the proposed EMS. As a result the proposed EMS is linked to the strategic cycles of the department so as to ensure that it is linked to the Business Plan and associated budget.

(viii) The need to "close the loop" and ensure that checking and corrective action is in place in the form of monitoring and auditing is considered an important component of the proposed EMS. The proposed EMS will be an integral part of the DEAT/OAG model, currently being piloted, which takes into account environmental performance, reporting to parliament by the OAG and benchmarking with other departments. Cognisance has also been taken of the need to strengthen ties with the internal auditor.

(ix) The proposed EMS refers to the incorporation of not only institutional controls but of performance indicators. Recommendations were made for the incorporation of various projects and programmes already underway such as the joint indicator project currently being undertaken by DEAT in conjunction with DWAF.

9.5.8 Summary: NES Criteria and Methodology

It is stated that national environmental strategies and action plans are increasingly accepted as part of an integral process in linking environmental management with economic growth.

A major challenge over the next few years will be making the transition from successfully completing national environmental strategies to actually implementing their recommendations. The longer-term aim is nothing less than the full incorporation of environmental concerns into national economic development to create truly environmentally sustainable development (World Bank, 1995:51).

The EMS attempts to take cognisance of this through its interaction with Local Government and associated Integrated Development Plans.

9.6 A SWOT ANALYSIS FOR THE PUBLIC SECTOR

Finally in testing the proposed EMS, cognisance was taken not only of the perceived shortcomings, but of a SWOT analysis undertaken by the Office of the Auditor General and communicated by Heunis (2003)[a], with regard to the strengths, weaknesses, opportunities and threats which exist within the Government sector.

9.6.1 Outcome of SWOT analysis undertaken by the Office of the Auditor General

Strengths

- Constitution makes provision for sustainable development issues.
- Constitution acknowledges international treaties and agreements.
- Existence of environmental legislation.
- Three tiers of government are connected by means of NEMA, and plans, such as EIP, EMP and Integrated development plan.
- International liaison – United nations, etc

Weaknesses

- Lack of capacity.
- Lack of co-operation between three tiers of government.
- No or poor management information.
- Lack of proper communication.
- More reactive than proactive.
- Internal audit not looking at sustainable development issues.
- Financial management not marrying with sustainable development issues.

Opportunities/Challenges

- Be innovative and creative.
- Implement internal environmental audits.

- The ability to influence internal and external regulations, policy and standards.
- To be the leaders in Africa.
- NEPAD.

Threats

- NEPAD, United Nations efforts, sustainable development and financial management are interrelated and any reactive input from South Africa's government may be a threat to South Africa and the region.
- Imbalance – the government may see social issues to be more important than environmental issues.

9.6.2 Testing the Proposed EMS against the OAG SWOT analysis

The Proposed EMS was tested against the outcome of this SWOT analysis, as reflected in the following table:

TABLE 7: PROPOSED EMS TESTED AGAINST OAG SWOT ANALYSIS FOR PUBLIC SECTOR

SWOT ANALYSIS	PROPOSED EMS
Strengths identified by the OAG	**Strengths (optimised in EMS)**
Strengths • Constitution makes provision for sustainable development issues • Constitution acknowledges international treaties and agreements. • Existence of environmental legislation. • Three tiers of government are connected by means of NEMA, and plans, such as EIP, EMP and Integrated Development Plans. • International liaison – United Nations, etcetera.	This "strength" in legislation will be maintained and further "strengthened" by the following measures: • Gap analysis to be undertaken regarding legislation and associated mandate. Both the proposed EMS and the DEAT /OAG pilot model, which serves as a "hook on" for the EMS, makes provision for this. • A risk assessment identifies risk areas according to functions and activities where policy and legislation may be inadequate. This risk assessment will be incorporated as part of the Initial Review. This is a prerequisite for both the EMS and the proposed model. The exercise if appropriate for both need not be duplicated. • Cross-referencing with policy as a reiterative process within the ISO 14001 life cycle of proposed EMS. • Review of policies and legislation as an "in house" process, as part of the EMS and through the DWAF CEIMP committee.

	• Alignment of policies and legislation as a co-operative governance process through: o The proposed inter-ministerial committee o The CEC: Law Reform committee o Alignment of the respective departmental policies, plans, programmes and projects. • Alignment with Local Government implementation plans such as IDPs, so as to ensure a co-operative governance "master plan" for environmental planning amongst the respective departments concerned, for each region.
SWOT ANALYSIS	**PROPOSED EMS**
Weaknesses	**Measures to overcome identified Weaknesses**
Weaknesses • Lack of capacity. • Lack of co-operation between three tiers of government. • No or poor management information. • Lack of proper communication. • More reactive than proactive. • Internal audit not looking at sustainable development issues. • Financial management not marrying with sustainable development issues.	The proposed EMS in an attempt to overcome these weaknesses will address the following: • Roles and responsibilities. • Link up with existing databanks (refer to "hook- ons") so as to improve the quality of management information. • Communication procedures will be put in place between the three tiers of government and various stakeholders such the public and respective sectors. • Globally accepted reporting principles will be adopted in the form of the GRI, in conjunction with "building up" databanks, which have the relevant performance indicators. In this manner various augmentary tools will enhance the EMS. • In addressing communication requirements there will be a particular emphasis regarding the need to communicate with Local Government, given the fact that they are responsible for implementing policies, plans, projects and programmes. Sustainable development through implementation thus rests with local government. Particular attention will be paid to co-operative governance development plans, such as assuring links with the IDPs. • Other augmentary management tools, such as those similar to the BD&I used by SASOL, which includes "forcing measures" ("stop-go" points) and milestones to be achieved, will be linked to the EMS to ensure a more proactive approach.

