AN ASSESSMENT OF THE FORMULATION OF PERMIT CONDITIONS ASSOCIATED WITH ENVIRONMENTAL AUTHORISATIONS AND IMPLICATIONS FOR COMPLIANCE MONITORING

Patricia Jennings

Submitted in partial fulfillment of the academic requirements for the Degree of Master in Philosophy in Environmental Studies

Department of Geography

University of Fort Hare

Supervisor: Prof. W. Nel

December 2011

East London

DECLARATION

I declare that this dissertation is my own original work, except where stated, and that it has not been submitted for a degree to any other university.

NAME: Patricia Jean Jennings

SIGNATURE: _____

DATE: _____

PLACE: UNIVERSITY OF FORT HARE, ALICE

Dedication:

For my colleagues: past, present and future.

Acknowledgments:

Thanks are due to many people for assistance and encouragement in completing this work. Firstly, to colleagues from the Department of Agriculture, Environmental Affairs and Rural Development in KwaZulu-Natal: Dr William Mngoma, Ms Sarah Allan, Ms Mavis Padayachee and Mr Gerald Willis-Smith; and Ms Sbu Hlela of the Department of Environmental Affairs. All of whom were instrumental in providing access to documents. Secondly, to Ms Jenny Hall of EnviroConsult, who very generously reviewed and commented on the legislation section in an early draft. Her comments have done much to strengthen this work. Any remaining errors or dubious interpretations are entirely mine. Thanks are also due to my employer, particularly my manager, Mr Mervin Olivier, for allowing me to take an extended leave of absence in order to undertake this work; and to my family for providing the financial support to do so. Finally, but no less importantly, I would like to thank my supervisor, Associate Professor Werner Nel, for his guidance and direction as much as his patience and enthusiasm which supported me during this study.

ABSTRACT

Environmental impact assessment is a widely accepted planning tool used in environmental management. Internationally it has been adopted as a formal permitting requirement for development projects in many jurisdictions. Historically the focus has been on the pre-decision making stages of environmental impact assessment. It has, however, been widely acknowledged that post-decision environmental impact assessment follow-up is an important component in confirming initial predictions, enabling responsible adaptive management of environmental impacts and ensuring compliance with permit conditions. It is this last function which is the focus of this study. Specifically, the role of permit conditions in enabling compliance and facilitating compliance monitoring is addressed. Permit conditions of twenty-one environmental authorisations were examined and tested for conformance with legislated requirements, and practicality of monitoring for compliance (monitorability). It was found that there are many contributors to achieving monitorable permit conditions. Amongst the most significant of these are conformity in interpretation of the regulations specifying permit content by officials, gaps in guidance on the part of the regulations themselves, and a tendency to focus on construction related impacts. The lack of clarity regarding the roles and functions of environmental control officer and environmental auditor further contribute to poor monitorability of permit conditions. Specific areas of shortcoming and best practice in the permit conditions analysed were identified and discussed. Finally, recommendations are made for the improvement of permit condition monitorability.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

CA	Competent Authority
CME	Compliance Monitoring and Enforcement
DAEA	Department of Agriculture and Environmental Affairs, KwaZulu-Natal
DAERD	Department of Agriculture, Environmental Affairs and Rural Development, KwaZulu-Natal
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ECA	Environment Conservation Act, Act 73 of 1989
ECO	Environmental Control Officer
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
MPRDA	Minerals and Petroleum Resources Development Act, Act 28 of 2002
NEMA	National Environmental Management Act, Act 107 of 1998
NEMAQA	National Environmental Management: Air Quality Act, Act 39 of 2004
NEMWA	National Environmental Management: Waste Act, Act 59 of 2008
NEMICMA	National Environmental Management: Integrated Coastal Management Act, Act 24 of 2008
NWA	National Water Act, Act 36 of 1998
PAJA	Promotion of Administrative Justice Act, Act 2 of 2000
SEMA	Specific environmental management Act

CHAPTER 1 INTRODUCTION

During the 1960s increasing concern with the manner in which the environment was being managed led to the development of environmental impact assessment (EIA) as a tool to predict the consequences of proposed development projects on the environment. EIA as a formal means of regulating the environmental effects of development was first introduced in the United States of America through the promulgation of the National Environmental Policy Act of 1970 (Sowman *et al.*, 1995). In South Africa it was practiced on a voluntary basis until the late 1990s. Morgan (2001) notes the aims of EIA as usually being enshrined in "some form of environmental policy", hence its link to legislation detailing national environmental policy in countries as diverse as the USA, Thailand and New Zealand, and goes on to identify the following formal aims of EIA (Morgan, 2001, p 12):

> **Project Development:** Informing project design to avoid or minimize adverse effects on the environment and "maximize potential benefits"
>
> **Development Control:** Generating the information "on which decisions about licensing the proposal and performance requirements can be made" by authorities
>
> **Plan Development and Implementation:** Informing broader planning processes either through addressing cumulative impacts in project specific EIAs or through strategic environmental assessments of land use management plans
>
> **Policy Development and Implementation:** In the form of strategic environmental assessment, EIA can be used to assess the environmental consequences of a variety of policies, for example the provision of potable water to every household.

Although South Africa did develop environmental legislation which provided for aspects of environmental management prior to the 1990s, for example the Environment Conservation Act, 1989 (Act 73 of 1989) (ECA), it did not adopt a formal national environmental management policy until 1998. A set of guidelines for the voluntary implementation of EIA – the Integrated Environmental Management Guidelines – were published in 1992 (Sowman *et al.*, 1995). The White Paper on Environmental Management Policy for South Africa (DEAT, 1998) set the foundation for the promulgation of the National Environmental Management Act,

1998 (Act 107 of 1998) (NEMA), as the framework environmental management legislation. A number of specific environmental management Acts followed, for example the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEMAQA) and the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA) which deal with specific aspects of the environmental sector within the framework of NEMA.

Regulation of the environmental aspects of development was initiated concurrently with development of the national environmental management policy. Initially, use was made of sections of the ECA, which provided for the identification of activities which detrimentally affect the environment and the prohibition of undertaking such activities without a permit. The tool selected for identifying and predicting the likely consequences of proposed developments was EIA. In 1997 regulations in terms of sections 26 and 28 of the ECA were published as Government Notice R. 1183 of 5 September 1997 (ECA EIA Regulations), which prescribed the EIA procedure to be undertaken in identifying and assessing the environmental impacts associated with development projects requiring a permit in terms of the Act.

Subsequently, those sections of ECA dealing with the authorisation of activities likely to have a detrimental effect on the environment were repealed and effectively replaced by Chapter 5 of the NEMA. The ECA EIA Regulations were simultaneously replaced by the Regulations in terms of Chapter 5 of the NEMA, published in Government Notice R 385 of 21 April 2006 (NEMA EIA Regulations, 2006). Recently the NEMA EIA Regulations, 2006, have been repealed and replaced with regulations published in Government Notice R 543 of 18 June 2010 (NEMA EIA Regulations, 2010). Whilst there are significant differences between the three generations of regulations with respect to the detail of the prescribed procedures, the EIA process conforms to the generic international norm of screening, scoping, and impact assessment (Figure 1).

Essentially screening entails determining the need for EIA of a particular development project (Morgan, 2001). This may be limited to determination of the legal requirement to obtain some form of permit, or it may be part of a feasibility study aimed at determining the needs and

requirements for proceeding with a project. According to Morgan (2001) the aim of scoping is to structure and organize the EIA study, it entails the identification of likely environmental impacts of a proposed project and includes initial public participation. The EIA study then focuses on detailed investigation of the likely environmental impacts with the aim of predicting environmental changes which the project might cause and considering their implications. The information emanating from the EIA process is then used to inform decision-making, whether these decisions are regulatory (e.g., to grant or refuse a permit), or investment linked (e.g., to grant a loan or proceed with project development).

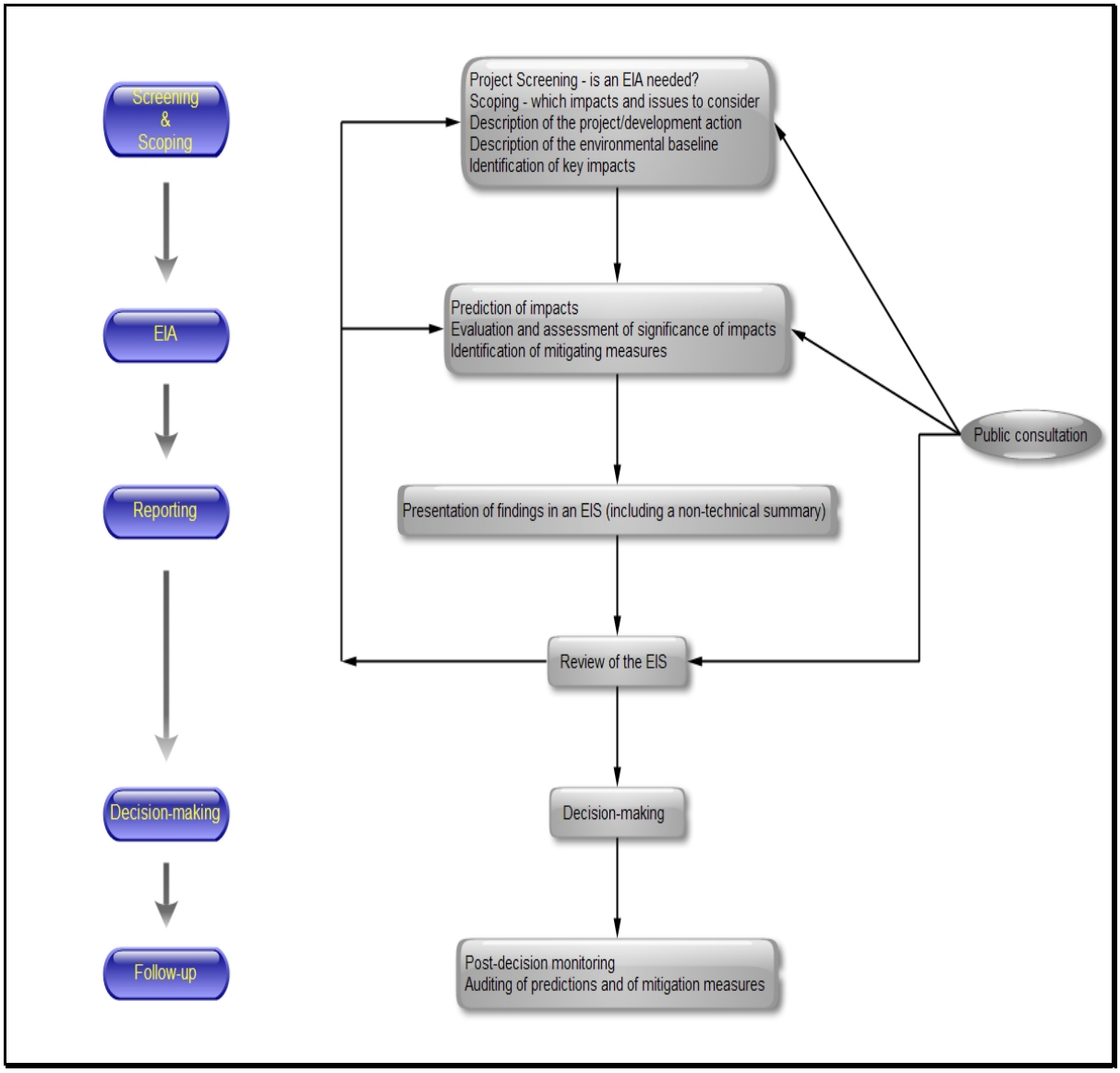

Figure 1: Generic EIA process (adapted from Morgan, 2001)

Since the formalization of EIA requirements in 1997 the focus has been on the undertaking of the EIA process, and the production of formal decisions (i.e., the permitting aspect of the development control aim). Little attention was initially paid to follow up on the resultant permits[1] (Youthed, 2009; Hulett and Diab, 2002). As Youthed (2009) notes EIA is essentially a predictive tool, without follow-up there is no way of determining whether its predictions were accurate and thus no way of learning from experience. More importantly, from the perspective of EIA as development control mechanism, there is no way of monitoring or controlling project implementation and therefore no way of ensuring that impacts are kept within acceptable limits.

The acronym EIA is used in South Africa to refer to both a predictive tool and the outcome of the permitting process. The focus of EIA as an environmental management tool is on predicting environmental outcomes of a specific development project in a specific environmental context in order that an informed decision may be made. The reason for the decision may be regulatory, but it could equally be a business planning decision. The focus of a permitting process is to determine whether the activity conforms to legislated requirements and set conditions subject to which the activity will be deemed to conform to legislated requirements.

Subsequent to the promulgation of the NEMA in 1998 and its amendment in 2003[2] focus broadened to include the monitoring of compliance with the EIA Regulations and associated permit conditions. In some provinces (e.g. KwaZulu-Natal) this resulted in the establishment of dedicated compliance monitoring components with the primary function of monitoring compliance with environmental legislation and associated permits. It soon became apparent that monitoring of permit compliance was very different to the production of permits.

[1] Permits and permitting are used here in their generic sense and not in the narrow legal sense of the legislative provision in terms of which the permission is granted or declined.

[2] NEMA was amended in 2002, 2003, 2004, 2008 and 2009. The amendment of 2003 provided the majority of amendments dealing with compliance and enforcement with the introduction of sections 31A-Q, sections 34A-E, amendment of section 42 replacement of section 42, insertion of section 42A and sections 47A-D. Subsequent amendments and the promulgation of the 2010 EIA Regulations have further strengthened compliance and enforcement measures with, for example, the addition of further punitive provisions in Regulation 71.

Whilst both production of permits and compliance monitoring of permit conditions have a basis in law, there are a number of factors which differentiate them. The essential aim of both permitting and monitoring is compliance with legal requirements, including achievement of the overall intent of the legislation regarding sustainable development. The focus of permitting is however, on procedural compliance prior to decision-making. In contrast post-authorisation monitoring is focused on implementation of and compliance with permit conditions. Critical to compliance monitoring is the formulation of permit conditions. In the context of the NEMA EIA Regulations these are termed conditions of authorisation.

Several authors, amongst them Arts, *et al.* (2001), Bailey, *et al.* (1992) and Dik and Morrison-Saunders (2002), have highlighted the role of permit conditions in effective EIA follow-up. In the South African context the role-players involved in permit condition formulation generally comprise the proponent[3] (including the project design team), the environmental assessment practitioner and the competent environmental authority (see Figure 2 for a schematic representation). The latter comprises a permitting component responsible for decision making in relation to applications for development permits, and an enforcement component responsible for enforcing compliance with the provisions of, amongst others, the permits - including associated permit conditions – issued by the permitting component. The roles of each in the EIA process and formulation of permit conditions may best be characterized as follows:

- The project proponent, including the project design team, are responsible for providing clear and accurate technical input regarding the feasibility, practicality and cost effectiveness of mitigation measures proposed in the environmental impact assessment reports. Ultimately the project proponent is responsible for ensuring that the project is carried out or implemented in compliance with the conditions of authorisation contained in the environmental permit (The Regulated). In addition, a frequently used standard condition (used in KwaZulu-Natal, Eastern Cape and by the national Department of Environmental Affairs) requires the proponent to indicate

[3] Proponent in the context of this study refers to the developer and his/her project team, including engineering, town planning and other professionals engaged in project design and management.

within a specified timeframe whether a condition of authorisation cannot be complied with and the reasons for non-compliance or inability to comply.

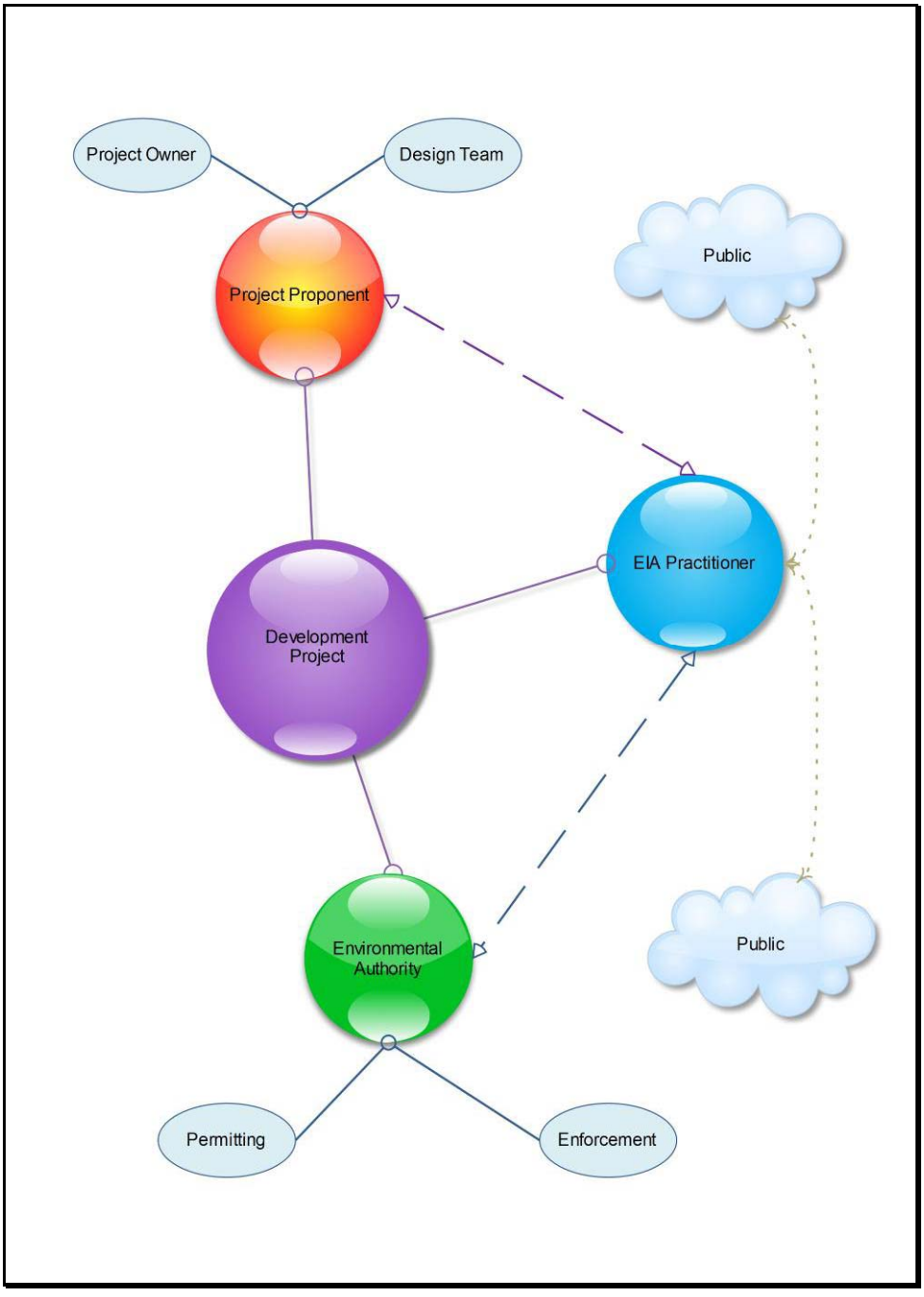

Figure 2: South African EIA role-players[4] in permitting

[4] Although the public are an important role player in the EIA process they play a relatively indirect role in the formulation of permit conditions and have therefore been excluded from consideration in this study.