	• The ISO 14001 based EMS will include criteria identified for the facilitation of "sustainable development" and incorporate "internal controls", as referred to by the Auditor General's office to overcome weaknesses referred to. • The EMS emphasises the need to strengthen links with the Internal Auditor, thus assuring that financial management is better integrated with sustainable development objectives. • This together with reiterative risk assessments and benchmarking of environmental performance through the proposed DEAT/OAG model will also contribute to more secure and integrated links between financial auditing and sustainable development.
Opportunities/challenges • Be innovative and creative. • Implement internal environmental audits. • The ability to influence internal and external regulations, policy and standards. • To be the leaders in Africa NEPAD.	• Cognisance is taken of the need to foster and strengthen links with the internal auditor and those business units responsible for environmental and sustainable management practices within DWAF. • Through the measures referred to above ("strengths"), the ability to influence or improve policies and standards, exists. • Another mechanism is the ongoing risk assessment, which will act as a type of "gap analysis" for departments and their respective departmental mandates. This forms "part and parcel" of both the EMS and the proposed DEAT/OAG model, of which the EMS is an integral part. The aforementioned should make allowances for not only alignment of policies and regulations but for influencing thereof. • Challenges remain in that first world legislation has to be implemented by a developing country. The challenge is to develop a "customized" EMS, which results in an appropriate "blend" of both global and developing criteria for the proposed EMS.

SWOT ANALYSIS	PROPOSED EMS
Threats identified by the OAG	**Measures to overcome identified threats.**
Threats • NEPAD, United Nations efforts, sustainable development and financial management are interrelated and any reactive input from South Africa's government may be a threat to South Africa and the region. • Imbalance – the government may see social issues to be more important than environmental issues.	• The proposed EMS should encourage donor funding given the fact that the EMS is developed as far as possible according to "sustainable development criteria". • The risk assessment should minimize the chance of imbalances.

10

CONCLUSION AND RECOMMENDATIONS:

10.1 CONCLUSION: ACHIEVING THE OBJECTIVES

The overall aim of this dissertation is to give an indication as to the purpose of developing an appropriate EMS, with specific reference to DWAF, as a member of the public (government) sector.

In order to achieve this aim, a number of secondary objectives were cited, these being:

- An indication as to the drivers responsible for the development of the proposed EMS.
- A comparison of the various environmental management systems, to identify their key elements, principles, perceived shortcomings and advantages in providing an instrument whereby to conduct Greener Governance.
- An indication as to how the perceived shortcomings could be overcome, to the extent that such a system may evolve through a process of continual improvement to a point where it may be considered to qualify as a Sustainable Management System (SMS).
- Reference as to how and where the envisaged EMS will fit into the DWAF's current management system, and the potential for integration with, and utilization of, elements thereof, to be referred to as "hook-ons".

These objectives listed below, are considered to have been achieved as follows:

- *An indication as to the drivers responsible for the development of the proposed EMS.*

The main driver for developing and implementing an EMS for DWAF was addressed in Chapter 3 (EMS, the theory: Drivers for the development of EMS in SA), which demonstrated the increasing need for compliance with legislation, which fosters the need for the application of such a system. The legislative prerequisites include the need for risk-based systems, adherence to sustainable development principles, a need to demonstrate accountability, statutory reporting on environmental performance requirements, co-operative governance and corporate governance.

- *A comparison of the various environmental management systems so as to identify their key elements, principles, perceived shortcomings and advantages in providing the instrument whereby Greener Governance may be conducted.*

This was broken down according to various chapters, namely:

Chapter 4 (EMS, the theory: Comparison of various EMSs) compared various environmental management systems. This included not only the elements and principles of ISO 14001, the best known and most widely applied standard. Reference was also made to standards, which preceded ISO 14001 such as the BS 7750 and subsequent standards developed for specific sectors. Lesser-known standards were included where their elements were considered to be of significance. An indication was given as to how two different environmental management standards can be applied concurrently and the potential benefits in this regard. The purpose of this chapter was to identify elements, which may be regarded as useful in the development of an appropriate management system for DWAF. An indication was also given as to the natural "evolution" of environmental management systems. This chapter therefore served to give an indication of the philosophy, principles and elements associated with each standard, and the associated potential advantages and disadvantages of the standard in question. This chapter satisfied in part the aforementioned objective, components of which were elaborated upon in subsequent chapters, as reflected below.

In Chapter 5 (Perceived shortcomings associated with EMSs), reference was made to shortcomings identified through a literary research, which dealt particularly with an ISO 14001based EMS. This included perceived shortcomings associated with "sustainable" development criteria and problem areas associated with ISO 14001 based auditing. This was considered to be of particular importance given the fact that the role of DWAF will in future (as a result of

decentralisation), be orientated increasingly toward monitoring, auditing and evaluation. The purpose of this chapter was therefore to identify shortcomings associated with the application and implementation of a typical EMS, so as to ensure that the proposed EMS can overcome the identified shortcomings and that these be "designed out" as far as possible. The section on "sustainable development" criteria was considered to be appropriate in view of the fact that the proposed EMS for DWAF will ultimately have to "qualify" as a sustainable management system (SMS) and include sustainability criteria, if it is to comply with legislative requirements. The primary purpose of this chapter was therefore to identify potential shortcomings of typical EMSs.

Chapter 6 (Application of EMS: International case studies) and Chapter 7 (Application of EMS: National case studies) demonstrated the application of an EMS within an organisation. Perceived shortcomings and the means to overcome certain of these, as well as apparent advantages, are demonstrated in the application of respective environmental management systems. This resulted in general deductions and observations being made regarding apparent trends in the application and implementation of EMSs, which are emerging, both globally and within the context of developing countries. This later facilitated the "design" of an appropriate system for DWAF. These chapters served to verify certain shortcomings (referred to in the literary research), and identify potential advantages associated with the application of certain of the environmental management systems.

Having identified the shortcomings and advantages associated with the various environmental management systems and their application (case studies), these were distilled and recorded in the introduction of Chapter 8 (A proposed EMS), which consists of two sections, namely 8.1 Introduction, and 8.2 Elements of the proposed EMS. The first section placed the aforementioned deductions, observations and recommendations within the context of DWAF, as a representative of the public service within South Africa - a developing country. These deductions and observations facilitated the formulation of a proposed EMS for DWAF, reflected in 8.2 (Elements of the proposed EMS), which elaborated upon the first section and referred to the type of EMS proposed and the elements thereof. This chapter therefore addressed the final secondary objective, which dealt with the envisaged EMS and the integration thereof with the current management system.

Chapter 9 (Testing the proposed system against perceived shortcomings), tests the proposed EMS against perceived shortcomings referred to in the previous chapters. This chapter whilst not addressing a specific objective, served to substantiate the overall objective, as in testing the proposed EMS against identified shortcomings, the appropriateness of the proposed system was verified.

Chapter 10 (Conclusion and recommendations) consists of three sections, namely 10.1 (Conclusion: Achieving the objectives), 10.2 (Recommendations as to a proposed way forward) and 10.3 (The Final Challenge). This section demonstrates the extent to which the proposed objectives are achieved, where after the way forward briefly addresses a strategy for implementing the proposed EMS. Finally, the EMS as a decision-making tool, is contextualised within the political arena, which may be considered as the "final challenge" for the successful implementation thereof.

10.2 RECOMMENDATIONS AS TO A WAY FORWARD: A PROPOSED IMPLEMENTATION STRATEGY FOR THE EMS

It is imperative that the proposed EMS becomes an integral part of the Department's current management system and be able to accommodate the associated strategic objectives. This will ensure that the risks and liabilities associated with the respective business units and their associated functions and activities, can be strategised and prioritised as targets and objectives.

Currently DWAF plays both a policy-oversight and implementation role in Water Resource Management (WRM) and Water Services (WS). With the establishment and delegation of WRM implementation functions to catchment management agencies (CMAs) and the transfer of WS schemes to Local Government, the role and functions of DWAF will change considerably over the next ten years (RSA, 2002:13)[a], to one which pertains more to an auditing and monitoring overview.

In accommodating these projected changes, the EMS must take cognisance of, and must also be aligned with, the current strategic planning cycles and their associated short, medium and long term planning implications, these being:

- NWA IP (National Water Act, Implementation Plan) (10 – 15 yrs)
- SO (Strategic Objectives) (3 yrs)
- BP (Business Plan for each Directorate) (1yr)

The aforementioned also affects each individual's

- Work plan (quarterly), as it is upon this work plan that performance for the business unit in question is assessed.

10.2.1 Points to Be Included As Part Of the Strategy for Implementation of the EMS

In developing a strategy for the implementation of the proposed EMS, the following six steps recommended for "Implementing an EMS in the Public sector", were referred to, as captured by Environment Canada (2000:3.13).