- The environmental assessment practitioner (EAP) is responsible for providing the interface between the project proponent's design team and the competent environmental authority, as well as between the project proponent and the public (The Facilitator). An important aspect of this is the translation of engineering and other project related technical information into a form accessible to the environmental authority for the purposes of decision making, including formulating conditions of authorisation. Similarly, the EAP is responsible for providing guidance to the proponent and project team on the implementation of conditions of authorisation associated with the environmental permit. The NEMA EIA Regulations 2006 and 2010 require that the EAP make recommendations regarding specific conditions of authorisation to be included in the authorisation.
- The competent authority (CA) is responsible for applying the legislation, both in its intent and its letter, and must ensure that its decision – including conditions of authorisation – gives effect to the constitutional right on the environment and complies with the rules of administrative justice (The Regulator). This requires considerable thought be given to the practicalities of achieving environmental sustainability, both with respect to a given project and in the broader context of regional and national environmental management targets, as well as the management of legal risk to the State.

In its role of protector of the environment, the CA is also obliged to monitor compliance with environmental legislation and the conditions of permits. With the primary focus on the issuing of permits little consideration has been given to the formulation of permit conditions from the perspective of monitoring compliance with those conditions. Inappropriate formulation of permit conditions has the potential to derail compliance by hampering project implementation and preventing compliance. For example, a poorly worded condition may be unclear and therefore difficult to implement; or it may be difficult, if not impossible, to monitor compliance with the condition. Either way poorly formulated permit conditions are likely to render achievement of the goal of sustainable development, which lies at the heart of environmental management legislation and the use of EIA, unattainable. This study aims to assess current

practice in the formulation of permit conditions, identify areas of strength and weakness and, where possible, make recommendations for improvement. Ultimately, it is intended that this study should contribute to the documentation of 'best practice' with respect to the formulation of enforceable permit conditions.

EIA and Environmental Compliance

The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996) (the Constitution), establishes the framework for government structure and functioning throughout the country. It establishes the roles and functions of the three spheres of government – national, provincial and local – and the principles of cooperative governance which guide the interaction between these spheres. In addition, the Constitution identifies the various functional areas of government and allocates competence[5] for each of these to the various spheres of government (Republic of South Africa, 1996). Importantly, it identifies environment as a field of concurrent competency between the national and provincial spheres of government. This does not, however, relieve the local government sphere of responsibility for the environment function, as the Constitution provides municipalities with legislative competency over a number of functions which are environmentally relevant (Du Plessis, 2009).

Through the Bill of Rights, the Constitution also provides a framework for the ordered coexistence of the country's citizens. Not only does the Bill of Rights provide citizens with a clear outline of benefits each individual may expect to receive from the State, it also provides a clear indication of each individual's obligations towards his/her fellow citizens and the manner of conduct which an individual can expect to receive from fellow citizens. Significantly, section 36 of the Constitution provides for the limitation of the Rights contained in the Bill of Rights. Effectively this limitation amounts to a requirement that any limitation of a Right be in accordance with a law which applies equally to all people in South Africa, and the purpose of limiting a Right is to ensure fairness and equitability – that is the exercise of a Right should not be unjustifiably discriminatory. Thus in exercising my right to have the

[5] Competence as used here refers to legislative, executive and administrative powers with respect to a functional area of government as identified in Schedules 4 and 5 of the Constitution (Du Plessis, 2009).

environment protected I may not violate a fellow citizen's right of access to just administrative action.

The basis for protection of the environment is found in the Bill of Rights set out in Chapter 2 of the Constitution. Section 24 of the Constitution states:

> "Everyone has the right –
> (a) to an environment that is not harmful to their health or well-being; and
> (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –
> (i) prevent pollution and ecological degradation;
> (ii) promote conservation; and
> (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." (Republic of South Africa, 1996)

From this flows the NEMA, and its specific environmental management Acts (SEMAs), which give further effect and content to the environmental right. The National Environmental Management Act, commonly referred to as NEMA, provides the overarching framework legislation for integration of environmental governance through the SEMAs. Figure 3 provides a schematic representation of the relationship between the Constitution and environmental legislation.

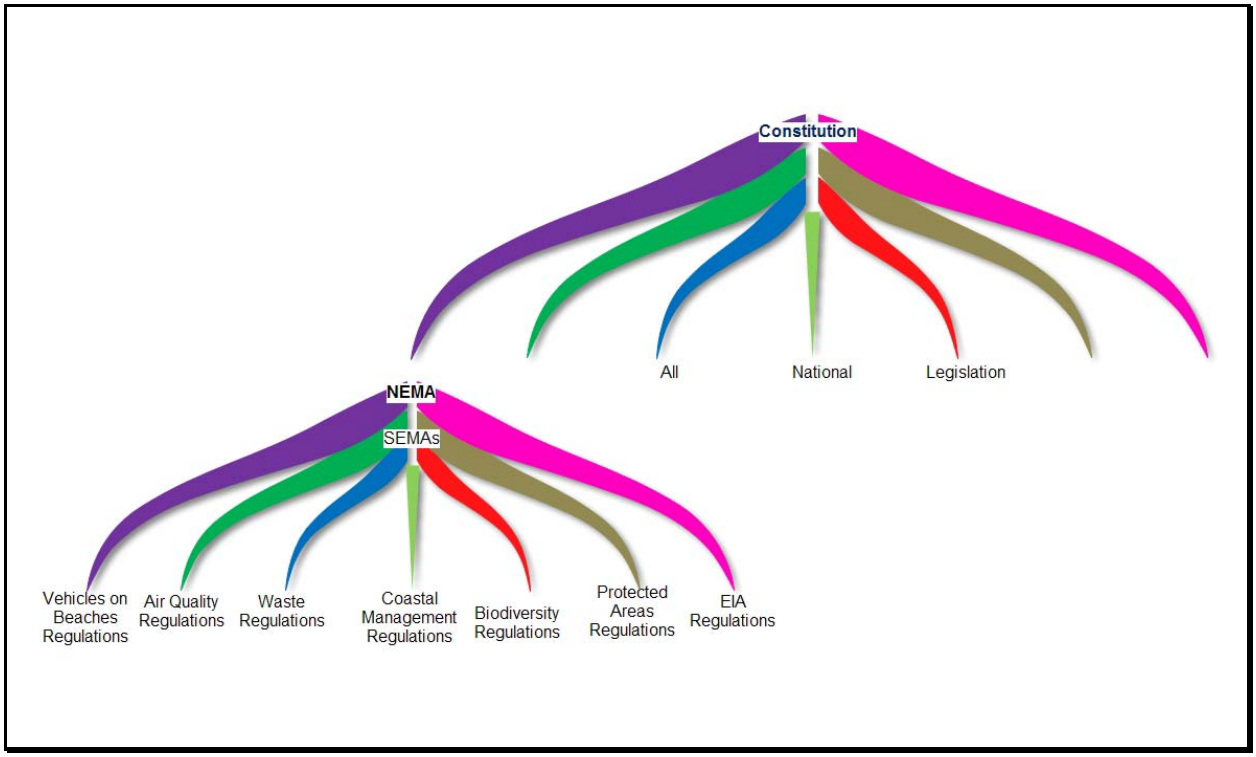

Figure 3: Hierarchy of legislation with specific reference to environmental legislation

The processes to be followed in acquiring and presenting information used for decision-making in respect of:

> Waste licenses (National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA), and
>
> Environmental authorisations for coastal activities (National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (NEMICMA), [such authorisations are issued in terms of NEMA, but in conjunction with sections 63 and 64 of the NEMICMA]

are closely aligned with the process to be followed in obtaining environmental authorisation in terms of section 24 of the NEMA. Similarly the compliance enforcement provisions in Chapter 7 of the NEMA are applicable to enforcement of compliance with the provisions of each of the SEMAs.

EIA Follow-up: International and South African Perspectives

If EIA is a tool or process used to assist decision-making, then EIA follow-up is the means by which the predictions, decision, mitigation measures and permit conditions are monitored, measured and evaluated for accuracy, correctness, efficacy and compliance. Morrison-Saunders and Arts (2004, p 4) define EIA follow-up as "*The monitoring and evaluation of the impacts of a project or plan (that has been subject to EIA) for management of, and communication about, the environmental performance of that project or plan*". Drawing on Arts *et al.* (2001), they go on to define four elements to EIA follow-up. These are:

> *Monitoring*, a continual process which entails data collection and comparison against standards, predictions or expectations, and may include baseline monitoring, impact monitoring, compliance monitoring and state of environment monitoring or cumulative effects monitoring.
>
> *Evaluation*, the appraisal of monitoring data for conformance with standards, predictions or expectations, also the appraisal of the environmental performance of a project. In the context of compliance monitoring it could entail appraisal of water quality monitoring reports for conformance with water quality parameters specified in a permit condition.

Management, the decisions and actions taken in response to monitoring and evaluation outcomes which may be made by the proponent or the authority.

Communication, informing stakeholders of the environmental outcomes of a project as revealed through monitoring, evaluation and management.

Internationally, it appears that there is a lack of clarity regarding the purpose, nature and role of EIA follow-up. Munro *et al.* (1986, p 1-2) noted the need for EIA follow-up in the form of audits, and suggested that there are two purposes to these: firstly as a "*basis for improving the planning and management of developments*", and secondly as a means of measuring regulatory compliance. Morrison-Saunders and Arts (2004, p 4) distinguish between auditing and monitoring, whilst acknowledging their close inter-relation, by defining auditing as "*the periodical objective examination of observations by comparing them with pre-defined criteria*". Monitoring, on the other hand, is a continual rather than a periodic process that may measure compliance with permit conditions or measure the effects of the project on the environment. This is an important distinction with significant implications for the formulation of permit conditions. Morrison-Saunders *et al.* (2001) in their investigation of the outcomes and avenues of improvement in EIA follow-up identified five main areas for improving EIA follow-up practice. These included:

- **Institutional arrangements:** the regulation of follow-up, linking formal follow-up programmes to permits, and provisions for the independent review or auditing of follow-up programmes
- **Follow-up techniques:** early and formal identification of follow-up requirements, and the use of adaptive management approaches to ensure follow-up maintains focus on important issues
- **Communication and participation:** information sharing with local communities to build capacity, enhance stakeholder-project relations, and enable cumulative effects to be addressed
- **Improving EIA practice through follow-up:** promote application of EIA principles throughout project cycle, promote pro-active responses to monitoring programme

results through the adoption of action plans, promote adaptive environmental management through links to environmental management systems, establish feedback loop to future decision-making, improve efficiency of follow-up, and determination of financial and capacity/skills resource requirements

- **EIA follow-up training and development:** develop and document approaches for undertaking EIA follow-up, develop generic follow-up criteria, use follow-up outcomes to improve EIA systems and practices, build capacity in EIA follow-up, and establish networks for sharing experiences and insights about EIA follow-up.

In a later publication Morrison-Saunders *et al.* (2003) highlighted the need for a basis in law (specifically in regulations) as a prerequisite to EIA follow-up. However, they go on to note that it is "*the interplay of regulations and institutional arrangements, approaches and techniques, resources and capacity, project type and stakeholder involvement*" (Morrison-Saunders *et al.*, 2003, p 54) that determine the success of EIA follow-up.

In South Africa the formalization of the EIA process has focused attention on the use of EIA as a permitting instrument. As Youthed (2009) notes this has resulted in the perception that EIA ends at the consent decision stage (i.e., with the granting of an environmental authorisation or a refusal to grant environmental authorisation). Historically the environmental authorities, comprising the National Department of Environmental Affairs and the nine Provincial Environmental Authorities, initially lacked the necessary staff complement, organizational structure and capacity to effectively implement EIA follow-up until at least 2002 and possibly later. This gap in follow-up on compliance with permit conditions resulted not only in a culture of non-compliance with conditions of environmental authorisation, but also a gap in the feedback loop which should provide information on the practicality, monitorability and enforceability of conditions of authorisation.

Compliance is defined by Craigie *et al.* (2009, p 41) as "*an ideal situation in which all members of a legal community adhere to the legal standards and requirements applicable to that community's activities*". The same authors define compliance monitoring as comprising

both on-site inspections and off-site review of documentation such as compliance and audit reports submitted by the regulated community either voluntarily or in fulfillment of statutory obligations (e.g., permit conditions). Sadler and McCabe (2002, p 407) define compliance monitoring more broadly as "*the periodic sampling or continuous measurement of environmental parameters to ensure that regulatory requirements and standards are being met*".

Sadler and McCabe (2002, p 407-408) further define a number of terms associated with EIA follow-up. These include:

- **Surveillance and Supervision** – which refers to surveillance of the implementation of permit conditions through regular site inspections to "*check on compliance, observe progress and discuss issues*"; with supervision being "*a more intensive direction of the environmental performance of on-site activities*". Supervision is thus closely associated with implementation of the environmental management plan or programme (EMP or EMPr) and contract specifications. In the South African context, at least during the construction phase, surveillance is likely to be most closely associated with the role of environmental control officer[6] (ECO), whilst supervision would most frequently fall within the purview of the resident or site engineer who has overall responsibility for site and contractor supervision.
- **Monitoring** – which refers to the systematic collection of data "*through a series of repetitive measurements of environmental parameters*" and may be further defined into three broad types:
    - *Baseline monitoring* – which entails the measurement of environmental parameters for a period prior to project commencement, and has the aim of establishing reference points against which environmental change may be measured

[6] There is as yet no formally recognized definition of an ECO, or the qualification or experience requirements for such a position. In practice an ECO is an individual with a level of understanding of environmental functioning, relevant legislation and practical environmental management that enables him/her to observe, monitor, advise and report on the implementation of and level of adherence to a development project's environmental management plan/programme.

- *Effects monitoring* – which entails the "*measurement of environmental parameters during project construction and implementation*", with the aim of identifying and measuring environmental changes caused by the project
- *Compliance monitoring* – which is aimed at measuring compliance with statutory requirements through the periodic or continuous measurement of environmental parameters against legislated standards or regulatory requirements

- **Auditing** – which refers to "*a systematic process of examining, documenting and verifying that EIA procedures and outcomes correspond to objectives and requirements*" utilizes the outputs of surveillance and monitoring efforts as inputs to:
  - *Implementation audits* – these are used to verify that implementation met project approval conditions
  - *Impact audits* – these determine the accuracy of EIA predictions against actual project impacts
  - *Compliance audits* – these verify compliance with "*environmental standards and regulatory requirements*"
  - *Effectiveness or policy audits* – these focus on mitigation measures and EIA practice from the perspective of checking feasibility and consistency

In the context of this study compliance monitoring is used to refer to actions undertaken by environmental authorities to check:

1. a proponent's compliance with a legislated requirement for the permitting of an activity; and
2. a proponent's compliance with the conditions of such a permit.

Permit as used here is a generic term referring to the permission required under an environmental law, for example an authorisation required in terms of section 24 of the NEMA, or a license required in terms of section 45 of the NEMWA. Both of which require that an EIA process conforming to the NEMA EIA Regulations, 2006 (and since August 2010, the NEMA

EIA Regulations, 2010) be undertaken in order to provide the relevant authority with information on which to base their decision to grant or refuse permission to undertake the proposed activity.

Compliance is essential to EIA follow-up because it:

- ensures that follow-up actions are implemented
- completes the EIA process through the implementation of agreed mitigation measures
- provides formal feedback where permit conditions require reporting, thus closing the feedback loop and allowing for learning from experience
- shows the system is working, both with respect to the rule of law and with respect to fulfillment of the constitutional right to have the environment protected.

However, to achieve compliance one must have clear instructions to follow, the permit conditions. These must be capable of being interpreted and understood in the same way by both the project proponent and compliance monitoring and enforcement officials.

The setting of permit conditions needs to take into account the nature and extent of anticipated project effects on the environment and the complexity of their mitigation. Equally, the setting of conditions must take into account the physical and financial costs of monitoring compliance with the permit conditions set (Morrison-Saunders *et al.*, 2003). To assist officials in formulating legally defensible, practically enforceable and implementable permit conditions many administrations have produced manuals to guide officials in this aspect of the permitting function. For example:

- the United States of America's Environmental Protection Agency has a Guide to Practical Enforceability for Title V Air Permits under the Clean Air Act, 1970 (US EPA, 1999);
- the New Zealand Ministry for the Environment has a guide to Effective and Enforceable Consents which provides guidance on the drafting of conditions under the Resource Management Act, 1991 (Ministry for the Environment, 2001); and

- the Environmental Protection Authority of Western Australia has a draft guideline Towards Outcome-based Conditions to provide advice to officials and proponents on the formulation of permit conditions issued under section 45 of the Environmental Protection Act, 1986 (Environmental Protection Authority, 2009).

Each of these manuals provides plain language guidance to the drafting of permit conditions tailored to the legal peculiarities of their jurisdictions. There are, however, some legal principles which appear common throughout, such as ensuring that permit conditions do not overstep the mandate of the empowering legislation, or seek to bind a third party to compliance with a permit not issued to that party. Frequently, it would appear, these guides have been developed in response to legal challenges to permits and/or their conditions. In South Africa the Department of Environmental Affairs began such an exercise, but has not as yet produced a detailed guide to the formulation of permit conditions for use in the production of environmental authorisations under the NEMA EIA Regulations (DEAT, 2007).

Relevant Legislative Provisions for Permit Condition Formulation

Formulation of permit conditions should always take place within the framework and context of the law. The most pertinent pieces of legislation to this study were examined in the light of insights obtained from literature reviewed and their practical implications for data analysis. These included the Constitution, the National Environmental Management Act and its EIA Regulations, and extended to the Promotion of Administrative Justice Act. Although there may be some support for interpreting permits as contracts, delving into the realm of contract law is beyond the scope and intent of this study.

The Constitution

The sections of the Constitution pertinent to this study are: section 24 – the environmental right; section 33 – the right to administrative justice; and section 36 – the limitation of rights. Section 24 reads as follows:

> Everyone has the right –
> (a) to an environment that is not harmful to their health or well-being; and
> (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –
> (i) prevent pollution and ecological degradation;
> (ii) promote conservation; and

(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

Paragraph (b) is the provision which formed the stimulus for the current suite of environmental legislation (Feris, 2009). In discussing the relationship between different rights Feris (2009) further notes that human rights are interrelated and mutually reinforcing, effectively this means that the environmental right must be exercised in conjunction with the other rights in the Bill of Rights. Thus the right to administrative justice enshrined in section 33[7] of the Constitution is intimately linked with the right to have the environment protected. Indeed, the requirement to provide written reasons for the administrative decision entailed in granting or declining an environmental authorisation under the NEMA EIA Regulations stems from this right.