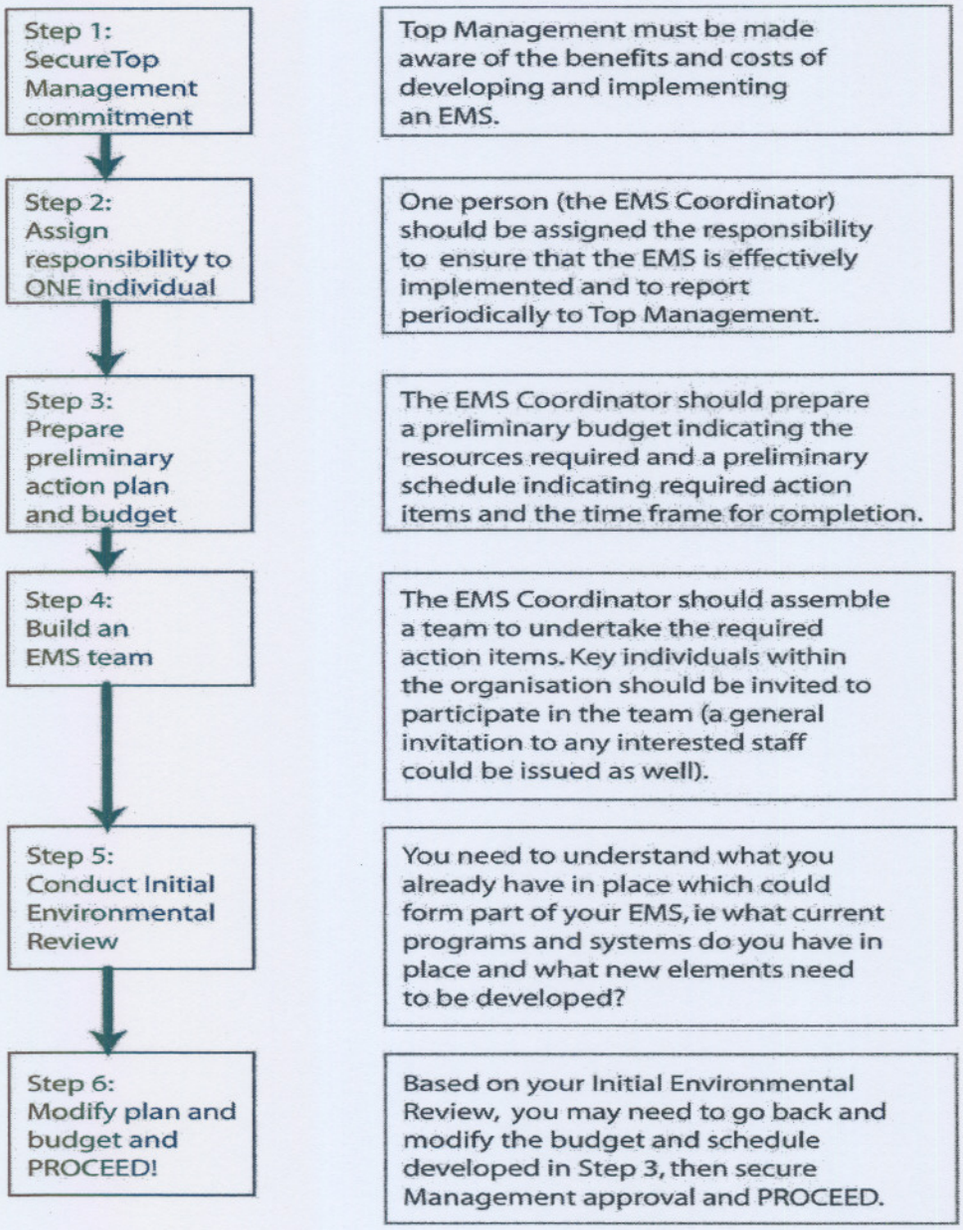

Figure 19: Steps for the Implementation of an EMS in the Public Sector
(Adapted from Environment Canada, 2000:3:13)

An indication as to the extent to which the proposed EMS takes cognizance of these six steps is indicated in the table, below:

TABLE 8: EXTENT TO WHICH THE SIX IDENTIFIED IMPLEMENTATION STEPS ARE INCORPORATED IN THE PROPOSED EMS

Proposed six steps for implementing an EMS in the public sector.	Proposed EMS for DWAF and the extent to which these steps are addressed.
1. Secure top management commitment.	This will be facilitated through the recommendation to use "hook-ons" such as the EMF and existing committees such as the CEIMP committee. The aforementioned elements promote sound environmental management principles and as a result some "buy in" has already been achieved.
2. Assign responsibility to one individual.	An individual from the Sub-directorate: Environment and Recreation, has been assigned the responsibility of ensuring that an EMS is developed and implemented for DWAF's water service sector.
3. Prepare preliminary action plan and budget.	Funds have been allocated for the appointment of consultants for the development and implementation of an EMS.
4. Build an EMS team.	Individuals who were appointed as representatives to "sit on" the CEIMP committee, who participated in the EMF workshops, and who gave input for the DEAT/OAG pilot model will be invited to become part of the EMS team, so as to ensure strategic direction, integration with the EMS and "buy in" from management. This will include both national and regional representation.
5. Conduct Initial Environmental Review.	The proposed EMS makes provision for an Initial Environmental Review.
6. Modify plan and budget and proceed.	This will be done on an ongoing basis according to the proposed phases of the EMS. This is to be integrated as part of the DWAF Business Plan.

10.2.2 Implementation Strategy Framework

The study highlighted potential shortcomings associated with EMSs, and as a result the recommendations made regarding an EMS (considered appropriate for DWAF) attempted to overcome these shortcomings. In order to ensure the successful implementation of an EMS, not only must the design and

development thereof, be appropriate, but the actual implementation must ensure that what is "on paper" becomes a reality. In order to achieve this, basic criteria of an implementation strategy, are considered.

10.2.3 Project Management and Implementation Strategies

Reference has been made to potential implementation steps, considered appropriate for the Canadian government sector. A strategy is required to implement these steps and any others considered appropriate. Although various criteria and methodologies exist for implementation, only one is selected for the purposes of this study, namely PMBOK's Nine Knowledge Areas (PMI, 1996:6). The nine knowledge areas are as follows:

- Integration
- Scope
- Time
- Cost
- Quality
- HRM
- Communication
- Risk
- Procurement

What follows therefore is not a comprehensive implementation strategy but rather criteria, which can serve as a checklist for the development of such a strategy. Prior to expounding upon these criteria within the context of implementing the proposed EMS, reference is made to the concept of project management, as it relates to developing the proposed EMS.

It is stated that project management is the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. It is further stated that the term project management is sometimes used to describe an organizational approach to the management of ongoing operations (PMI, 1996:6).

In referring to what may be considered to be a "project", it is stated that, "organisations perform work that generally involves either operations or projects, although the two may overlap. Operations are considered to be ongoing and repetitive while projects are temporary (definite beginning and end) and unique (different in some distinguishing way) involving something, which has not been done before, and which is therefore unique (PMI, 1996:5).

As regards the implementation of the proposed EMS, it can be stated that this is a project which will become operational, following the implementation thereof,

and that the project itself may be regarded as unique, in that the development and application of an EMS for DWAF has not been undertaken before.

A synopsis of the nine points referred to as the Nine Knowledge Areas, follows, where after these are expounded upon within the context of the proposed EMS.

10.2.4 Summary of Project Management Knowledge Areas

All are subsets of project management and are depicted in the diagram below, after which a brief explanation of each Knowledge Area follows.

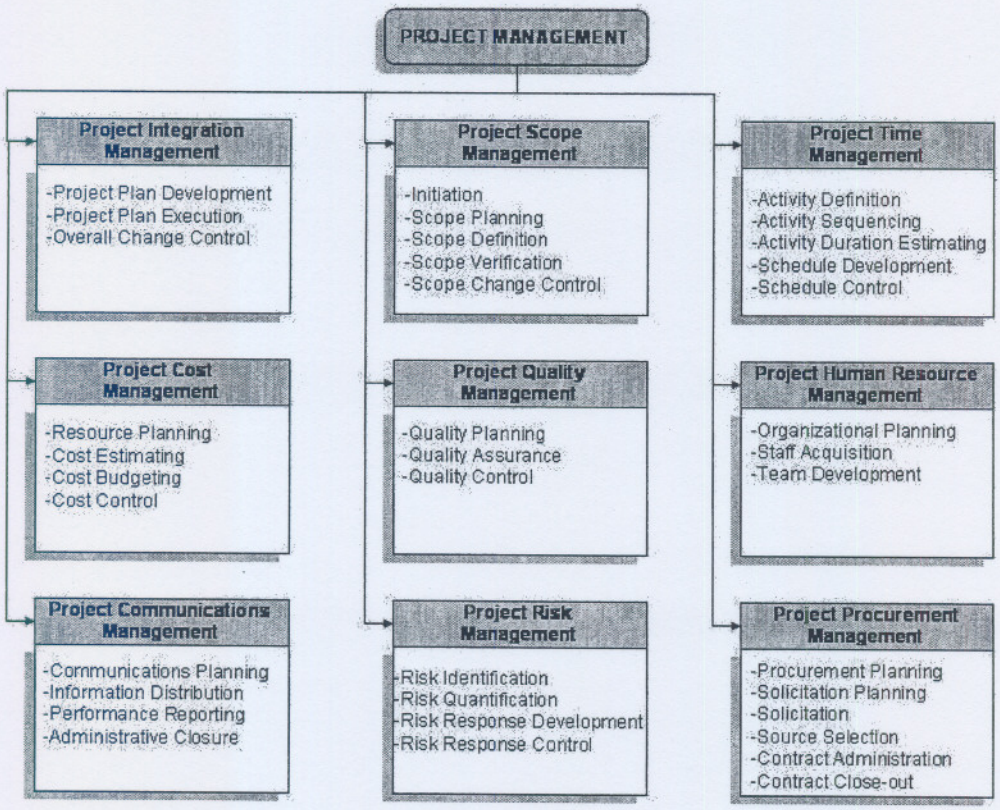

Figure 20: The Nine Knowledge Areas identified for application in the Implementation of any Project
(Adapted from Project Management Institute, PMI: 1996:7)

➢ Project Integration Management

Describes the processes required to ensure that the various elements of the project are properly co-ordinated. It consists of:

- Project plan development – taking the results of other planning processes and putting them into a consistent, coherent document.
- Project plan execution – carrying out the project plan by performing the activities included therein.
- Overall change control – co-ordinating changes across the entire project.

➢ Project Scope Management

Describes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. It consists of:

- Initiation – committing the organization to begin the next phase of the project.
- Scope planning – developing a written scope statement as the basis for future project decisions.
- Scope definition – subdividing the major project deliverable into smaller more manageable components.
- Scope verification – formalizing acceptance of the project scope.
- Scope change control – controlling changes to project scope.

➢ Project Time Management

Describes the processes required to ensure timely completion of the project. It consists of:

- Activity definition – identifying the specific activities that must be performed to produce the various project deliverables.
- Activity sequencing – identifying and documenting interactivity dependencies.
- Activity duration estimating – estimating the number of work periods, which will be needed to complete individual activities.
- Schedule development – analysing activity sequences, activity durations, and resource requirements to create the project schedule.
- Schedule control – controlling changes to the project schedule.

➢ Project Cost Management

Describes processes required to ensure that the project is completed within the approved budget. It consists of:

- Resource planning – determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.
- Cost estimating – developing an approximation (estimate) of the costs of the resources needed to complete project activities.
- Cost budgeting – allocating the overall cost estimate to individual work items.
- Cost control – controlling changes to the project budget.

➢ Project Quality Management

Includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It consists of:

- Quality planning – identifying which quality standards are relevant to the project and determining how to satisfy them.
- Quality assurance – evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
- Quality control – monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

➢ Project Human Resource Management

Includes the processes required to make the most effective use of the people involved with the project. It consists of:

- Organizational planning – identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.
- Staff acquisition – getting the human resources needed, assigned to and working on the project.
- Team development – developing individual and group skills to enhance project performance.