Section 36, on the other hand, reads:

(1) The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors, including –
    (a) the nature of the right;
    (b) the importance of the purpose of the limitation;
    (c) the nature and extent of the limitation;
    (d) the relation between the limitation and its purpose; and
    (e) less restrictive means to achieve the purpose.
(2) Except as provided in subsection (1) or in any other provision of the Constitution, no law may limit any right entrenched in the Bill of Rights.

Effectively the provisions of section 36 mean that no one right takes greater precedence over any other right (Bray, 2009). Thus the right to have the environment protected is of equal standing with the right of access to housing, or the right to life. However, for a given situation or context, competing rights are balanced to arrive at the most fair and equitable outcome. The implication of this for environmental decision-making and the formulation of permit conditions is that the decision-maker must balance the demands of the various rights in such a manner as to arrive at a fair, equitable and justifiable outcome.

[7] Section 33 (1) Everyone has the right to administrative action that is lawful, reasonable and procedurally fair.
(2) Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons.
(3) National legislation must be enacted to give effect to these rights, and must –
    (a) provide for the review of administrative action by a court or, where appropriate, an independent and impartial tribunal;
    (b) impose a duty on the state to give effect to the rights in subsections (1) and (2); and
    (c) promote an efficient administration.

To quote Judge Albie Sachs (2009, p 193) "*The proposition that rights are interrelated and are all equally important is not merely a theoretical postulate. The concept has immense human and practical significance in a society founded on human dignity, equality and freedom. It is fundamental to an evaluation of the reasonableness of state action that account be taken of the inherent dignity of human beings*." The significance here, being the focus on reasonableness in arriving at a decision where competing rights are balanced.

National Environmental Management Act

Section 2 of the NEMA sets out the principles according to which the environment is to be managed. These principles are applicable to all decision-making by authorities which may affect the environment in some way. In the context of this study they are particularly intended to:

1. "*serve as guidelines*" which must be utilised by environmental authorities when taking any decision in terms of NEMA or any other piece of legislation "*concerning the protection of the environment*", and
2. "*guide the interpretation, administration and implementation*" of NEMA, the SEMAs and any regulations promulgated in terms of these Acts.

The principles firmly establish the human-centric nature of environmental management, and seek to give practical expression to the Constitutional values of human dignity, equality and justice in the management and protection of the environment. As the means of achieving this goal they establish sustainability as the primary paradigm for environmental management. In pursuit of sustainable development such principles as 'the polluter pays', intergenerational equity, a precautionary approach to uncertainty, environmental justice and co-operative environmental governance must be considered in decision making. The achievement of sustainable development is thus at the heart of EIA decision making, including the setting of permit conditions.

Chapter 5 of the Act deals with integrated environmental management, and provides the basis for the EIA Regulations. Section 23 provides the rationale and general objectives for

integrated environmental management, and firmly links integrated environmental management to implementation of the section 2 principles:

23 (1) The purpose of this Chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities.

(2) The general objective of integrated environmental management is to -

(a) promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;

(b) identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximizing benefits, and promoting compliance with the principles of environmental management set out in section 2;

(c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;

(d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;

(e) ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and

(f) identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.

(3) The Director-General must coordinate the activities of organs of state referred to in section 24 (1) and assist them in giving effect to the objectives of this section and such assistance may include training, the publication of manuals and guidelines and the coordination of procedures.

The basis for the permitting function is found in section 24 of the Act, specifically in sections 24(1)[8], 24(1A)[9] and 24(2)[10]. Section 24E of the Act, introduced in the 2004 amendment of

[8] 24(1) In order to give effect to the general objectives of integrated environmental management laid down in this Chapter, the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of Minerals and Energy, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act.

[9] 24(1A) Every applicant must comply with the requirements prescribed in terms of this Act in relation to-
(a) steps to be taken before submitting an application, where applicable;
(b) any prescribed report;
(c) any procedure relating to public consultation and information gathering;
(d) any environmental management programme;
(e) the submission of an application for an environmental authorisation and any other relevant information; and
(f) the undertaking of any specialist report, where applicable.

[10] 24(2) The Minister, or an MEC with the concurrence of the Minister, may identify-
(a) activities which may not commence without environmental authorisation from the competent authority;
(b) geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by theenvironmental authority, in which specified activities may not commence without environmental authorisation from the competent authority;
(c) geographical areas based on environmental attributes, and specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may be excluded from authorisation by the competent authority;
(d) activities contemplated in paragraphs (a) and (b) that may commence without an environmental authorisation, but that must comply with prescribed norms or standards:
Provided that where an activity falls under the jurisdiction of another Minister or MEC, a decision in respect of paragraphs (a) to (d) must be taken after consultation with such other Minister or MEC.

the Act, provides for minimum conditions of environmental authorisations, and reads as follows:

> Every environmental authorisation must as a minimum ensure that -
> (a) adequate provision is made for the ongoing management and monitoring of the impacts of the activity on the environment throughout the life cycle of the activity;
> (b) the property, site or area is specified; and
> (c) provision is made for the transfer of rights and obligations when there is a change of ownership in the property.

This was further strengthened by the inclusion of section 24O[11] in the 2008 amendment to the Act, which contains criteria for considering applications. Sub-section 24O(1) details the documents and documentary information which must be taken into to account in decision-making.

Chapter 7 of the Act deals with compliance enforcement. In particular Part 2 of the chapter provides for the designation of environmental management inspectors and defines their powers, functions and responsibilities. The compliance monitoring components of the Department of Environmental Affairs (DEA) and the nine provincial authorities draw much of

[11] 24O. Criteria to be taken into account by competent authorities when considering applications
(1) If the Minister, the Minister of Minerals and Energy, an MEC or identified competent authority considers an application for an environmental authorisation, the Minister, Minister of Minerals and Energy, MEC or competent authority must-
(a) comply with this Act;
(b) take into account all relevant factors, which may include-
(i) any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused;
(ii) measures that may be taken
(aa) to protect the environment from harm as a result of the activity which is the subject of the application; and
(bb) to prevent, control, abate or mitigate any pollution, substantially detrimental environmental impacts or environmental degradation;
(iii) the ability of the applicant to implement mitigation measures and to comply with any conditions subject to which the application may be granted;
(iv) where appropriate, any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment;
(v) any information and maps compiled in terms of section 24(3), including any prescribed environmental management frameworks, to the extent that such information, maps and frame-works arc relevant to the application;
(vi) information contained in the application form, reports, comments, representations and other documents submitted in terms of this Act to the Minister. Minister of Minerals and Energy, MEC or competent authority in connection with the application;
(vii) any comments received from organs of state that have jurisdiction over any aspect of the activity which is the subject of the application; and
(viii) any guidelines, departmental policies and decision making instruments that have been developed or any other information in the possession of the competent authority that are relevant to the application; and
(c) take into account the comments of any organ of state charged with the administration of any law which relates to the activity in question.

their general powers from this part of the Act. Additional specific enforcement powers are contained in the NEMA EIA Regulations and the SEMAs.

NEMA EIA Regulations

In the hierarchy of legislation, it is at the level of regulations that the most detailed instructions for implementation are found. It is here that the requirements for permit contents are set out in the greatest detail. Consequently, this is the piece of legislation most likely to be considered in the formulation of permit conditions, although the other pieces of legislation discussed here play (or should play) important roles in decision making on permit conditions. Although this study is based on the EIA Regulations, 2006, cognizance is taken of the recent changes in these regulations in order to determine the level of similarity and identify differences which may hold implications for this study.

EIA Regulations, 2006 vs EIA Regulations, 2010

With the implementation of the NEMA EIA Regulations, 2010, there have been some changes in the requirements for the contents of environmental authorisations. In the interests of completeness these are reviewed here. The aim is not to provide a detailed evaluation of the differences; rather it is to show the significant similarities retained and the continuing pertinence of the current study.

The NEMA EIA Regulations, 2006, specify requirements for the contents of environmental authorisations in regulation 38. In the NEMA EIA Regulations, 2010, these are found in regulation 37. Table 1 below presents a side-by-side comparison of the contents of the two regulations.

Table 1: Contents of environmental authorisations as specified in the NEMA EIA Regulations, 2006 and 2010

Regulation 38, 2006	Regulation 37, 2010
(1) An environmental authorisation must specify - (a) the name, address and telephone number of the	(1) An environmental authorisation must specify - (a) the name, address and telephone number of the

Regulation 38, 2006	Regulation 37, 2010
person to whom the authorisation is issued; (b) a description of the activity that is authorised; (c) a description of the property on which the activity is to be undertaken and the location of the activity on the property, or if it is - (i) a linear activity, a description of the route of the activity; or (ii) an ocean-based activity, the coordinates within which the activity is to be undertaken; and (d) the conditions subject to which the activity may be undertaken, including conditions determining - (i) the period for which the environmental authorisation is valid, if granted for a specific period; (ii) requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity; and (iii) the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place.	person to whom the authorisation is issued; (b) a description of the activity that is authorised; (c) a description of the property on which the activity is to be undertaken and the location of the activity on the property, or if it is - (i) a linear activity, a description of the route of the activity; or (ii) an ocean-based activity, the coordinates within which the activity is to be undertaken; (d) the conditions subject to which the activity may be undertaken, including conditions determining - (i) the period for which the environmental authorisation is valid, jf granted for a specific period; (ii) requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity as contained in the approved environmental management programme; and (iii) the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take Place; and (e) where applicable, indicate the manner in which and when the competent authority will approve the environmental management programme; and (f) the requirements on the manner in which and the frequency when the environmental management programme will be approved, amended or updated.
(2) An environmental authorisation may - (a) provide that the authorised activity may not commence before specified conditions are complied with; (b) require the holder of the authorisation to furnish the competent authority with reports prepared by the holder of the authorisation or a person who is independent, at specified times or intervals - (i) indicating the extent to which the conditions of the authorisation are or are not being complied with; (ii) providing details of the nature of, and reasons for, any non-compliance with a condition of the authorisation; and (iii) describing any action taken, or to be taken, to mitigate the effects of any non-compliance or to prevent any recurrence of the non-compliance; (c) require the holder of the authorisation to furnish the competent authority with environmental audit reports on the impacts of the authorised activity on the environment, at specified times or intervals or whenever requested by the competent authority; and	(2) An environmental authorisation may - (a) provide that the authorised activity may not commence before specified conditions are complied with; (b) require the holder of the authorisation to furnish the competent authority with reports prepared by the holder of the authorisation or a person who is independent, at specified times or intervals - (i) indicating the extent to which the conditions of the authorisation are or are not being complied with; (ii) providing details of the nature of, and reasons for, any non-compliance with a condition of the authorisation; and (iii) describing any action taken, or to be taken, to mitigate the effects of any non-compliance or to prevent any recurrence of the non-compliance; (c) require the holder of the authorisation to furnish the competent authority with environmental audit reports on the impacts of the authorised activity on the environment, at specified times or intervals or whenever requested by the competent authority;

Regulation 38, 2006	Regulation 37, 2010
(d) include any other condition that the competent authority considers necessary for the protection of the environment.	(d) where applicable, require the holder of the authorisation to furnish the competent authority with proof of compliance with the requirements regarding financial provision; (e) where applicable, require the holder of the authorisation to furnish the competent authority with proof of compliance with the applicable requirements regarding closure; and (f) include any other condition that the competent authority considers necessary for the protection of the environment

The conditions of authorisation identified in sub-regulations 38(1)(a) to (d) of the EIA Regulations, 2006, and 37(1)(a) to (d) of the EIA Regulations, 2010, are mandatory and little space for the use of discretion on the part of decision making officials is provided. Nevertheless, there remains a modicum of space for the intelligent use of discretion (and a large open barn door for poor practice to make a mockery of the entire permitting exercise). Of necessity sub-regulations 38(1)(b), (c) and (d) (NEMA EIA Regulations, 2006), and 37(1)(b), (c) and (d) (NEMA EIA Regulations, 2010) provide the most limited guidance or, alternatively, allow the greatest space for discretion. In large part this is because the details of a specific project will dictate the level of detail necessary in fulfilling the requirements of these sub-sections. Sub-regulation 37(1)(e) and (f) (NEMA EIA Regulations, 2010) provides a similar level of flexibility for the same reason.

Sub-regulations 37(1)(e) and (f) of the NEMA EIA Regulations, 2010, relate directly to the requirements of regulations 22 and 31 regarding the contents of basic assessment and environmental impact assessment reports respectively. These require that a draft environmental management programme be included in the reports submitted in support of every application for environmental authorisation. This is somewhat different to the situation under the EIA Regulations, 2006, where the submission of a draft environmental management plan was associated with submission of an environmental impact assessment report, but was not required to be submitted with a basic assessment report.

Sub-regulation 38(2) of the NEMA EIA Regulations, 2006, and sub-regulation 37(2) (NEMA EIA Regulations, 2010) are discretionary provisions. Through the use of the word 'may' the decision making authority is granted wider discretion to set conditions of authorization pertaining to the identified areas of activity commencement, compliance monitoring and reporting, and the auditing and reporting of project specific environmental impacts. Sub-regulations 38(2)(b) and 37(2)(b), as the case may be, may be interpreted as enabling the competent authority to give practical effect to the 'polluter pays' principle by saving society at least part of the financial burden of monitoring the permit holder's (project proponent's) compliance with the permit.

Sub-regulations 37(2)(d) and (e) of the NEMA EIA Regulations, 2010 are artifacts of alignment with the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA). The aim being ultimately for the environmental management of mines to resort under the Department of Environmental Affairs rather than the Department of Mineral Resources, as is currently the case. Nevertheless, these provisions do represent an addition to the armoury of enforceable environmental management provisions available to the authorities that were not available under the NEMA EIA Regulations, 2006.

Overall, there has been little change in the basic requirements to which an environmental authorisation must conform between the two sets of regulations. However, the significance of these changes will need to be determined once a number of projects subject to permits issued under the 2010 regulatory regime have been implemented.

A further area of change which holds implications for the content of environmental authorisations is at regulation 10, which deals with the "Decision on applications by competent authorities" (NEMA EIA Regulations, 2006) or "Notification of decision on application" (NEMA EIA Regulations, 2010). The respective versions of regulation 10 are compared in Table 2 and discussed below.

Table 2: Variation in notification requirements between 2006 and 2010 regulations

Regulation 10, 2006	Regulation 10, 2010
(1) After a competent authority has reached a decision on an application, the competent authority must, in writing and within 10 days - (a) notify the applicant of the decision and of the period within which the applicant must comply with sub-regulation (2); (b) give reasons for the decision to the applicant; and (c) draw the attention of the applicant to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of these Regulations, if such appeal is available in the circumstances of the decision.	(1) After a competent authority has reached a decision on an application, the competent authority must, in writing and within 2 days – (a) notify the applicant of the decision; (b) give reasons for the decision to the applicant; and (c) draw the attention of the applicant to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of these Regulations, if such appeal is available in the circumstances of the decision.
(2) The applicant must, in writing, within a period determined by the competent authority - (a) notify all registered interested and affected parties of - (i) the outcome of the application; and (ii) the reasons for the decision; and (b) draw their attention to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of these Regulations, if such appeal is available in the circumstances of the decision.	(2) The applicant must, in writing, within 12 days of the date of the decision on the application – (a) notify all registered interested and affected parties of - (i) the outcome of the application; and (ii) the reasons for the decision; (b) draw the attention of all registered interested and affected parties to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of these Regulations, if such appeal is available in the circumstances of the decision; (c) draw the attention of all registered interested and affected parties to the manner in which they can access the decision; and (d) publish a notice - (i) informing interested and affected parties of the decision; (ii) informing interested and affected parties where the decision can be accessed; and (iii) drawing the attention of interested and affected parties to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of these Regulations, if such appeal is available under the circumstances of the decision, in the newspapers contemplated in regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process

The differences here are primarily in relation to timeframes for notifying the proponent and interested and affected parties, and the means by which interested and affected parties are to be notified of the decision. The most significant provision, in relation to this study, is the requirement to provide reasons for the decision to the proponent. However, neither the regulations nor the Act provide guidance regarding the level of information to be provided in these reasons. For this, one must turn to the Promotion of Administrative Justice Act, 2000 (Act 3 of 2000) (PAJA), to obtain a degree of clarity.

Promotion of Administrative Justice Act

The PAJA and its regulations are the legislation by means of which practical effect is given to the constitutional right to "*administrative action that is lawful, reasonable and procedurally fair*" and "*the right to be given written reasons*". Section 5 of the PAJA deals with reasons for administrative action and provides as follows:

> *5 (5) Where an administrator is empowered by any empowering provision to follow a procedure which is fair but different from the provisions of subsection (2), the administrator may act in accordance with that different procedure.*

The implication of this provision is that every administrative decision made by an organ of state, including an environmental authority issuing or refusing a permit in terms of legislation which it is empowered to administer, must provide reasons for that decision. In the case of an application for environmental authorisation made in terms of the NEMA EIA Regulations, 2006 and 2010, the reasons for the decision are included in an annexure to the environmental authorisation (or the refusal to grant authorisation).

Whilst the provisions of regulation 10 conform to the requirements of the legislation, it is perhaps worth examining what constitutes a 'decision' and what constitute 'reasons' for the purpose of this study. A 'decision' in relation to the issuing of a permit cannot logically be restricted to the granting or refusal of permission, but must extend to include any conditions attached to the permit. In terms of administrative law, Bray (2009, p 167) identifies three characteristics of a decision: firstly it must be taken in response to a provision of the law, and must be lawful. Secondly, it includes such actions as "*giving, suspending, revoking or refusing to give a certificate, direction, approval, consent or permission; imposing a condition or restriction; or making a declaration, demand or requirement*". Lastly, the failure to take a decision in itself constitutes a 'decision'. Thus in respect to this study a decision by the competent authority to authorise an activity in terms of section 24 of the NEMA includes the conditions to which the authorisation is subject.

Wessels (2004) contends that 'reasons' are the explanations of how the conclusions on which a decision is based were reached. Although based on facts and information, reasons are not simply a recapitulation or summary of the information used in making the decision – they are

the justification for the decision. PAJA further requires that 'adequate reasons' for a decision must be provided. In examining the adequacy of reasons, Wessels (2004) concludes that the level of detail required is determined by the consequences of the decision – the more far-reaching or significant the consequences, the more detailed will the reasons for a decision have to be. In the context of this study: the consequences of a decision to grant a permit, together with the conditions attached to the permit, may limit the rights of both the proponent and the public affected by a particular development project. Consequently, the reasons provided by the competent authority must be sufficiently clear and detailed for both the proponent and the public to follow the issues and reasoning used in arriving at the decision and setting of the permit conditions.