➢ Project Communications Management

Includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information. It consists of:

- Communications planning – determining the information and communications needs of the stakeholders: who needs what information, when they will need it, and how it will be given to them.
- Information distribution – making needed information available to project stakeholders in a timely manner.
- Performance reporting – collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting.
- Administrative closure – generating, gathering, and disseminating information to formalize phase or project completion.

➢ Project Risk Management

Includes the processes concerned with identifying, analyzing, and responding to project risk. It consists of:

-

- Risk identification – determining which risks are likely to affect the project and documenting the characteristics of each.
- Risk quantification – evaluating risks and risk interactions to assess the range of possible project outcomes.
- Risk response development – defining enhancement steps for opportunities and responses to threats.
- Risk response control – responding to changes in risk over the course of the project.

➢ Project Procurement Management

Includes the processes required to acquire goods and services from outside the performing organization. It consists of:

- Procurement planning – determining what to procure and when.
- Solicitation planning – documenting product requirements and identifying potential sources.
- Solicitation – obtaining quotations, bids, offers, or proposals as appropriate.
- Source selection – choosing from among potential sellers.
- Contract administration – managing the relationship with the seller.
- Contract close out – completion and settlement of the contract, including resolution of any open items.

The Nine Knowledge Areas referred to, were taken cognizance of in the application of the proposed EMS, as reflected in the table, which follows.

TABLE 9: THE APPLICATION OF THE NINE KNOWLEDGE AREAS AS PART OF THE IMPLEMENTATION STRATEGY FOR THE PROPOSED EMS

Nine Knowledge Areas	Application for proposed EMS
Integration Project Integration Management: Describes the processes required to ensure that the various elements of the project are properly coordinated. It consists of: ▪ Project plan development – taking the results of other planning processes and putting them into a consistent, coherent document. ▪ Project plan execution – carrying out the project plan by performing the activities included therein. ▪ Overall change control – coordinating changes across the entire project.	Integration with the current management system is of particular importance if there is to be "buy in" and associated allocation of funds. Integration of the proposed EMS with the strategic management cycles and associated Business Plan is therefore of considerable importance. Integration with existing "projects" will include those regarded as useful "hook-ons" such as the EMF (internal framework), CEIMP (statutory reporting requirement) and the associated DEAT/OAG pilot model (external framework). In this regard provision has been made for the EMS to be driven through the EMF in the interim, until such time as the EMS has developed to the extent that it serves as the overarching system. Integration with other standards and processes will ultimately result in the proposed EMS incorporating and integrating the FSC standard (applied by certain business units within the forestry component of DWAF) as part of the environmental management system. Integration will include the various monitoring and information systems, developed in response to the requirements of the National Water Resource Strategy (NWRS), and programmes such as the DEAT/DWAF indicator programme. Integration is therefore at both an organisational and co-operative governance level.
Scope Project Scope Management Describes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. It consists of: ▪ Initiation – committing the organization to begin the next phase of the project. ▪ Scope planning – developing a written scope statement as the basis for future project decisions. ▪ Scope definition – subdividing the major project deliverable into smaller more manageable components. ▪ Scope verification – formalizing acceptance of the project scope. ▪ Scope change control – controlling changes to project scope.	As part of the initiation of the project, the scope can be defined in terms of the corporate environmental policy, regarded as the foundation of an EMS. Currently DWAF does not have an environmental policy. This will be developed as part of Phase 2 of the EMF. The scope of planning must refer to the mandate of those responsible for implementing the EMS phases of the project, which will determine the scope of the project. Thus, initially the EMS will be restricted to the water sector (WS and WRM) where after it is anticipated that it will include Forestry as a core function. It is recommended that the scope of the EMS and the associated phases be determined through various mechanisms such as a risk- based assessment (as part of the Initial Review), which will take cognisance of the various processes and activities undertaken by DWAF. This will also result in prioritisation of phases and the associated business units. As part of the phasing process, pilot testing in conjunction with the associated business units will be decided upon, as will the need to "roll out" the EMS to other business units within DWAF.

	Following initial pilot studies, a generic type of EMS will be applied to selected DWAF business units, where after it will be "rolled out" to the remaining business units. Although a generic type of EMS will be developed, a cut-and-paste operation will not be successful, if it is not tailored to meet the requirements of the respective business unit in question. Cognisance must be taken of the three tiers of government (refer also to "Communication", as one of the Nine Knowledge Areas), especially Local Government given their increasing role in implementation of projects as a result of decentralisation. The scope of the EMS must ensure linkages with the respective IDPs (Integrated Development Plans) if sustainable development is to be achieved. Typically, the scope of work for each phase will be linked to the financial year in question. Refer also to "Cost", as one of the Nine Knowledge Areas.
Time Project Time Management: Describes the processes required to ensure timely completion of the project. It consists of: ▪ Activity definition – identifying the specific activities that must be performed to produce the various project deliverables. ▪ Activity sequencing – identifying and documenting interactivity dependencies. ▪ Activity duration estimating – estimating the number of work periods which will be needed to complete individual activities. ▪ Schedule development – analysing activity sequences, activity durations, and resource requirements to create the project schedule. ▪ Schedule control – controlling changes to the project schedule.	In project management, a programme is used as the mechanism whereby activities (tasks) and associated targets (deadlines), with milestones and deliverables for each "phase" of a set duration are decided upon prior to implementation. Progress linked to time and delivery can be indicated using a Gantt chart. In achieving the objectives and targets decided upon, the standard of the deliverables must be of an appropriate quality. Refer also to Quality. Another aspect of time pertains to alignment with, and incorporation of, "hook ons", and associated time frames. In this regard it is recommended that the proposed EMS be reviewed every four years in conjunction with the EIMP's (annual statutory reporting requirement, in terms of NEMA). This will allow for alignment of the associated objectives and targets of each. Refer also to "Integration", as one of the Nine Knowledge Areas. Time frames are also associated with integrating the EMS and its objectives and targets with the short, medium and long-term strategic planning goals of the DWAF Business Plan.
Cost Project Cost Management Describes processes required to ensure that the project is completed within the approved budget. It consists of: ▪ Resource planning – determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.	Although one of the more obvious criteria, the importance thereof cannot be over emphasised as every activity within the implementation strategy will have a cost factor. In this regard drafting of all contractual documentation and the associated ramifications thereof is in itself a skill. The phases of the EMS and associated activities will each be of a specific duration and require certain skills and resources. Each will have a cost implication, the cost to be approved by management and linked to the DWAF Business Plan. The associated deliverables for every phase must be of an appropriate quality so as to ensure that controls are in place. Refer also to "Quality".