Thus in making a decision to grant or refuse an environmental authorisation subsequent to an EIA process at least four different pieces of legislation must be taken into consideration by the competent authority. The provisions and principles of the Constitution, NEMA, the NEMA EIA Regulations and PAJA must be weighed and applied to the findings of the EIA undertaken for a particular development project when compiling the authorisation and formulating any associated permit conditions. Ultimately, it is the permit conditions which form the framework within which EIA follow-up is undertaken.

Study Rationale

EIA follow-up at a variety of scales from the project specific to system level is essential to the achievement of environmental management objectives. Critical to project level EIA follow-up is the formulation of enforceable permit conditions. Such conditions must not only be lawful, conforming to the legal prescripts for their formulation; but must also be practical, fitted to the nature and scope of both the project and the receiving environment[12]; measurable and readily understood by those responsible for their implementation and monitoring.

The "Capacity Audit and Needs Analysis Survey for Environmental Impact Assessment Administrators" (DEAT, 2008) notes as one of the many limitations to institutional capacity the

[12] Environment here includes biophysical and social elements.

rapid turnover in personnel responsible for the processing of applications for environmental authorisation. This ongoing leaching of institutional memory necessitates the continual relearning of the same lessons with regard to best practice in formulating conditions of authorization (DEA, undated). At the same time current legislation requires the EAP to make recommendations with respect to possible conditions of authorisation. The identification of a clear framework of rules, best practice and guidelines for the formulation of monitorable, and therefore enforceable conditions of authorisation will both assist the authorities' relearning process by providing an accessible reference tool and improve the EAP's ability to provide meaningful input into the decision-making process. Ultimately the project proponent will have greater clarity of what is expected from him/her, and compliance monitoring officers will be able to monitor the proponent's compliance with conditions of authorisation more effectively.

Aim and Objectives

The aims of this study are two-fold: firstly, to analyze and examine the formulation of records of decisions to authorise the undertaking of activities in terms of the NEMA EIA Regulations, 2006, with regard to the facilitation of EIA follow up from the perspective of monitoring legal compliance with conditions of authorisation. Secondly, to develop best practice in the formulation of conditions of authorisation thereby facilitating compliance monitoring and EIA follow-up.

As this study overlaped the promulgation of the NEMA EIA Regulations, 2010, consideration was given to the requirements of these regulations relating to conditions of authorisation.

The objectives of the study are to:

- Identify the role players and influences affecting the formulation of permit conditions.
- Evaluate conditions of permits issued under the NEMA EIA Regulations, 2006, for monitorability.
- Identify areas of strength and weakness in practice and, where possible, make recommendations for improving practice.

- Develop a tool or set of guidelines or best practice for the formulation of conditions of authorisation which will enable the production of monitorable conditions of authorisation.

CHAPTER 2 RESEARCH METHODOLOGY AND STUDY SAMPLE

Methodology

I keep six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who.
I send them over land and sea,
I send them east and west;
But after they have worked for me,
I give them all a rest.

Rudyard Kipling

To test for the presence of those elements which commonly render conditions of authorisation capable of being monitored for compliance a number of environmental authorisations and their associated conditions were examined. Environmental authorisations issued in KwaZulu-Natal since the implementation of the NEMA EIA Regulations, 2006, were sampled at a rate of 2 per District Municipality and 2 per Metro. Ultimately, this yielded a sample size of 21 authorisations with one district contributing 3 authorisations and two districts contributing 1 authorisation each.

Authorisations in the sample were selected on the basis of generic project type rather than listed activity. Firstly due to the wide range of activities requiring environmental authorisation (for which a form of EIA must be undertaken), and secondly because of the numbers of these activities which may be combined in a given development project. Other significant influences on sample composition were geographic location and development demographics of the contributing District, that is, some Districts are of a largely rural nature, while others have a significant urban and industrial component. Authorisations were therefore selected according to the most commonly undertaken project type in a given District. The alternative was to restrict project types selected to activities most likely to be common to all Districts, such as road or housing projects.

Permit conditions (conditions of authorisation) were examined against the requirements of the NEMA EIA Regulations, 2006, for conformance to the requirements for contents of environmental authorisations. This was a two tiered review to, firstly, assess legal conformance and, secondly, identify common[13] conditions of authorisation and examine the manner of wording used. Initial review thus identified those items and conditions which **must** be specified, and the location of these items within the standard permit template. Similarly, those items or conditions which **may** be included were identified to develop an understanding of current practice in this regard.

The sample was then sorted according to development project type. Within each project type permit conditions (conditions of authorisation) were tabulated based on the main headings used in the standard permit template (see Appendix 1 for an example of the standard permit template). Tabulated conditions were further grouped according to subject, for example: erosion control, environmental control officer appointment and tasks.

Conditions were then analysed for purpose and clarity according to six simple questions:

- *What* must be done? If there is no 'what' there is no condition, but equally if the 'what' is not clearly specified and understandable to the proponent and the compliance officers there may as well not be a condition.
- *Who* must do it? The answer to this question defaults to the 'permit holder' as primary responsible party, given that a permit (environmental authorisation) is at some level a contract between the holder and the state, as custodian of the environment. Nevertheless, it is possible that some other responsible party may be explicitly identified within the context of a specific conditional requirement. For example, a condition requiring the appointment of an environmental control officer may also specify the duties of the environmental control officer.
- *When* must it be done? Besides the broad phasing timeframes of 'construction', 'operation' and 'decommissioning' there are frequently more specific timeframes applicable to particular conditions, such as reporting.

[13] In the context of this study common conditions are those used by two or more District Offices, or conditions occurring in three or more environmental authorisations.

- *Where* must it be done? Certain conditions or requirements are limited to specific areas of a project site (e.g., the construction camp) others apply to the project site in its entirety.
- *How* must it be done? This question may be applied in two ways. First, does the condition specify how its requirement is to be met? Second, how might compliance with the condition be monitored? It is the second application of this question which was the focus of analysis.
- *Why* must it be done? It was anticipated that the answer to this question would be found in the 'Reasons for Decision', which form an annexure to each environmental authorisation.

Comparison of the forms of wording which yield the most comprehensive set of responses to these questions was used to assist in the development of rules for deriving permit conditions which can be effectively monitored.

Characteristics of Study Sample

'Sample' in the context of this study comprises a variety of elements at different scales. The first of these is the geographical location of the study. EIA legislation is national legislation applied across the Republic of South Africa, albeit by different spheres of government. This study has, however, been limited to the Province of KwaZulu-Natal. The second is the types of development projects which were the subject of the permits sampled. As the categorization of project types can be somewhat subjective, categories for each of the project types used in this study were defined.

This section provides descriptions of the study location and project types used in the study.

Geographical Location

The NEMA EIA Regulations, 2006, are national legislation promulgated by the Minister for Environmental Affairs. However, due to the Constitutional arrangement of government in South Africa, implementation of this legislation is a concurrent competency shared between

the national and provincial spheres of government. The study area was limited to the Province of KwaZulu-Natal. The reasons for this are:

1. Large parts of the province are rural with a significant proportion of rural areas being under communal landownership. This has implications for the types and levels of development attracted to these areas, local government service delivery and the implementation of EIA regulations and follow-up.
2. Nevertheless, there are significant urban development nodes located at Durban-Stanger, Pietermaritzburg, Richards Bay-Empangeni, Newcastle, Ladysmith and along the south coast. Development types and levels prevalent in these areas are considerably different to those encountered in the more rural parts of the province. The challenges faced in local government service delivery, implementation of the EIA regulations and follow-up are also considerably different to those experienced in rural areas.
3. In essence the province serves as a microcosm of the diversity of development contexts encountered within the country as a whole. Similarly, it provides a representative subset of the EIA follow up contexts encountered nationally.

KwaZulu-Natal is located on the eastern seaboard of South Africa. To the north it borders Mozambique, to the south it abuts the Eastern Cape, in the east the Indian Ocean laps its shores and its western boundary runs along the Drakensberg between Swaziland and Lesotho. Figure 4 presents a locality map of the province and its arrangement of municipalities. The coastal region is the focus of much of the development within the province. The highest proportion of intensive economic development (e.g., industry, commercial and trans-shipment nodes, bulk storage and logistics) are located within about 70 km of the coast. Centered on the port nodes of Durban and Richards Bay with the N3 corridor, which links Durban with Gauteng providing a conduit for development to extend inland to Pietermaritzburg, Ladysmith and Newcastle – the so-called ‘T-Bone’ of the Provincial Growth and Development Strategy (Department of Economic Development, 2006). A similar, but less well developed link extends from Richards Bay to Gauteng and southern

Mpumalanga via the N2 and R34 corridors, providing a further connection between Newcastle, via Vryheid to the coast.

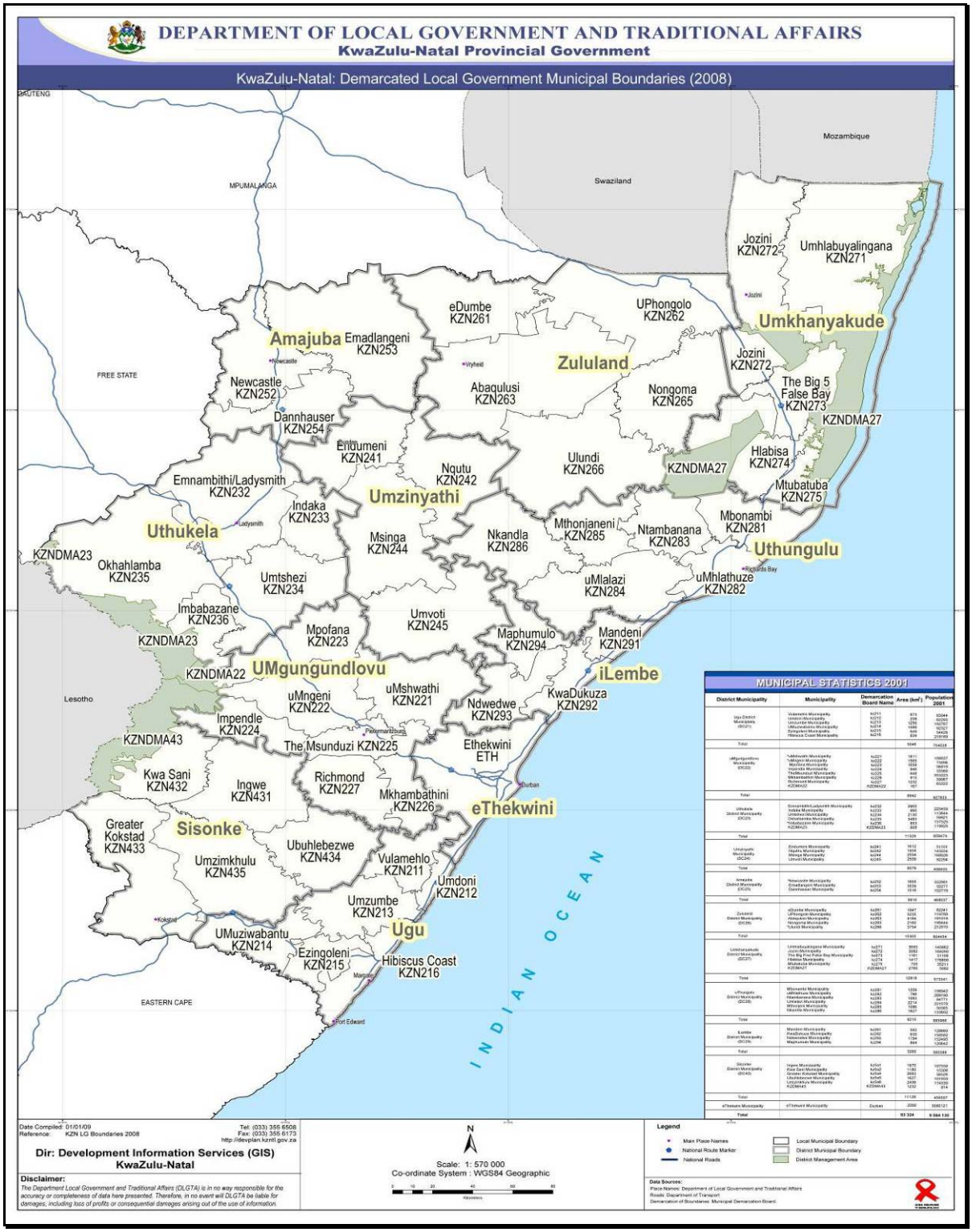

Figure 4: KwaZulu-Natal Province and its municipalities (Source: KZN Department of Local Government and Traditional Affairs website http://devplan.kzntl.gov.za, accessed 23 May 2011)

Tourism, agriculture and forestry play significant roles in the economy of the province. Much of the south coast (Durban to Port Shepstone) economy is focused on resort developments, intensive sugar cane and subtropical fruit production (e.g., bananas). In the last ten years or so residential and resort developments have begun to expand up the north coast from Durban through Ballito, with a southward expansion from Richards Bay via Mtunzini. Development of many of these resorts and up-market housing estates is at the expense of commercial agriculture, primarily sugarcane. Heavy mineral sands mining also takes place in the Richards Bay area.

Inland, economic development is largely focused on various forms of commercial agriculture and plantation forestry, in addition the north-western quarter from Ladysmith to Vryheid has been a focal area for coal mining. By far the most common vegetation type is grassland, leading to extensive livestock farming forming a major component of the agricultural sector. Irrigated croplands, both for human food crops and livestock forage, are common particularly in river valleys. Plantation forestry is a significant dryland crop in many of the higher rainfall areas, particularly on hill slopes and the Zululand coastal plain.

The economic landscape of the province is, however, not formed of a contiguous blanket of commercial agriculture or development. Rather it is interspersed with areas of communal landownership and subsistence agriculture. This has resulted in a patchwork of more or less densely settled areas, and heavily impacts biodiversity and ecosystem functioning.

Within the province the environmental function is assigned to the Department of Agriculture, Environmental Affairs and Rural Development (DAEARD), formerly the Department of Agriculture and Environmental Affairs (DAEA). This Department is arranged into a head office, based at Cedara near Pietermaritzburg, with two Regions, with offices in Hilton and Richards Bay respectively. Each of the Regions is further arranged into Districts. These conform to the district municipalities which form the backbone of local government within the province.

The Chief Directorate: Environmental Affairs as the delegated competent authority for the implementation of the NEMA EIA Regulations is further arranged into three Directorates. One Directorate is based at Cedara and houses centralized specialist functions. The other two Directorates are regionally based and provide District based services for environmental permitting, compliance monitoring and enforcement, support to local government and environmental education. Figure 5 provides a schematic of the DAEARD organizational arrangement at the time of data collection in early 2010.

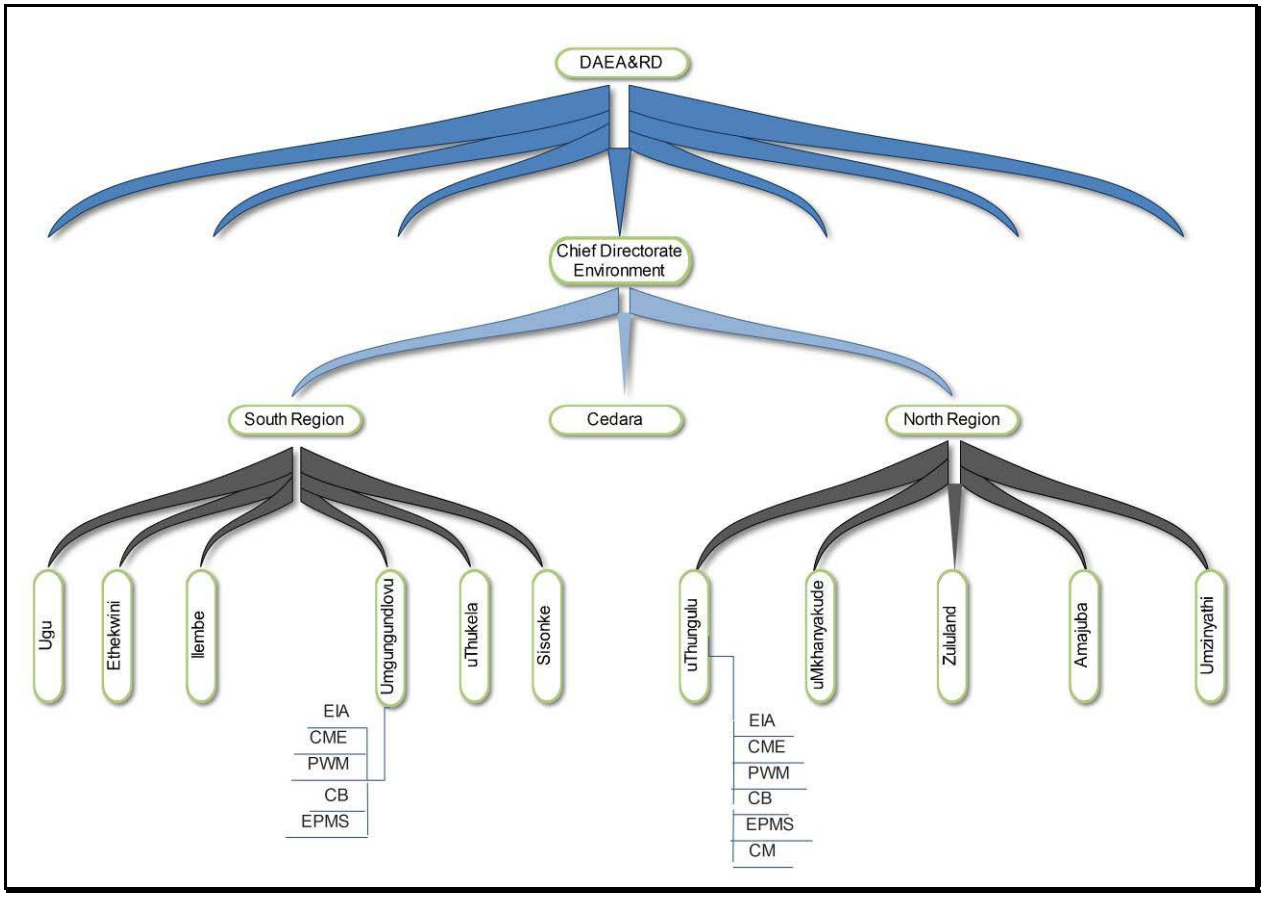

Figure 5: Organizational arrangement of the Chief Directorate: Environmental Management[†]

[†] Functions performed by Districts: EIA = Permitting; CME = Compliance monitoring and enforcement; PWM = Pollution and waste management; CB = Capacity building; EPMS = Environmental planning and municipal support; CM = Coastal management

NOTE: It is understood that the Department is currently undergoing a restructuring exercise entailing the establishment of a third region. There may therefore be some variation from organizational arrangements as depicted.

Project Types

Given the number of activities listed under the NEMA EIA Regulations, 2006, and the fact that a given development project may entail more than one listed activity it was decided to categorise the development projects in the sample according to project type rather than listed activity. However, as project categorization is a subjective process and the same project may fall within one or more categories it was necessary to provide a formal definition of these categories. This ensures consistency in categorization and aids in interpretation of data.

Project types were defined as follows:

Coastal: this project type may more accurately be argued as a project location as the defining element is proximity to the high water mark of the sea. Coastal projects therefore comprise any development activity located within 100 m landward of the high water mark. In the context of the permits sampled coastal projects included repair of storm damage to residential property and the construction of a whale watching facility.

Water Storage: this is a self explanatory project type entailing the storage of water in dams or reservoirs whether in-stream or off-channel. No distinction is made between raw or potable water storage, between proposed uses of the stored water, or between storage facility designs. In the context of the sample the water storage projects were both off-channel storage dams, one being part of an urban supply system and the other serving an agricultural purpose.

Water Transport: these projects entail the bulk transportation of water over any distance regardless of whether the water being transported is potable, raw or storm water. Essentially these are large diameter pipeline or canal projects. In the context of the sample there were two water transport projects, both of which entailed stormwater drainage pipelines in an urban residential environment.

Road: these projects entail the construction or upgrading of roads of any size or form, including bridges and river or stream crossings. There were six rural road construction projects in the sample.

Land Preparation: projects in this category consist of any land development project with a commercial or housing component, whether that is social or up-market housing; and includes so called mixed use developments which include business, commercial or industrial land uses. Projects included in the sample comprised two housing estates, one mixed use development and a shopping mall.

Industrial: projects in this category comprise the construction, establishment, modification, upgrade or expansion of industrial facilities. In the context of this study projects included expansion of a cargo handling facility in an existing commercial port, establishment of a coal storage facility, and modification of emission control equipment at a factory.

Hazardous Materials Storage: projects in this category have as their primary purpose the storage and handling of hazardous materials and dangerous goods, such as fuels and chemicals. No distinction was drawn between under- or above ground storage. In the study sample there was one filling station and one bulk chemical storage facility.

Limitations of Study

1. The study has been limited to a single environmental authority and does not examine practice nationally. To develop a comprehensive guide to permit condition formulation it would be necessary to examine practice in all ten environmental authorities.

2. Recent changes in legislation are likely to have caused changes in the nature of conditions set, for example, those relating to the submission of environmental management plans and programmes (EMP/EMPr)[14].
3. The role of the public in compliance monitoring has not been addressed in this study. The literature and experience in other jurisdictions (Au and Hui (2004), Arts and Morrison-Saunders (2004)) has shown that providing the space for interested and affected sectors of the public to engage with the post-EIA implementation of a development project has positive implications for the achievement of compliance by the proponent.

Data Analysis

A total of 21 environmental authorisation (EA) documents were obtained from the Department of Agriculture and Environmental Affairs (now Department of Agriculture, Environmental Affairs and Rural Development). The majority of these permits (18) were in response to applications which underwent a basic assessment process, only three were in response to applications which had undergone a full environmental impact assessment (scoping and EIA) process. The permits related to a wide range of development types entailing a number of different listed activities. For the purposes of this study detailed analysis of the listed activities involved was not considered essential, nevertheless a classification of the development types is presented in Table 3. It should be noted that this classification is based on the project descriptions rather than on the listed activities associated with each application. The reason for this is that a single development project may comprise a number of listed activities; the

[14] The term environmental management programme (EMPr) was introduced in the NEMA EIA Regulations, 2010, and replaces the term environmental management plan (EMP) used in the NEMA EIA Regulations, 2006. These documents are defined in the regulations as follows:
"environmental management plan" means an environmental management plan in relation to identified or specified activities envisaged in Chapter 5 of the Act and described in regulation 34 (NEMA EIA Regulations, 2006).
"environmental management programme" is not defined in the NEMA EIA Regulations, 2010, but is defined in the Act itself as meaning a programme required in terms of section 24 of the Act.
The contents of an EMPr are specified in section 24N(2) of the Act and further specified in regulation 33 of the NEMA EIA Regulations, 2010. Although the required content of an EMPr differs somewhat from that which was required in an EMP under the NEMA EIA Regulations, 2006, the overall purpose of both is effectively to provide details of measures, procedures and standards for the day-to-day environmental management of a development project through its various phases. In guiding management and mitigation of the environmental impacts of a development an EMP/EMPr assigns roles and responsibilities to those responsible for ensuring conformance to these measures, procedures and standards.

use of development type is therefore a matter of simplification. However, the classification of development types is in itself somewhat loose and subjective, in that a development may fall within one or more types; for example a project may be both industrial and hazardous materials storage.

Each of the represented districts contributed two environmental authorisations (EAs) to the sample, except Sisonke district, which contributed three, and uThukela and Umgungundlovu districts, which contributed one each. However, the Umgungundlovu example was subject to the NEMA EIA Regulations, 2010. It has been retained as an example of the likely changes in practice engendered by the change in legislation (see Appendices 1 and 2). The geographical distribution of development project types is presented in Table 3.

Table 3: Development project types and geographical distribution of sampled environmental authorisations

Type	Description	District											
		Amajuba	Ethekwini Metro	iLembe	Sisonke	Ugu	Umgungundlovu	uMkhanyakude	uMzinyathi	uThukela	uThungulu	Zululand	Total
Coastal	Development projects within 100 m of high water mark of the sea			1		1							2
Water Storage	Dams, reservoirs and related bulk water storage			1		1							2
Water Transport	Pipelines, canals, stormwater drainage systems		2										2
Road	Construction or upgrading of roads and bridges				1		1		2			2	6
Land Preparation	Development of housing, commercial, mixed use or industrial sites				1			2		1			4
Industrial	Construction or modification of industrial facilities	1									2		3
Hazardous Materials Storage	Storage and handling facilities for dangerous goods and hazardous substances	1			1								2
Total		2	2	2	3	2	1	2	2	1	2	2	21

A standard three part permit template based on that developed by DEA and adapted for the province is used by the EIA component. This consists of a covering letter, the authorisation and an annexure providing reasons for the decision (an example is presented in Appendix 1).

In addition, each authorisation is organized according to a set of standard headings, the three main headings being: Decision, Activities Authorized, and Conditions. The conditions section is further subdivided into sections with standardized sub-headings, as follows:

- scope of authorisation
- appeal of authorisation
- management of activity
- monitoring
- recording and reporting
- commissioning of activity
- operation of activity
- site closure and decommissioning
- general.

This brings an element of consistency to permits both in terms of appearance and content. It should also facilitate compliance monitoring, in that related conditions may reasonably be expected to be grouped together and standard conditions pertaining to specific sub-headings ought to be located under their relevant sub-headings. However, a degree of inconsistency was introduced in that one of the permits utilized an older (pre-2006) version of the authorisation template, and two of the permits utilized a newer (2010) version of the permit template.

The conditions section of the pre-2006 authorisation template employed the following sub-headings:

- standard conditions of authorisation
- specific conditions of authorisation
- management of the activity
- monitoring
- recording and reporting to this Department
- commissioning of the activity
- site closure and decommissioning
- appeal of authorisation.

The 2010 permit template (see Annexure 2) comprises a covering letter, an explanation of the appeal procedure, a copy of the official 'Notice of intention to appeal' form, the environmental authorisation, and an annexure providing reasons for the decision. Table 4 provides a comparison of the conditions sections of the different authorisation templates comprising the sample.

Further inconsistencies appear to be related to interpretation by individual officials, in that some permits identified listed activities in the authorisation whilst others provided this information in the annexure. Similarly, the section under the heading "Management of the Activity" generally contained conditions pertaining to the preparation and implementation of an environmental management plan, however this was not the case for all of the permits analysed. Other anomalies noted included conditions pertaining to auditing and reporting being found under the 'General' sub-heading, or split between the 'Monitoring' and 'Recording and Reporting to the Department' sub-headings.

Table 4: Sub-sections within the Conditions Section of the sampled Authorisation Templates, together with the categories used.

Category	Pre-2006 Authorisation Template	2006 Authorisation Template	2010 Authorisation Template
Responsibilities	Standard conditions of authorisation	Scope of authorisation	Scope of authorisation
Responsibilities	Appeal of authorisation	Appeal of authorisation	Notification of interested and affected parties
Management	Management of the activity	Management of the activity	Management of the activity
Monitoring	Monitoring	Monitoring	Monitoring
Reporting	Recording and reporting to this Department	Recording and reporting to the Department	Recording and reporting to the Department
Commissioning	Commissioning of the activity Specific conditions of authorisation	Commissioning of the activity	Construction phase
Operation		Operation of the activity	Operational phase
Decommissioning	Site closure and decommissioning	Site closure and decommissioning	Site closure and decommissioning
Responsibilities		General	General conditions

The 21 environmental authorisations examined yielded a total of 991 conditions of authorisation. In analyzing these conditions the following protocol was adopted: for the 18 environmental authorisations utilizing the 2006 authorisation template the sub-sections 'scope

of authorisation', 'appeal of authorisation' and 'general' were grouped into a single category named 'responsibilities'. In the case of the permit which utilized a pre-2006 authorisation template, the 'standard conditions of authorisation' and 'appeal of authorisation' sub-sections were combined under the category 'responsibilities', whilst conditions in the section 'specific conditions of authorisation' were included in the category 'commissioning'. Similarly, in the case of the two environmental authorisations utilizing the 2010 authorisation template the sub-sections 'scope of authorisation', 'notification of interested and affected parties', and 'general conditions' were combined under the category of 'responsibilities'. The remaining categories generally conformed to the 'conditions' sub-section headings of the 2006 environmental authorisations (see Table 4).

The reason for adopting the aggregated 'responsibilities' grouping is that conditions so grouped are common to all or almost all of the authorisations examined, and tend to be administrative in nature (i.e., not directly linked to the management of environmental impacts associated with a project). Conditions in the 'responsibilities' category address such issues as:

- the permit holder's responsibility
- the period of validity of the environmental authorisation
- notification of changes in contact details
- transfer of ownership
- notification of interested and affected parties
- notification of the right of appeal
- compliance with other statutory obligations
- timeframes for the reporting of non-compliance.

CHAPTER 3 FINDINGS

Findings are presented in the order of requirements set in sub-regulation 38(1)(a) to (d), and all conditions of authorisation quoted are quoted verbatim except where noted. Each of the environmental authorisations in the sample was assessed for conformance with the requirements of sub-regulation 38(1)[15]; that is information which must be included in an environmental authorisation. This information consists of such items as the name and contact details of the permit holder, project description and location, and is essential to monitoring compliance with an environmental authorisation or any other related permit. The findings of this analysis are presented in Table 5. The regulations themselves were found to be the source of some confusion regarding the details recorded in the permits. For example, sub-regulation 38(1)(b) requires that "*a description of the activity that is authorised*" be included in the authorisation. As can be seen in Table 5 a number of the authorisations included both the project description as provided by the applicant and the constituent listed activities as identified in Government Notices GN R 386 and R 387 of 21 April 2006. The remainder of the authorisations included only the project description as provided by the applicant.

The grouping/categorization of conditions of authorisation produced the results shown in Table 6. The total number of conditions per authorisation ranged from 27 to 72 with an average of 47 conditions per authorization. As expected the categories with the largest number of conditions were 'responsibilities' and 'commissioning'. The high number of

[15] Sub-regulation 38(1) An environmental authorisation must specify -
- (a) the name, address and telephone number of the person to whom the authorisation is issued;
- (b) a description of the activity that is authorised;
- (c) a description of the property on which the activity is to be undertaken and the location of the activity on the property, or if it is -
  - (i) a linear activity, a description of the route of the activity; or
  - (ii) an ocean-based activity, the coordinates within which the activity is to be undertaken; and
- (d) the conditions subject to which the activity may be undertaken, including conditions determining -
  - (i) the period for which the environmental authorisation is valid, if granted for a specific period;
  - (ii) requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity; and
  - (iii) the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place.

Table 5: Conformance of permits to the requirements of sub-regulation 38(1)

Regulation 38(1) Requirement	Environmental Authorisation																				
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
38(1)(a) Name of Holder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38(1)(a) Address of Holder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38(1)(a) Telephone Number of Holder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38(1)(b) Activity Description	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Listed activities identified?	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	1	1
38(1)(c) Property Description	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0
38(1)(c) Location of Activity on Property	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	1	0	1	0	1
38(1)(d)(i) Period of Validity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
38(1)(d)(ii) Management requirements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38(1)(d)(ii) Monitoring and reporting of lifetime impacts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38(1)(d)(iii) Transfer of rights and obligations	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

A rating of 1 indicates conformance with the requirement, and a rating of 0 indicates non-conformance

Table 6: Numbers of conditions of authorisation by category

EA No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total	Mean
Responsibilities	12	12	11	12	15	15	15	13	18	18	14	13	16	16	16	11	12	13	6	25	15	298	14
Management	1	1	1	9	1	1	7	7	1	1	5	5	2	2	2	2	2	2	2	1	3	58	3
Monitoring	3	3	4	3	1	1	4	4	3	3	4	4	6	6	2	2	3	3	3	10	7	79	4
Reporting	1	1	4	1	1	1	1	2	2	2	3	9	1	1	1	2	2	4	4	5	1	49	2
Commissioning	9	9	16	12	13	14	40	40	25	25	3	9	29	26	1	16	2	11	16	20	5	341	16
Operation	2	2	1	5	15	22	3	3	5	5	6	8	3	2	4	1	28	5	1	7	3	131	6
Decommissioning	1	2	1	1	3	4	2	2	1	1	1	1	2	1	1	1	3	1	1	2	3	35	2
Total	29	30	38	43	49	58	72	71	55	55	36	49	59	54	27	35	52	39	33	70	37	991	47

conditions falling in the category 'responsibilities' results from the grouping of three sub-sections of the authorisation template. The high number of conditions falling in the category 'commissioning' may be explained by:

1. the limitation of the requirement for submission of an environmental management plan (EMP) to activities which have undergone a full EIA; and
2. a tendency to focus on construction related impacts (it is generally acknowledged that the most acute negative environmental impacts occur during construction).

Sub-regulation 38(1)(c) presented some challenges for compilers of environmental authorisations in relation to describing the property where the authorised activity will take place. Firstly, for non-linear, land based activities there are two requirements to be met in describing the location of the authorised activity. These consist of '*a description of the property on which the activity is to be undertaken*' and '*the location of the activity on the property*'. In providing the description of the property use is made of standard cadastral descriptors used by the Surveyor General and Deeds Office, as in the examples taken from environmental authorisations (EAs) in the sample and presented in Table 7. Environmental authorisations number 7 and 21, however, did not include such a description. This may have been due to a simple oversight on the part of the decision maker, or difficulty in establishing the correct cadastral description of a rural property.

Table 7: Examples of property descriptions used in environmental authorizations

EA No.	Property Description
17	Portion 13 of the farm Koppies Kraal No. 289
5	Sub 21 (of 8) of 5333, Lot 223, Umhlathuze Number 16230
8	Portion of Rem.13 of Reserve No. 14 No. 15834, Mseleni.

Compliance with the second requirement to be met in describing the location of the authorised activity appears to be more problematic. In part, this may be due to lack of guidance in the regulations, but equally it may be an oversight during quality control. The regulations do not specify how the location of the activity on the property is to be indicated.

Therefore, the use of geographical co-ordinates (8 EAs) or locality plans (4 EAs) may be equally acceptable. However, it was found that in at least one instance the location of the activity on the property was not given in the authorisation itself, but was included in the Annexure containing the reasons for the decision. This may be legally incorrect, but it does underline the importance of the reasons for decision as a resource in compliance monitoring. From the perspective of compliance monitoring the issue may largely be one of information presentation, that is, where and how this information is presented and referenced in the EA documentation. Table 8 presents an example of 'best practice' in presenting project location information using geographical co-ordinates that was used in EAs 5 and 6.

Secondly, in relation to linear activities, the EA is required to specify a description of the route of the activity. The issue for compliance monitoring here lies in the level of detail necessary to clearly identify the authorised activity footprint. The sample included five linear activities, all of which were roads. Only one included a copy of the locality and layout plans as a means of describing the route. The remaining EAs provided geographical co-ordinates of the start and end points and reference to the broad cadastral description of the property. It should be noted that all of these projects entailed the upgrade of existing rural access tracks or roads. The assumption in such instances is that the new road will follow the route of the existing track.

Table 8: Example of good practice in fulfilling requirements of sub-regulation 38(1)(c)

Province:	KwaZulu-Natal
Magisterial District:	uThungulu
District Council No:	DC 28
Name of property:	Sub 21 (of 8) of 5333 Lot 223 Umhlathuze Number 16230
Geographic Co-ordinates of Application: Between	28^{o} 47'26.86" South 32^{o} 01'57.44" East
Current land use and zonation of the site:	Port related Industrial
Surrounding land use and its zonation:	Light & Heavy Industrial, warehousing, commercial, railway lines, harbour,

Sub-regulation 38(1)(d)(ii) requires the specification of "*conditions determining requirements for the management, monitoring and reporting of the impacts of the activity on the*

environment throughout the life cycle of the activity". These are the conditions which make up the bulk of the conditions set, and thus where the greatest potential for difficulties in interpretation and ultimately compliance monitoring lie. There appears to be a degree of overlap between sub-regulations 38(1)(d)(ii) and 38(2)(b) and (c), in that each addresses reporting requirements. Sub-regulation 38(1)(d)(ii) speaks of "*reporting of impacts of the activity on the environment*", whilst sub-regulation 38(2)(b) addresses reporting of compliance and non-compliance with conditions of authorisation, and sub-regulation 38(2)(c) addresses environmental audit reporting on the impacts of the authorised activity on the environment.

Further analysis focused on the extent to which the requirements of sub-regulation 38(2)[16] were met; that is, conditions which may be included in an environmental authorisation. In this instance there seemed to be a particular lack of clarity regarding the distinction between compliance reporting and audit reporting. This seemed to stem from a conflation of the functions and duties of an environmental control officer (ECO)[17] and those of an environmental auditor, as much as from any misinterpretation of the regulations. There is a clear need to define and agree the roles and functions of these individuals in the context of EIA and the EIA Regulations. It is suggested that the role of an ECO falls within the ambit of Sadler and McCabe's (2002) surveillance and supervision function. Although, depending on the manner of wording used in the conditions of an environmental authorisation, some or all of the monitoring function may also fall within the ambit of the ECO role.