▪ Cost estimating – developing an approximation (estimate) of the costs of the resources needed to complete project activities. ▪ Cost budgeting – allocating the overall cost estimate to individual work items. Cost control – controlling changes to the project budget	
Quality Project Quality Management Includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It consists of: ▪ Quality planning – identifying which quality standards are relevant to the project and determining how to satisfy them. ▪ Quality assurance – evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards. ▪ Quality control – monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.	In implementing the project, quality must be assured and controlled. Contractually each implementation phase will be linked to certain deliverables, which must be to the satisfaction of the stakeholders in question. Certain of the quality controls already exist as "hook-ons" such as various indicator programmes and others will have to be developed as part of the EMS, for evaluation in later phases. The implementation of the EMS, will in making use of the aforementioned "hook-ons" take cognisance of co-operative governance requirements. The "hook -ons" incorporated and referred to, will be used to: ▪ Evaluate the appropriateness of mandates and associated policy and legislation (DEAT: CEC: Law Reform, being a "hook on" in this regard). ▪ Over time, gauge the extent to which the EMS facilitates and improves environmental performance through statutory report- backs and benchmarking with other departments (DEAT/OAG model). Other mechanisms to ensure quality control must be developed as part of the EMS and include the following: ▪ Identification of areas of concern, which can be corrected through a process of continual improvement, using small reiterative feedback loops (Keitzan steps). ▪ Development and incorporation into the EMS, of the four internal controls identified by the Office of the Auditor General. ▪ Establish firmer links with DWAF's internal auditor. ▪ A number of "forcing measures / stop go points / or stage gates will be developed as part of the EMS, which once implemented will act as a control measure. This concept was referred to in the SASOL BD&I model (case study, Chapter 7). ▪ Monitor, evaluate and make provision for associated corrective action. In general it can be stated that the philosophy of continual improvement and the Demming cycle (plan-do-check-act) will facilitate ongoing development of quality controls.
HRM Project Human Resource Management Includes the processes required to make the most effective use of the people involved with the project. It consists of: ▪ Organizational planning – identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.	Human resource management is both varied and complex and must be taken into account as part of the implementation strategy. It includes aspects such as available skills, and contractual prerequisites regarding human resources. This will include aspects such as "building a team", as referred to by Bilodeau (Canadian Ministry) and the need to select a "champion" to drive the project and assign responsibility to one individual. In defining the tasks associated with the EMS, it should include aspects such as ensuring that someone with a good knowledge of legal requirements is involved.

▪ Staff acquisition – getting the human resources needed assigned to and working on the project. ▪ Team development – developing individual and group skills to enhance project performance.	The appointment of individuals to undertake specialist tasks. HRM will also make provision for the identification of skills and training necessary and a "train-the-trainer" programme so as to ensure that the EMS is conveyed to required DWAF role-players. It will facilitate the allocation of roles and responsibilities pertaining to the EMS.
Communication Project Communications management Includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage and ultimate disposition of project information. It consists of: ▪ Communications planning – determining the information and communications needs of the stakeholders: who needs what information, when will they need it, and how will it be given to them. ▪ Information distribution – making needed information available to project stakeholders in a timely manner. ▪ Performance reporting – collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting. ▪ Administrative closure – generating, gathering, and disseminating information to formalize phase or project completion.	Provision must be made in the implementation strategy for communication between all the relevant stakeholders, especially between the three government tiers. As noted in the findings, particular attention must be paid to Local Government level, as they are responsible for implementing projects at ground level. Another aspect identified during the course of this study is the need for communication between the internal auditor and the team responsible for implementation of the EMS.
Risk Project Risk Management Includes the processes concerned with identifying, analyzing, and responding to project risk. It consists of: ▪ Risk identification – determining which risks are likely to affect the project and documenting the characteristics of each. ▪ Risk quantification – evaluating risks and risk interactions to assess the range of possible project outcomes. ▪ Risk response development – defining enhancement steps for opportunities and responses to threats.	Risks pertaining to the potential failure of the project (successful implementation of the EMS) must be identified. In this regard the main potential risk would be that of a system (EMS), which is not sustainable, especially as it is a voluntary system, which is unlikely to be certified because of the associated expense. The "hook-ons" such as the DEAT/OAG model which makes provision for benchmarking and reporting to Parliament should in addition to other measures ensure that there is sufficient incentive to maintain the system. As mentioned, a decision by DEAT regarding approval of the DEAT/OAG model is pending. Should such a model not be approved the associated incentives to maintain the system are weakened. It is however likely that should the DEAT/OAG model not be adapted to include the NEMA statutory reporting requirements, this model is in any event likely to be adopted by the OAG for departmental auditing purposes.