---

[16] Sub-regulation 38(2) An environmental authorisation may -

(a) provide that the authorised activity may not commence before specified conditions are complied with;
(b) require the holder of the authorisation to furnish the competent authority with reports prepared by the holder of the authorisation or a person who is independent, at specified times or intervals -
    (i) indicating the extent to which the conditions of the authorisation are or are not being complied with;
    (ii) providing details of the nature of, and reasons for, any non-compliance with a condition of the authorisation; and
    (iii) describing any action taken, or to be taken, to mitigate the effects of any non-compliance or to prevent any recurrence of the non-compliance;
(c) require the holder of the authorisation to furnish the competent authority with environmental audit reports on the impacts of the authorised activity on the environment, at specified times or intervals or whenever requested by the competent authority; and
(d) include any other condition that the competent authority considers necessary for the protection of the environment.

[17] An environmental control officer is responsible for monitoring the implementation of and compliance with permit conditions on a monthly or more frequent basis, whilst an environmental auditor is responsible for auditing project environmental performance and/or permit compliance either annually or upon completion of specified project milestones, e.g., completion of construction.

In order to assess the wording of commonly used conditions / conditions relating to common environmental issues, conditions were further grouped according to the specific issue addressed. For example, conditions relating to the reporting of non-compliance were tabulated and compared for consistency in wording and monitorability. Owing to the changed requirements for submission of environmental management plans between the NEMA EIA Regulations 2006 and the NEMA EIA Regulations 2010, conditions relating to matters which are normally addressed in an environmental management plan were omitted from consideration. This had the effect of reducing the overall number of conditions subjected to wording assessment to a more manageable number (reduced from 991 to 619). Examples of the type of condition thus removed from analysis include those dealing with topsoil and construction materials stockpile management, and the protection of soil during refueling.

Conditions Analysed and Findings

Quality Control

Quality control plays a significant role in ensuring that any document is readable and fulfills its intended purpose. This is no less true in ensuring that permit conditions are monitorable and practically enforceable. Between 18 and 26 of the 991 conditions were found to have their monitorability compromised through poor quality control. Examples of these are presented in Table 9 together with reasons for regarding their monitorability as compromised.

Table 9: Examples of the effect of poor quality control on monitorability

EA	Condition	Reasons for Compromised Monitorability
7	The contractor must keep a record of all the environmental incidents that take place on site which must include the following; time, date, location, and nature of the incident and action taken. This record must also include the individual that undertook the action.	This condition is in direct conflict with the standard conditions of authorisation common to all EAs in the sample, which state: *"Authorization of the activity is subject to the conditions below, which conditions form part of the environmental authorization and are binding on the holder of the authorization"* (my emphasis) and "*The holder of the authorization shall be responsible for ensuring compliance (my emphasis) with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the*

EA	Condition	Reasons for Compromised Monitorability
		authorization" As noted earlier, a permit is to some extent a form of contract between the permit holder and the state, in its role as custodian of a resource; therefore it is incorrect for a permit condition to seek to bind a third and unknown party to that contract. It is up to the permit holder to ensure that any other contract they enter into with service providers in the course of implementing the development project includes provisions binding the service providers to comply with the relevant requirements of permits issued to the project proponent/permit holder.
18	The dam must be designed such that invasion by vectors is prohibited during the operational phase.	It is unclear what type of vector is intended to be covered by this condition. There is therefore uncertainty as to what must be measured in order to monitor compliance with the condition.
20	A storm water system must be designed to ensure that the storm water is separated from contaminated water on site. All polluted storm water must be led to combined infiltration (my emphasis) and oil separation system before connecting to municipal system during construction.	A spelling error undetectable to an automated spell checker, which has resulted in a confusing or nonsensical description of the requirement. Although simple logic can resolve the error, it does provide a non-compliant holder with the basis for a potentially viable legal argument which may be used to frustrate enforcement efforts.
8	Eco- friendly infrastructure options must be considered (for sanitation, pool water recycling, solar heating, the collection and storage of rainwater).	Use of the word 'considered' renders the condition discretionary. The permit holder can therefore legitimately avoid compliance, for example, by claiming to have considered such options and finding them to be too costly to implement.
5	The holder of the authorization must notify the Department, in writing and within (SEVEN) 7 days, if certain condition of this authorization cannot be or is not adhered to (my emphasis). In all other cases, the holder of the authorization must notify the Department, in writing, within (Twenty four) 24 hours if a condition of this authorization is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance	Lack of clarity because conditions haven't been clearly identified results in conflicting time frames, rendering the condition both unmonitorable and unenforceable.

Period of Validity

All of the EAs examined with the exception of EA 19 included a period of validity as required in terms of sub-regulation 38(1)(d)(i). As one page of EA 19 was missing from the copy available for study, it is likely that the period of validity condition was on the missing page. Three different versions of wording this condition were used and are presented in Table 10. A total of 14 EAs used the 'standard' wording, 3 EAs used the 'completion' clause and 4 EAs

used the 'extension' clause. A further 2 EAs used the 'completion' clause as a separate condition.

Table 10: Examples of Period of Validity Conditions

Version	Condition	Implications for Monitorability
'Standard'	This environmental authorization is valid for a period of 2 (two) years from the date of issue. If commencement of the activity does not occur within that period, the authorization lapses and the holder of the environmental authorization must re-apply for an environmental authorization should he or she wish to carry on the activity.	This version of the condition is relatively easily monitorable requiring only that the compliance monitoring official establish the date on which the activity commenced and calculate the date on which the EA lapses.
'Completion' Clause	This environmental authorization is valid for a period of two (2) years from the date of issue. If commencement of the activity does not occur within that period, the authorization lapses and the holder must reapply for an environmental authorization should he or she wish to carry on the activity. Construction must be completed within three (3) years of commencement of construction.	There does not seem to be any legal impediment to the inclusion of a timeframe for completion of construction. If used in conjunction with a condition requiring the submission of formal notice of the commencement of construction, and a further notice of completion of construction to the CA monitorability may be enhanced.
'Extension' Clause	The environmental authorization is valid for a period of thirty six (36) months from the date of issue. If commencement of the activity does not occur within that period, the authorization lapses and the holder of the environmental authorization must apply for the extension of environmental authorization at least sixty (60) calendar days prior to the expiry of the validity period. Failure to do so, the applicant will be obliged to reapply for an environmental authorization should he or she wish to carry on the activity.	In its current form the wording of this condition may be problematic from a compliance monitoring perspective. Firstly, whilst it is desirable to inform the permit holder of their right with respect to amendment of the EA, which includes extension of the period of validity, it is also important to avoid creating the impression that such an amendment will receive 'automatic' approval. Amendment is thus a separate issue and should be treated as such. Secondly, from the compliance monitoring and enforcement perspective it is desirable to word conditions in such a manner as to place the burden of proof of compliance on the permit holder.

Transfer of Rights and Obligations

As can be seen from Table 5, three EAs did not conform to the requirements of sub-regulation 38(1)(d)(iii) to include a condition "*determining the transfer of rights and obligations when there is a change of ownership in the property on which the activity is to take place*". Fifteen EAs contained a condition specifying what was to be done on transfer of ownership, although broadly the same there were effectively 7 versions of this condition (see Table 11). Two EAs combined the transfer of rights and obligations condition with another condition. Four EAs

refer to the use of an official form to be used in notifying the CA, the remainder require only that notification should be in writing.

Table 11: Transfer of Rights and Obligations conditions

Condition	Implications for Monitorability
Where any of the holder's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the holder must notify this Department as soon as the new details become known to the holder. Should there be a transfer of the legal rights of this authorisation from the current holder to any other individual or entity the notification mentioned in this condition must include the new holder's documentary acceptance of the legal responsibility of being the holder of this authorisation. A notification in this regard (on an official form) must be submitted to this Department at least 30 (thirty) calendar days prior to the transfer. *Number of EAs: 2*	This form of wording may be regarded as 'best practice' in the sense that both the holder of the permit and the person to whom ownership is being transferred are required to perform actions which reveal compliance. Non-compliance is therefore relatively easy to show.
This Department must be notified within 30 (thirty) days of any change in ownership and/or project developer. The rights and conditions stipulated in this environmental authorization must be made known to the new owner and/or developer and are binding on the new owner and/or developer. *Number of EAs: 6* *Alternative version:* The Department must be notified within 30 days on the official form of any change in ownership of the proposed development. The rights, obligations and conditions as stipulated in this environmental authorisation must be made known to the new owner and are binding on the new owner. *Number of EAs: 1*	Monitorability of this version may be improved by including a requirement that the current holder must submit "the new holder's documentary acceptance of the legal responsibility of being the holder of this authorization".
Notice of transfer of rights and obligations must be provided to the Department on the official form within 30 (thirty) days of the change in ownership of the project *Number of EAs: 1*	This formulation does not address the requirements of sub-regulation 38(1)(d)(iii) adequately as it only addresses notification of the CA. It does not address what the purchaser is to be informed of, nor how transfer of responsibilities is to be effected. Burden of proof that the new owner has been informed of, and accepted their responsibilities thus lies with the CA and not the holder, rendering monitoring difficult, adding to the CA's administrative burden and the taxpayers' costs.
A change of ownership of the property will result in the transfer of rights and obligations to the new owner in respect of this authorization. This Department must be notified in writing and in at least / within (variation in wording) thirty (30) calendar days prior to the above-mentioned change in ownership. *Number of EAs: 3*	This form of the condition provides for the Department to be informed of the change in project ownership, and specifies a timeframe within which this must be done. It does not provide any guidance as to how the purchaser / new owner is to be informed of their rights and obligations. Ultimately this lack of guidance places the onus on the CA to prove compliance

Condition	Implications for Monitorability
	with the condition.
Any change of ownership of the project must include the transfer of responsibilities contained in this environmental authorization to the new owner/s *Number of EAs: 1*	The wording in this version is likely to render the condition unmonitorable due to: 1. the lack of timeframe within which the purchaser is to be informed of the EA and associated rights and obligations, 2. details of how transfer of responsibilities is to be documented or recorded, and 3. the lack of a requirement, and a timeframe within which, to indicate to the CA that the transfer will take place.
The applicant must notify the Department, in writing, at least ten (10) calendar days prior to the change of ownership, project developer or the alienation of any similar rights for the activity described in this letter. The applicant must furnish a copy of this document to the new owner, developer or person to whom the rights accrue and inform the new owner, developer or person to whom the rights accrue that the conditions contained herein are binding on them. (My emphases) *Number of EAs: 2*	This version of the transfer of rights and obligations condition has three 'whats', only one 'when' and the 'how' is unclear: What 1. The CA must be informed of the change in project ownership/transfer of rights What 2. The current holder of the EA must provide a copy of a document to the purchaser What 3. The current holder of the EA must inform the purchaser of their obligations in terms of the EA It is unclear as to which documents are being referred to in each of the three sentences that make up this condition, which negatively affects monitorability.

Formulation of a monitorable and enforceable condition requires closer scrutiny of what is meant or intended by this sub-regulation. The first version in Table 11 was used in two EAs, in one of which (EA 7) it is associated with two other conditions (see Table 12) which require that:

1. A home owners' association for the development project be established, to which responsibility for compliance with the environmental authorisation is to be transferred; and
2. Each unit owner becomes responsible for compliance with the EA to the extent that its conditions apply to the individual units.

None of the other versions of this condition appeared to be linked / associated with additional or subsidiary conditions relating to the transfer of rights and obligations in a similar project specific manner.

Table 12: Example of best practice in transferring rights and obligations of an EA to subsequent owners

Should there be a transfer of the legal rights of this authorisation from the current holder to any other individual or entity the notification mentioned in this condition must include the new holder's documentary acceptance of the legal responsibility of being the holder of this authorisation. A notification in this regard (on an official form) must be submitted to this Department at least 30 (thirty) calendar days prior to the transfer.
The conditions of authorisation contained in this record of decision and approved EMP shall be binding on the purchasers and subsequent owners of the individual subdivisions/ plots contemplated in this record of decision in so far as it may relate to the development of the said subdivisions/ plots.
It is a further condition of this authorisation that a Homeowner's Association be formed to which each owner of the said subdivisions shall belong to and it shall be recorded in the rules of the Homeowners' Association that the members shall abide by the conditions of the record of decision issued to the original holder of this EA and the approved EMP in so far as they relate to the development of the members' individual subdivisions/ plots.

Management, Monitoring and Reporting of Impacts

The largest number (approximately 600) and greatest variety of conditions in the sample were those set in terms of sub-regulation 38(1)(d)(ii) which "*determine requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity*". In order to reduce these to a manageable number cognizance was taken of the requirement under the NEMA EIA Regulations 2010 for the submission of a draft environmental management programme (EMPr) with all applications for environmental authorisation. This requirement should result in a reduction in the number of conditions, particularly in EAs which are the result of an application subject to basic assessment, as conditions relating to the type of detailed management measures which are contained in EMPrs need not now be included in an EA. Thus conditions such as those relating to the stockpiling of topsoil and construction materials, provision of temporary sanitation facilities, and the handling and storage of hazardous materials during construction were removed from consideration in this study.

Management

Conditions regarding the content, submission, approval and amendment of an EMP/EMPr are discussed in Tables 13 and 14. All except two EAs included some provision for the submission and implementation of an EMP/EMPr. The most commonly used version of a

condition detailing the content of such a submission used a compound formulation, that is, a generic requirement that an EMP/EMPr be submitted, a timeframe for its submission, and sub-clauses setting out minimum content and project specific content requirements. An alternative approach used in one EA was to split the submission and content requirements into two conditions. Nine of the EAs in the sample used a separate condition to address implementation of the EMP/EMPr.

Table 13: Examples of EMP/EMPr submission and content conditions

Condition	Implications for Monitorability
An Environmental Management Plan ("EMP") which fulfills the requirements of this authorization must be compiled and submitted to the <*District Name*> District office of this Department for approval within thirty (30) calendar days of signature of this document. The EMP must: 1. contain all the information specified in regulation 34 of the EIA Regulations, 2006 2. be approved by the Department before the commencement of any construction activity 3. be adhered to during the commissioning, operation and decommissioning of the activity" …. Project specific requirements included in different EAs: ♦ "include a waste management plan for the construction and the operation of the facility ♦ include all control systems with regard to tank and pipe rupture and leaks ♦ include emission mitigation measures during the tank's steam cleaning and ventilation process ♦ Include the management of alien invasive plant species which colonize disturbed ground ♦ address the management of the dam and associated … River system ♦ address an off-site mitigation of wetland loss ♦ address the rehabilitation of the dam including the area to be used as a source of material within the site ♦ include a storm water management plan" *Number of EAs: 6*	This version is easily monitorable, and represents an effective means of identifying omissions to be rectified prior to finalization of the EMP/EMPr. The use of clearly identified sub-clauses to identify specific actions or components facilitates reading and the identification of events or items to be monitored. However, care must be taken to ensure that the sub-clauses contain or refer to items which do, in fact, belong in an EMP/EMPr, i.e., are plans or actions which are directly linked to management of project impacts on the environment. Nevertheless, it is submitted that rendering approval of the EMP/EMPr a separate action to that of issuing an EA: • adds to the CA's administrative burden, • contributes to delay in the commencement of a development project, and • adds to the CA's compliance monitoring burden. It is therefore suggested, particularly in the light of the changes introduced in the NEMA EIA Regulations, 2010 that omissions or gaps in the draft EMPr are dealt with at the same time as the basic assessment report or EIA report is reviewed. Thus in requesting additional information, accepting or rejecting a basic assessment or EIA report the EMPr should be considered an integral part of those reports.
The holder must submit a signed Environmental Management Programme (EMP) to ensure that all entities responsible for compliance with the EMP are aware of and accept their responsibilities. The EMP must include measures for the management of the construction, operation and decommissioning phase activities, and must be submitted to this office of this Department within 90 calendar days of signature of this authorisation for consideration of approval / *and approved prior to construction**. The EMP must also be amended to reflect / *contain* the following;	It is suggested that the imposition of a requirement for all parties responsible for the implementation of an EMP/EMPr to sign acknowledgement of their responsibilities constitutes best practice. Not only does it aid compliance monitoring by indicating awareness of obligations, but it may assist enforcement should such become necessary.

Condition	Implications for Monitorability
o All the information specified in Section 24N(2) of the National Environmental Management Amendment Act, 2008, (Act 62 of 2008). o A Storm Water Management Plan./ *A Storm water Management Plan approved in writing by the Department of Water and Environmental Affairs* (DWEA). o The final design of the positioning and structural design of the development that has taken into consideration the site specific geotechnical investigations. o A Landscape plan o Mitigation measures regarding surface and ground water contamination due to construction activities *Version 1:* o Terms of reference/ rules of the Homeowners' association to which all purchasers of residential plots must form part in terms of condition 1.74. These rules must include the design parameters of all residential units such that they blend in with the surrounding natural environment. o Approval of the EMP from the Department of Water and Environmental Affairs (DWEA), Ezemvelo KZN Wildlife and the Jozini Local Municipality. *Version 2:* 1.12.3 The final detailed designs of the road to be upgraded as per the Provincial Department of Transport's (DoT) specifications. 1.12.6 A copy of the renewed lease agreement from Ingonyama Trust Board. 1.12.7 Mitigation measures regarding the potential increase in soil erosion and consequent sedimentation of local streams, drainage lines and wetlands due to the construction activities. *Number of EAs: 2* ** Italicised text denotes alternative wording used*	
The EMP must be submitted to the Ezinqoleni Municipality and Hibiscus Coast Municipality: Environmental Management Section for approval. This approval must be submitted to this Department before the commencement of any construction activities (including site preparation). *Number of EAs: 1*	The EA in which this condition was used seeks to employ a self-regulatory approach. Approval by the municipalities therefore amounts to acceptance of their respective obligations in terms of implementing and monitoring compliance with the EMP.
A site specific Environmental Management Plan (EMP) must be compiled and submitted to this Department for approval prior to the commencement of construction. *Number of EAs: 2*	This condition is clear, to the point and eminently monitorable. However, given the change in regulations this condition in this form should no longer appear in environmental authorisations.
The Environmental Management Plan ("EMP") … *Version 1:* … submitted as part of the application for environmental authorization must be implemented in its	Version 1 is simple, direct in its intent and is readily monitored for compliance through the environmental control officer's inspection reports, provided that the EA contains a condition requiring submission of these. Version 2 implies the need for a separate approval

Condition	Implications for Monitorability
entirety *Version 2:* … submitted as part of the application for environmental authorization and approved by the Department must be implemented *Version 3:* …submitted to and reviewed by this Department must be amended to accommodate the recommendations made by this Department and must be re-submitted for approval within thirty (30) calendar days of receipt of this environmental authorization *,Number of EAs: 3*	process. Version 3 explicitly requires a separate approval process for the EMP. Both versions 2 and 3 add to the CA's administrative burden, extend the permitting process (leading to possible project delays and proponent frustration) and complicate compliance monitoring.
The Environmental Management Programme (EMPr) for the construction and operational phases of this project as submitted for the environmental authorization of this project is hereby approved. *Number of EAs: 1*	This condition was used in conjunction with two others relating to the revision and amendment of the EMPr. However, the requirement that the EMPr be implemented is indirectly imposed through a condition requiring the appointment of an ECO. The limitation of approval to the construction and operational EMPr is wise, as it takes into account the lengthy lifespan of the project. A separate condition/s in the source EA dealt with the decommissioning of the project and submission of an EMPr for that phase.

Only four EAs included a condition regarding the amendment of the EMP/EMPr, as two EAs used exactly the same wording, there were effectively three versions of this condition (Table 14). None of these were particularly monitorable nor are they conducive to efficient administration.

Table 14: Conditions relating to EMP/EMPr amendment

Condition	Implications for Monitorability
Any change to the approved EMP must be undertaken in documentary consultation with and to the approval of this Department.	Compliance monitoring is likely to be difficult for the same reasons on all versions of this condition. The use of 'any change' implies that <u>all</u> changes or deviations from the approved EMP regardless of their nature or significance must first be approved in writing by the CA before the change is implemented. Particularly during construction, when change at the project site is rapid and delays can be costly both in terms of environmental damage and money, non-compliance with this condition may be difficult to detect without continual observation by compliance monitoring and enforcement staff. A situation which is neither practical nor possible to maintain. Unless there is an indication elsewhere in the EA of the
This Department may add to or amend any of the conditions in this authorization and the approved EMP if, in the opinion of the Department, the addition or amendment is environmentally justified	
Any amendments to the EMPr must be submitted to, and approved by the Department prior to any amendments being implemented.	

Condition	Implications for Monitorability
	appropriate address and contact person (post or section) within the CA to whom applications for amendment must be submitted, it is possible that an uncooperative holder of an EA may abuse the looseness of wording to place the burden of proof of compliance on the CA.

Monitoring

In addition to the implementation of an EMP/EMPr, management and monitoring of the impacts of development projects in the sample were also addressed through conditions requiring the appointment and specifying the duties of an environmental control officer (ECO) (Table 15). Eighteen EAs in the sample contained at least one condition requiring the appointment of an ECO, similarly 19 EAs contained conditions describing the duties of the ECO. One EA combined the appointment and duties of the ECO in a single condition. Five EAs specified an independent ECO, whilst four required the ECO to be suitably experienced and two specified the appointment of a qualified ECO. None of the conditions in these EAs provided any clarification of the qualifying terms, such as 'independent', 'experienced' or 'qualified'. In monitoring compliance with these versions of the condition guidance on the definition of 'independent' may be sought, and found, in the NEMA EIA Regulations 2006 and 2010. However, no guidance is available with regard to the definitions of 'experienced' or 'qualified', nor is there any formal standard against which suitability of experience or qualification can be measured. Four EAs contained discrete conditions specifying the frequency of ECO inspections, whilst one EA included the frequency of inspections in the appointment of ECO condition (Table 16).

Table 15: Examples of Conditions requiring the appointment and specifying tasks of an ECO

Condition	Implications for Monitorability
An independent Environmental Control Officer (ECO) must be appointed at the developer's cost to monitor the implementation of the Environmental Management Plan. *Number of EAs: 2*	The wording of this condition effectively renders it unmonitorable as there is no clarity regarding the time period for which the ECO is to be appointed, i.e., appointment is not restricted to a particular project phase, so must therefore be for the lifetime of the project. Whilst it may be argued that the permanent employment of an ECO is no bad thing, it may be constitutionally unfair to impose such a condition if the costs associated with this appointment are such as to

Condition	Implications for Monitorability
	preclude the exercise of the permit holder's economic right. It may further be argued that where the costs of monitoring and mitigation of environmental impacts, i.e., EIA follow-up, are such as to render the project either marginally profitable or effectively non-profitable the only responsible option is to refuse to grant environmental authorization.
The applicant must appoint the (ECO) qualified person/s responsible for ensuring that the individual conditions are carried out as stated in this environmental authorisation. The name and contact details must be submitted to this office, attention to Assistant Manager: Compliance, Monitoring and Enforcement Section. *Number of EAs: 2*	Use of the word 'applicant' to refer to the permit holder is likely to result in confusion at a later stage, particularly if ownership of the project changes. In terms of compliance monitoring and enforcement use of the term 'applicant' may open up the line of argument that compliance with the condition is the responsibility of the original applicant and not the current holder of the permit. (See Table 8 for further discussion.) This condition was located under the 'Commissioning' sub-section of the EA in both instances, and used in conjunction with a second condition requiring the appointment of an independent EAP to undertake audits during the operational phase. It is consequently assumed that the condition appearing in this table only applies to the construction phase, however, this adds further difficulty to compliance monitoring.
The holder must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development. This ECO will have the responsibility of ensuring that the mitigation measures referred to in this authorisation and approved EMP are implemented. 1.16.1 The ECO must be appointed before commencement of any land clearing or construction activities. This Department must be notified of such an appointment for communication purposes before commencement of the land clearing or construction activities 1.16.2 The ECO must keep records of all activities on site, problems identified, transgressions noted and a schedule of tasks undertaken by the ECO. 1.16.3 The ECO must remain employed until all rehabilitation measures, as required in terms of the approved EMP for the construction phase are completed and the site is ready for operation. *Number of EAs: 2*	This is possibly the most monitorable of the examples relating to the appointment of an ECO. Not only is the time period for which the ECO must be appointed clearly identified, but so is the timeframe within which the appointment must be made. Further, the duration of the ECO's appointment and the purpose of that appointment are also specified. It is, however, argued that the duties of the ECO could be more clearly defined as, for example, maintaining a record of 'all activities on site' is open ended and vague. Similarly, it is unclear what it is intended should be included in the schedule of tasks undertaken by the ECO. Are these to be restricted to the tasks identified as responsibilities of the ECO in the EMP/EMPr, or are these to be extended to other duties which the holder of the authorisation may identify, e.g., preparation of an application for amendment of EA/EMPr should such become necessary? Lastly, the purpose of the ECO appointment is clearly identified.
An independent Environmental Control Officer (ECO) must be appointed to ensure the implementation of the conditions of this Environmental Authorisation and the Environmental Management Plan during the course of the construction phase of this development	These versions are sufficiently similar to be considered together. Whilst appointment of the ECO is easily monitorable, one has either been appointed or one has not, some aspects of these conditions are not so easy to monitor for compliance.

Condition	Implications for Monitorability
Number of EAs: 2 The applicant must appoint a suitably experienced, independent Environmental Control Officer (ECO) before commencement of any land clearing or construction activities to ensure that the mitigation/rehabilitation measures and conditions referred to in this Environmental Authorization are implemented and to ensure compliance with the provisions of the EMP. *Number of EAs: 1*	Firstly, the issue of independence may present difficulties, in that the definition of 'independent'[18] provided in the regulations would be the default for measuring independence of the ECO. This definition does not explicitly address an ECO, but does refer to "a person compiling a specialist report or undertaking a specialized process". It is debatable whether an ECO may be said to fall into either category. Neither does it follow that an ECO is necessarily an EAP[19], as an ECO is responsible for overseeing the implementation of an EMP/EMPr rather than its planning, management or coordination. Secondly, although appointment is linked to a clear time period – construction - no timeframe for the appointment has been specified. Thus, for example, it is conceivable that an ECO could be appointed after site establishment (i.e., setting up of construction camp, batching plants, pre-cast yards, and preparation of materials stockpile areas and so on) has commenced without compliance being negatively affected. Lastly, it may be argued that the ECO plays a surveillance role and his/her function is therefore to monitor compliance with the EMP/EMPr and to monitor the implementation of agreed mitigation and rehabilitation measures. Ensuring compliance with the EMP/EMPr and implementation of mitigation and rehabilitation measures, on the other hand, is the responsibility of the permit holder.
Version 1: An Environmental Control Officer (ECO) must be appointed to ensure that regular audits are undertaken prior, during and post construction of the activity to ensure implementation of mitigation and management measures. Furthermore, an ECO must monitor the applicant's compliance with all the conditions of this authorization. *Number of EAs: 1* *Version 2:* An Environmental Control Officer (ECO) must be	Version 1 of this condition was used in conjunction with a condition requiring the submission of a single environmental audit report during the construction phase. Version 2 was used in conjunction with a condition specifying the submission of environmental audit reports "every 30 calendar days" during construction and "once in six months during post construction phase". There is an apparent confusion between what an ECO is and does and what an environmental auditor is and does. This confusion of roles and functions, together with the lack of clarity on the frequency of

[18] "Independent", in relation to an EAP or a person compiling a specialist report or undertaking a specialised process or appointed as a member of an appeal panel, means

(a) that such EAP or person has no business, financial, personal or other interest in the activity, application or appeal in respect of which that EAP or person is appointed in terms of these Regulations other than fair remuneration for work performed in connection with that activity, application or appeal; or

(b) that there are no circumstances that may compromise the objectivity of that EAP or person in performing such work

NOTE: The wording used in both the NEMA EIA Regulations 2006 and those of 2010 is exactly the same.

[19] "environmental assessment practitioner", when used in Chapter 5, means the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments introduced through regulations (NEMA, 1998).

Condition	Implications for Monitorability
appointed to ensure that regular audits are undertaken prior, during and post - construction of the activity to ensure implementation of mitigation and management measures. Furthermore, an ECO must monitor the applicant's compliance with all the conditions of this environmental authorization including the implementation of the provisions of the EMP as stipulated under condition 1.11 of this environmental authorization. *Number of EAs: 1*	ECO inspections renders Version 1 of this condition unmonitorable. Although the same confusion of roles is apparent in Version 2 the supporting condition, which specifies reporting frequencies, at least provides clearer guidance to the frequency of inspections the CA expects to be undertaken. The monitorability of Version 2 is therefore somewhat better than that of Version 1. However, there is a difference between ECO inspections and environmental audits, which have not been clearly distinguished in these conditions. This could negatively affect both compliance monitoring and enforceability of these conditions.
During the construction phase of the proposed project, site monitoring must be conducted monthly by the Environmental Control Officer to be appointed by the contractor (my emphasis) to ensure environmental compliance with the Environmental Management Plan. Subsequent to monitoring, a report must be submitted for consideration by the Environmental Project Manager at project meetings to allow for the integration of recommendations into ongoing project schedule. *Number of EAs: 1*	Seeking to make the contractor responsible for appointing the ECO is inappropriate in the context of a condition in an EA. The holder of the EA is responsible for compliance with conditions of authorisation, see comments in this regard in Table 8.
Version 1: An Environmental Control Officer for this project must be appointed and his/her name forwarded to this Department prior to commencement of construction *Number of EAs: 2* *Version 2:* The developer must appoint an Environmental Control Officer (ECO). The contact details of the ECO must be made available to this Department prior to commencement of construction. *Number of EAs: 1*	Version 1 was used in conjunction with a condition specifying the frequency of ECO inspections and requirements for the submission of inspection reports. One of the EAs (EA 17) from which it comes, was also the only/one of the few to clearly differentiate between inspection reports and audit reports. Taken all together and in context these conditions are considered readily monitorable. Version 2 appeared in conjunction with six other conditions setting out the responsibilities of the ECO and reporting requirements. It is monitorable, but must be considered in context with its related conditions.
The applicant must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development to ensure that the mitigation / rehabilitation measures and recommendations referred to in this authorization are implemented and to ensure compliance with the provisions of the EMPr. *Number of EAs: 1*	To improve monitorability it is necessary that "suitably experienced" be defined. There is also a difference between ensuring compliance and monitoring compliance. It is the permit holder's responsibility, frequently delegated to the project or resident engineer during construction phase, to ensure compliance, and the ECO's role to monitor and report on compliance (and non-compliance) to the project or resident engineer.
The local authorities of the Environmental Department of the Hibiscus Coast Municipality (HCM) must monitor and audit the construction and management of the site. *Number of EAs: 1*	This version was used in a context where the project proponent was the local municipality. Although poorly worded it can be understood that the ECO function is to be fulfilled by the environmental staff of the local municipality. This was the only instance where the

Condition	Implications for Monitorability
	proponent was given responsibility for the ECO function. From the compliance monitoring perspective it entails a relatively simple exercise of confirming the existence of the requisite monitoring and audit reports.
Version 1: The appointed ECO must conduct an awareness training course for the contractor and all his/her staff prior to the commencement of construction. The awareness training course must cover the following key aspects: i. Basic awareness and understanding of the key environmental features of the work site and the surrounding immediate natural environment ii. Understanding the importance of and reasons why the environment must be protected iii. Ways to minimise environmental impacts iv. Requirements of this environmental authorisation and the approved Environmental Management Programme *Number of EAs: 5* *Version 2:* The ECO must be charged with the responsibility to provide environmental induction / education to every person working on the site during the construction phase. *Number of EAs: 1* *Version 3:* Before the construction of the proposed development, all construction workers must be informed of the contents of this environmental authorization. *Number of EAs: 2* *Version 4:* In case the activity is managed off-site, each official and/or worker operating on site must be educated about the Environmental Management Plan (EMP) and made aware of his/her responsibilities *Number of EAs: 1*	Version 1 constitutes best practice in that it clearly specifies what the training must cover, and who is responsible for presenting it. Version 2 is particularly unclear as to the purpose and content of the training, consequently it will be difficult to monitor compliance with this condition. Versions 3 and 4 allow the proponent to utilize in-house environmental expertise to provide the required awareness training. Monitorability of these conditions would be improved by requiring the permit holder to maintain a training register in which the date, details of presentation and names of attendees are recorded.

Table 16: Conditions specifying ECO inspection frequency

EA No.	Condition	Implications for Monitorability
EA 4	The ECO is to conduct a minimum of one site visit per week during the construction phase of the development.	Inclusion of a condition or sub-condition specifying inspection frequency constitutes best practice and improves monitorability of the EA. It also aids in clarifying the distinction of ECO and auditor roles and functions.
EA 10&17	During the construction phase of the proposed project, site monitoring must be conducted monthly by the Environmental Control Officer.	
EA 21	The ECO shall visit the site fortnightly during construction phase unless otherwise agreed with the Department in writing.	

The duties of an ECO are generally understood to entail monitoring of the implementation of the approved EMP/EMPr, and indeed the bulk of conditions stipulating the appointment of an ECO included this as the purpose of the appointment. However, there were a number of other duties assigned to ECOs by conditions of authorisation in the sample. These included:

- environmental awareness training for construction workers
- advising the project engineer on construction camp site selection
- hazardous materials management during construction
- maintenance of a complaints register, and in one instance,
- monitoring the volumes of coal stored on site.

This last point related to the operational phase of the project and the wording of the condition clearly indicates uncertainty as to the designation of the correct person to undertake the responsibility.

> "A competent person (Safety inspector/Environmental Control Officer) as appointed per condition 1.14 of this document must be responsible for inspection, taking weekly records of the quantities of coal received, stored and dispatched from the facility; and keep proper records to be submitted to this office at the end of business on the last Friday of each month, (Attention to Assistant Manager: Compliance, Monitoring and Enforcement)."

In such an instance it is better to revert to the default of assigning responsibility to the holder of the authorisation. This allows the permit holder to allocate the duty to the most appropriate person within their organization and to adapt their existing stock management system to meet the obligation.

Project specific management measures

As is to be expected each environmental authorisation contained a number of project specific conditions. The exception to this was the two water transport authorisations (EA 1 and EA 2), which entailed activity 1(k)(i) of Government Notice R 386 of 21 April 2006 "*The construction of facilities or infrastructure, including associated structures or infrastructure, for the bulk transportation of sewage and water, including storm water, in pipelines with an internal diameter of 0,36 metres or more*", but contained no condition specific to the installation of pipelines. Table 17 presents examples of project specific conditions arranged according to the project lifecycle phase and environmental facet to which the conditions are pertinent. The majority of these conditions were directed at the design and construction phases of the project lifecycle, with fewer directed at the operational phase. Understandably, conditions directed at the decommissioning phase were not only the least in number but also tended to be generic.

Table 17: Conditions addressing project specific management measures

Project Type	Condition	Implications for Monitorability
Design Phase		
Coastal EA 3	The proposed development must make maximum use of the remnants of the <*Name*> Sewage Treatment Works.	These conditions are likely to present the most difficulty in monitoring compliance due to the vagueness of the wording. To be rendered monitorable there would need to be clear identification of the proportion or areas of the treatment works to be utilized, and clear demarcation (possibly on a site map) of no-go areas.
	The siting of the board walk must be done as to minimize damage to the dune and dune vegetation.	
	The board walk must have a balustrade to prevent people taking a short cut down via the dune, to the beach.	From review of the reasons for decision annexure it is clear that these conditions are in direct response to existing and potential impacts. Although monitorable, the practicality of these conditions cannot be judged without reviewing the basic assessment report and draft layout plans to understand the site context better.
	A fence must be erected around the property with a lockable gate to prevent members of the public from entering the area at night.	