Risk response control – responding to changes in risk over the course of the project.	In the interim, DWAF must take "ownership" of the model and internalize it. Other possible risk areas, pertaining to the system, typically include poor decisions based upon poor data. In this regard a safeguard is in place in that the system will incorporate current initiatives underway, which includes existing and proposed information and monitoring systems, established as a result of the NWRS. As referred to in the SWOT analysis, a lack of resources within the public sector remains a significant problem, especially as a result of demands associated with the decentralisation process. As a result, the proposed system is linked to the strategic planning cycles of the DWAF Business Plan and provision is made for a "champion" and environmental management team to be formed. In this regard there are certain risk areas too. An example being the reference to the fact that the development of an EMS is frequently regarded as an "add on" task for the person to whom the task was allocated (SAFCOR case study). As part of the implementation strategy, the required training and various "train the trainer" programmes will be undertaken. A further point of concern and associated potential risk area includes a concern that policies (of a high standard and quality) are not feasible for implementation, given the fact that South Africa is a developing country. In this regard, safeguards include review of policy and associated mandates, as part of the DEAT CEC: Law Reform process, which will serve as a "hook on". An attempt has also been made to ensure that the system addresses development and environmental issues holistically, instead of as two separate issues. As a result the proposed EMS makes provision for integration with the IDPs at Local Government level. Finally, in order to safeguard against institutional risk the OAG has identified four internal controls, these being applicable to any task including that of implementation of the EMS. These being: ▪ Information systems ▪ Responsibilities ▪ Competencies ▪ Checks and monitoring.
Procurement Project Procurement Management Includes the processes required to acquire goods and services from outside the performing organization. It consists of: ▪ Procurement planning – determining what to procure and when ▪ Solicitation planning – documenting product requirement and identifying potential sources. ▪ Solicitation – obtaining quotations, bids, offers, or proposals as appropriate.	The scope of the project will determine the type of equipment, which must be procured, an example being the purchase of equipment for the project, which includes the purchase of both hardware and software.

- Source selection – choosing from among potential sellers.
- Contract administration – managing the relationship with the seller.
- Contract close out – completion and settlement of the contract, including resolution of any open items.

10.3 The Final Challenge

As noted, the previous chapters identified potential shortcomings associated with a conventional EMS and an attempt was made to design a system which incorporated criteria associated with a sustainable management system. Having tested the system against these criteria and considered a suitable implementation strategy, it must be noted that the biggest challenge for the Department could rest with decisions made outside the department, within the political arena. The question as to how politics affects sustainable development and its impact upon an environmental management system (as a tool for sustainable development) must be posed.

Decision-making with regard to any plan, policy or programme, should take cognisance of sustainable development, which is generally perceived as consisting of three interlinked components, namely social, biophysical and economic.

It is thus of interest to note that Dr Cameron referred to sustainable development as consisting of 5 dimensions, these identified by the International Union for Conservation of Nature (IUCN), as follows:

- An economic dimension
- A social dimension
- A political dimension
- A cultural dimension and
- An ecological (bio-physical) dimension (SAVA, 1993:65).

In using the commonly accepted definition of sustainable definition as referring to social, bio-physical and economic dimensions, it may be assumed that the social dimension incorporates the cultural dimension and that ideally, a political decision is taken, based upon these three dimensions. In considering the IUCN definition, it is significant to note that a political dimension is included as a separate dimension and not distanced as a political decision based upon the three "traditional" dimensions.

Political decisions both in the past and in the future will continue to affect and at times override any of the *other* aforementioned dimensions. Generally, political decisions are taken for what is perceived to be socio-economic benefits, in the short to medium term. In this instance, there is a real risk that the socio-economic benefits are unsustainable in the long term, which inevitably results in environmental degradation.

The fact remains that fundamentally, environmental issues are intertwined with the economy (SAVA, 1993:63) and that quick-fix solutions and short-term benefits are likely to be to the detriment of the environment and thus ultimately to the detriment of the people. Developing countries particularly, run the risk of environmental degradation through the implementation of projects, which enjoy unsustainable short-term benefits.

It is thus evident that the application of sound environmental management practices (through an appropriate EMS), can be frustrated by political decisions if these are inappropriate. In future, this is likely to be further exacerbated by increasing demands being made upon a scarce resource such as water, for development and job creation. The concept of sustainable development is complex and whilst it is acknowledged that decision-making entails compromises, it is of paramount importance that an adequate lead-in time be allowed for appropriate planning and communication between the three tiers of government, so as to guide strategic planning and political decisions. It is for this reason, that the implementation strategy emphasised the need for identification and prioritisation of national key risk areas, within the context of co-operative governance.

From the aforementioned, it is also evident that DWAF as custodian of the water resources within a developing and water scarce country has an onerous task, ahead of it.

B

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