Project Type	Condition	Implications for Monitorability
EA 19	The visual impacts from the beach must as far as possible be avoided by planting indigenous dune vegetation on the eastern side or coastal boundary of the property.	The use of 'avoided' instead of 'minimised' or 'reduced' could negatively affect compliance with this condition.
	The applicant may only use soft engineering method(s) for the proposed sea defence system. The Municipal Guidelines for the rehabilitation of the March 2007 high tides coastal erosion/damage must be used in this regard.	It may be necessary to define 'soft engineering' in order for the condition to be monitorable.
Water Storage EA 4	The holder must off-set the loss of wetland and drainage line through the rehabilitation of other wetlands within the district. An off-set ratio of 3:1 must be applied and this must be further discussed and implemented with Ezemvelo KZN Wildlife within 6 (six) months after the issue of this environmental authorization.	Monitorability could be improved by requiring the permit holder to provide the CA with documentation regarding the outcome of discussions and location of agreed off-set wetlands.
	The embankment design must meet all the standards applicable to a Category III dam safety classification and a license must be obtained from Department of Water Affairs and Forestry prior to commencing or construction.	This effectively makes use of Department of Water Affairs' engineering expertise to monitor compliance with the first portion of the condition.
	The capacity of the dam and its inlet and outlet works must be designed to suit the ultimate system capacity.	Requires engineering expertise and knowledge of intended system capacity to determine compliance.
EA 18	The design of the dam must include the creation of diverse habitats by creating shallow areas, deep areas, seasonally inundated areas and islands	To be monitorable a plan of the dam basin indicating shaping and planned inundation depths would need to be submitted, e.g., a form of 'as built' drawing.
	The weir design must make allowance for base flow discharge for continued inputs into the <*Name*> River during low flow periods.	The principle is good, but to meet this condition requires baseline monitoring for a minimum period of 12 months to determine what such flows might be and a discharge monitoring programme to ensure that these are being met. None of the parameters to meet these have been set or clarified.
	A buffer zone must be created around the dam to provide a vegetated setback between the dam or wetland environment and any farming activities	The environmental objective of this condition needs to be clearly identified in order to determine the optimum width of the buffer zone and render this condition monitorable.
	The applicant must ensure that the flood peaks and normal flow of the hydrological system may not be significantly altered by the construction of the dam	This condition is completely unmonitorable.
	The amount of water released from the dam must equate or closely approximate that entering the dam	There appears to be conflict with the base flow discharge condition because the source and release purpose are not clearly specified. The purpose of the dam is effectively to provide storage for water abstracted from a perennial river prior to its use for agriculture. The questions which arise for anyone monitoring compliance with the condition is therefore: does this refer to water pumped into the dam and released to agriculture? Does it refer to water entering the dam from

Project Type	Condition	Implications for Monitorability
		natural flow and released as base flow? Does it refer to a combination of both natural and artificial inputs and releases?
	The applicant must ensure that scouring of the riverbed below the dam is prevented	Without the setting of a clear environmental objective and identification of parameters for measuring the achievement of that objective this is an unmonitorable condition.
Road EA 13	The design of the proposed crossing over the watercourse must not affect the flow of the watercourse or the movement of aquifauna within that watercourse, particularly during low flow periods	In its current form this condition is unmonitorable.
Land Preparation EA 7	External lighting must be shielded and should be directed downwards and towards the development in order to reduce the impact on the sense of place of the <*neighbouring protected area*>.	The intent is clear and condition compliance may be monitored by use of nighttime photos before development and after installation of lighting. Without access to pre-decision documentation it is unknown whether a visual impact assessment was undertaken. Nevertheless, such an assessment could have been used to model design alternatives and light spill prior to decision making. This would have resulted in more informed decision making.
EA 8	External lighting must be shielded and should be directed downwards and towards the development in order to ensure that the sense of place of the <*neighbouring protected area*> is not compromised by undue lighting.	
EA 7&8	All electricity reticulation lines must be routed underground, where this is not possible overhead power lines that are erected must be the standard suspended cross arm pole structure.	The condition needs to specify the basis for "not possible", e.g., where shallow rock precludes trenching by hand, otherwise the permit holder is able to avoid compliance.
EA 7&8	Structural foundation design and retaining structures must be designed and constructed under the supervision of a qualified geotechnical engineer.	It is likely that these conditions overstep the mandate somewhat, as they pertain to issues outside the general environmental mandate conferred by NEMA and encroach into engineer and building inspector territory.
EA 7	The development area must be sloped such that all runoff water is directed away from any structural foundations. All terraces must be sloped at a 1:50 ratio to allow for free drainage. The need for subsoil drainage must be assessed during construction.	
EA 7&8	Eco- friendly infrastructure options must be considered (for sanitation, recycling, solar heating, the collection and storage of rainwater).	Condition is discretionary – doesn't 'force' the holder to implement eco-friendly options
EA 7	All cut and fill slopes must be designed with slope protection measures to minimise the risk of erosion.	To improve monitorability the location and nature of such measures should be indicated on 'as built' drawings, copies of which should be available to the compliance monitoring and enforcement component or environmental auditor on request.
EA 8	The swimming pool must be maintained and monitored regularly and the swimming pool backwash must not be released directly into the environment (vegetation and watercourses). Eco- friendly measures must be considered, i.e. by recycling waste water back to flushing toilets for example.	The use of 'considered' renders the second half of the condition discretionary, it should preferably worded such that backwash water must be recycled. The 'how' can then left to the permit holder to resolve. Monitorability would be improved by requiring the holder to document and report on the recycling method

Project Type	Condition	Implications for Monitorability
		adopted.
EA 7&8	The existing access road must be utilised as the only access to the site. No new access routes may be constructed.	In this authorisation's context this condition is clear and readily monitorable.
EA 7&8	The road design must be such that it includes appropriate design measures that allow surface movement of water along drainage lines so as not to impede natural surface flows.	Monitoring compliance with this condition effectively comprises two components – firstly determining whether "measures that allow surface movement of water along drainage lines" have been designed, and secondly determining the efficiency of those measures. The first requires access to and the skills to read engineering design drawings and comparison of these with actual structures, in order to verify the implemented measures. Monitoring the effectiveness of surface drainage, on the other hand, requires the implementation of an appropriate programme to measure and record efficiency of surface drainage.
EA 8	No buildings or any structures, other than a fence, hedge or a wall which does not rise higher than 2,1 metres above the surface of the land on which it stands, may be erected on the development land within a distance of 25 metres measured from the centre line of <*the district road*>.	This condition appears to be in response to comment from the Department of Transport or municipality, and is straightforward to monitor for compliance.
EA 17	All wetlands and buffers must be included in the conservation area with no encroachment of infrastructure or individual Erven into the buffer as requested by Wildlife and Environment Society of South Africa (WESSA) unless otherwise authorised by this Department.	The first condition conflicts with the second condition, which permits "construction of structures across the wetland". In addition, the EA itself does not specify a buffer width, leading to confusion as to whether reliance should be placed on the layout plan (which indicates a 30 m buffer) or the restriction on vehicle use within 32 m of the wetland imposed in a third condition. Finally, failure to specify which section of the Department may authorize deviations from this condition poses a possible risk in a multi-mandate Department. The second condition here further confuses matters by appearing to delegate the authority of both the CA and Department of Water Affairs and Forestry to the ECO. Whilst it is desirable to expedite decision making for minor amendments to the EMP/EMPr, it is suggested that clear protocol and hierarchy of changes should be formally described (either in the EMP/EMPr itself, or in the EA) and authorised in the EA.
	Any interference with the wetland functioning, including construction of structures across the wetland, must be carefully monitored and be in accordance with specification s of the Department of Water Affairs and Forestry (DWAF). This includes that deviations from the specified route or demarcated working area, which will impact negatively on local biodiversity including sedimentation of the wetland stream and drainage lines must be agreed upon by the ECO concerned, the Engineer and this department.	
	All sensitive areas must not be used for both public and private open space.	The wording in this condition is confusing and its intent is unclear.
EA 20	A storm water system must be designed to	Use of incorrect terminology for technical

Project Type	Condition	Implications for Monitorability
	ensure that the storm water is separated from contaminated water on site. All polluted storm water must be led to combined infiltration and oil seperation system before connecting to municipal system during construction.	items may negatively affect monitorability of a condition. It may be advisable to consult with the EAP or proponent to confirm technical details prior to submitting a draft EA for signature.
Industrial EA 5&6	Natural areas of --- Municipal Open Space System (MOSS), drainage lines and conservation amenities must not be disturbed by this activity.	Monitoring compliance with this condition is clear and straightforward. The activity has either resulted in disturbance to the identified areas or it has not.
EA 5	The proposed storage surface at <project location> must be constructed at a very slight slope to prevent ponding of rainwater and to facilitate effective drainage.	This condition is neither monitorable nor enforceable in its current form. Firstly, this is a design element and thus is the preserve of the design engineer. Secondly, this EA includes at least one other condition dealing with stormwater management rendering this condition redundant.
EA 5	A stormwater drainage network system must be kept separate from the sewage effluent system. Drainage from site must be controlled to ensure that runoff will not culminate in off-site pollution or cause water damage to properties further down from the site.	This condition can be relatively easily monitored for compliance through the following measures: • physical inspection of the systems, • water quality monitoring in the stormwater system, and immediately downstream of the stormwater outlet, and • implementation of a regular fixed point photographic or release volume measurement programme.
EA 5&6	In cases where spillages are likely to occur, containment measures must be included in the design of the facility to prevent spills onto bare ground and into water courses.	Monitorability of this condition could be improved by the clear identification of areas or points within the project where spillages may be expected to occur.
EA 6	The coke bed must be bunded so as to ensure that contaminated water is discharged via the sedimentation pond	There is significant overlap in the requirements of each of these conditions, both in content and in intent. The effect is to complicate compliance monitoring, particularly where different terms are used to refer to what is presumably the same item of infrastructure, i.e., sedimentation pond vs sedimentation tank vs containment dam vs silt trap.
	Dirty water generated on site must be diverted into the sediment tank where it is contained and the sediments allowed to settle before discharged into natural waters.	
	A containment dam must be constructed and used as a silt trap. Clean and dirty water must be kept separate.	
	The Stormwater Management Plan must: a) Outline the establishment of stormwater infrastructure using the integrated catchment management principles b) Address demarcation of clean and dirty areas c) Prevent the pollution of wetlands, rivers and groundwater as a result of run-off from the development d) Prevent the sedimentation of wetlands and rivers e) Prevent the flooding of wetlands and rivers f) Prevent increased erosion, with particular reference to streambanks and gullies. g) Ensure that the wastewater system and stormwater systems are separated at all times,	

Project Type	Condition	Implications for Monitorability
	in all conditions and at all locations h) Detail a stormwater monitoring and reporting system	
Hazardous Materials Storage EA 12	The bund wall must be constructed to contain 110% of the volume of the largest tank in the Tank Farm	These conditions are clear and direct, and the logical link between them is evident. They should therefore be easily monitorable through a combination of inspection of records, visual observation and direct measurement.
	The proposed Mono-isopropylamine storage tank and piping must be designed to the approved SABS standards	
	A gas detector and gas alarm system must be included in the final tank design	
	A Safety Shower and Eye Wash Fountain must be made easily acsessable at the Tank Farm area.	
	The above-mentioned Safety Shower must be located within a bunded surface.	
EA 15	The underground storage tanks (UST) and associated infrastructure must comply with all relevant SANS codes of practice and municipal bylaws applicable to the installation and operation of a UST and associated infrastructure	
	The forecourt must be of an impermeable surface, and must be sloped to ensure that all surface run-off is directed towards collection drains and oil/water separators, preventing surface and stormwater contamination	
	The underground cavity to house the tanks must be lined with an impermeable liner to prevent spillage entering the sub-surface environment in the event of a leak	The requirement for a monthly environmental compliance audit specified in this EA will assist in monitoring compliance with this condition, provided that one of these audits takes place during lining of the cavity.
Construction Phase		
Coastal EA 3	The route of the board walk must only be cleared immediately before construction commences and only once all the material necessary for completion of the project is available.	The intent of this condition is laudable given the nature of the receiving environment. However, it may not be easy to monitor compliance with the condition as the implication of the wording "only once all the material", if interpreted literally, makes no allowance for scheduling or staging of materials purchase to accommodate budgetary or supply constraints. Neither does it take into the account materials storage requirements.
EA 19	The sand may not be sourced from the marine system. The sand bags must be of suitable weight and must reach the height approaching that of the original frontal dune.	This condition is monitorable to the extent that excavations on the beach are noticeable, and that a photographic record exists from which the height of the original frontal dune is calculable.
	The dune area must be fenced along the length of the artificial dune to prevent trampling.	It is unclear whether this is to be a permanent fence or a temporary fence required only until vegetation has stabilized.
Water Storage EA 4	Prior to commencing construction, plant rescue of all transplantable endemic, protected and endangered indigenous species must be done, especially within the thicket and thornveld area. These plants must be used in rehabilitation of the disturbed area on completion of construction.	Evidence by means of which compliance may be monitored include: • appointment of a botanist or horticulturist • mapping of collection areas and institution of a rational collection strategy • establishment of a nursery • compilation of a rehabilitation planting

Project Type	Condition	Implications for Monitorability
		plan • implementation of a post-planting care programme to facilitate establishment of planted material
	An appropriate structure for the trapping of sediment during construction must be established immediately downstream of the proposed (my emphasis)dam wall prior to the construction phase and guidance regarding the treatment or handling of trapped sediment and the decommissioning of the structure must be provided to staff.	Use of the word 'proposed' in describing the authorised activity constitutes something of a nonsequitur as the EA grants permission to develop the project, i.e., commences the realization of the activity. Monitorability of this condition could be improved by specifying a level of efficiency that the sediment trap should achieve, for example, specifying a threshold for total suspended solids downstream of the trap.
EA 18	The dam may only be constructed during low rainfall season i.e. between April and September in order to minimize potential impacts on water quality downstream from the proposed development	Formulation of this condition is clear and it is readily monitorable.
Water Transport EA 1&2	All sensitive areas including rivers, wetlands and grasslands must be protected by appropriate temporary fencing during construction, and vehicular access into these sensitive areas must be controlled.	This condition may be quite difficult to monitor for compliance given the possible extent of sensitive areas in relation to work areas on a project entailing pipelines. Possibly rewording it to require the demarcation of all work areas, access routes, materials stockpiling and disposal areas with temporary fencing and requiring all activity to be restricted to these fenced areas may render it more easily monitorable.
Road EA 13&14	Side drains along the alignment of the road in steep areas must be fitted with structures that will reduce the flow velocity of water to ensure that increased soil erosion does not arise	Implementation of velocity reduction structures may be readily monitored for compliance, but monitoring of their effectiveness will require an erosion monitoring programme.
EA 13	Extreme care must be taken to ensure that the banks of watercourses along the road alignment are not damaged by erosion cause by construction activities. Stabilizing vegetation may only be removed where necessary and the watercourse banks must be stabilised and re-vegetated to the satisfaction of the Environmental Services Directorate of the DAEA after completion of construction	The formulation of this condition makes it difficult to monitor compliance with the condition as it is vague or discretionary on key points, such as the removal of vegetation and the adequacy of revegetation efforts. A more effective formulation would be to specify: • the locations with geographic coordinates of areas where this condition applies, • the extent in metres squared of each location where vegetation may be removed, and • the level of revegetation in percent cover which must be achieved.
EA 13&14	Soil erosion in close proximity to the road must not be exacerbated by construction activities	In its current form this condition is unmonitorable as not only is it vague with respect to location and distance, but it will be extremely onerous for both the permit holder and CA to measure.
EA 14	All drainage line crossings must ensure that the flow of water in these systems is not interrupted	An alternative form of wording may make this condition clearer in its intent and facilitate compliance monitoring. Assuming the

Project Type	Condition	Implications for Monitorability
		condition applies only to the construction phase, specifying the use of a temporary stream diversion to by-pass the active work area would make the objective of the condition clearer as well as improving monitorability.
EA 13	Gabions must be placed at the exit of the pipes beneath the road at the point where water flowing across the road has formed an erosion gully. This must be undertaken to ensure that soil erosion in this area is not exacerbated (this point is approximately 3.2 kilometres from the start of the road at the GPS co-ordinates: 28° 14' 07" South; 30° 49' 54" East).	This condition is clearly monitorable, however, greater flexibility in the nature of the erosion protection measure specified in the first version would allow the permit holder to utilize the engineering solution best suited to the problem site. The formulation as used in the second version is therefore preferred. Note: the lack of coordinates in the second version is not a flaw, as this EA was issued specifically for the culverts and the coordinates thus appear elsewhere in the EA.
EA 21	Suitably engineered structures such as reno mattresses, gabion structures and/or concrete aprons must be established at the outlet of the culverts to prevent scouring and erosion downstream of the culvert.	
Land Preparation EA 7&8	No large trees, protected trees or indigenous plants may be removed without consultation with the relevant authorities (the National Department of Agriculture, Forestry and Fisheries and Ezemvelo KZN Wildlife) and the appointed ECO. The area to be disturbed must be limited to the minimum practical working area required for construction related activities.	Compliance monitoring of this condition will require the following to have been undertaken: • clear documented input from the project team regarding the extent of working areas, • identification and marking of all protected trees and plants by the ECO, • engagement with responsible authorities, and application for permits where necessary, • maintenance of a permit register
EA 7&8	The construction camp must be located within the site to be developed and must not be situated within 100 metres of sensitive environments (such as wetlands, rivers, streams or drainage lines).	The opening phrase of this condition may cause some confusion in its interpretation, as it could be construed as requiring the construction camp to be located within the work area, or on the property where the development will take place.
EA 17	The contractor camps must be situated away from the main road (P609), adjacent property, outside the 1:100 floodline and or at least 32m from the wetland (the camps must be easily accessible). All working areas must be clearly demarcated and all construction work to be kept within the demarcated areas.	A clearer specification of distances with regard to the distance from the main road and adjacent property would improve monitorability of this condition.
Industrial EA 5 EA 6	The Applicant must start implementing a storm water management plan during construction, including the capture and treatment of storm water, to prevent contaminated storm water from entering the sea. "…to prevent contaminated storm water from leaving the site and clean water from entering the site."	Both versions of this condition suffer from a rambling formulation, nevertheless, the intent of the condition is clear. Compliance may be monitored relatively easily on the basis of field observations.
EA 5	Ambient dust (particulate matter) concentration limit must be maintained within the daily limit of 75ug/m^3 over a 24hour averaging period, as prescribed by SANS 1929:2005.	This condition is straightforward, direct and clear in what must be achieved. Monitoring compliance with the condition
EA 6	Physical barriers such as shade cloth or metal	Observation on site is all that is necessary to

Project Type	Condition	Implications for Monitorability
	sheeting must be constructed around the coal stockpile areas to mitigate against wind blow	monitor compliance with this condition
EA 11	All scrap metal and steel off-cuts from the installation of the Bag-Filter must be recycled by a registered metal dealer. Weigh-bridge documents or certificates in this regard must be made available to officials of this Department on request	A clear and direct condition with a straightforward compliance monitoring action.
Hazardous Materials Storage EA 12	Solid construction waste must be disposed of at a site that is registered to handle such waste. Waybills/certificates must be made available to officials of this Department on request	On the face of it this is a condition which is straightforward to monitor for compliance. However, depending on the geographical context of the project, compliance may be difficult to achieve in areas unserviced by licenced waste disposal sites.
Operational Phase		
Coastal EA 19	The proponent is responsible for the maintenance of stormwater discharge and liable for any erosion or negative impacts such discharge may have on the frontal dune or beach.	Depending on the geographical context of the project site it is possible that more than one property discharges stormwater via the same outfall. In such instances it is neither fair nor practical to hold one project proponent liable for stormwater discharge related impacts. A condition such as this then places a heavy burden of proof on the CA, and is effectively unmonitorable.
	During the post construction phase, the site must be rehabilitated utilizing eighty percent (80%) of locally indigenous planting palette.	The intent of this condition is clearly to promote the use of indigenous species in rehabilitation of the site. Monitoring compliance with it may, however, require significant effort to determine whether 80% of the species utilized are indigenous to the locality and/or whether 80% of the area has been planted to locally indigenous species.
Water Storage EA 4	The dam must not result in increased abstraction of water from the <*name*> River.	Compliance with this condition will require the holder to maintain a continuous record of volumes abstracted from the river. To facilitate monitorability it would be better to specify the volume of water which may be abstracted from the river.
	The community downstream of the dam must be educated on the early warning and evacuation procedures prior to filling of the dam	Monitorability of this condition could be improved by requiring a record to be kept of the dates and nature of training provided to the downstream community.
	Access to the dam wall and intake tower by the public must be restricted and where necessary, appropriate health and safety warning signs must be erected	Compliance with this condition should be straightforward to monitor as it can be determined by direct observation.
	Continuous release of water into the stream equivalent to the prevailing seasonal flow must be maintained	Specifying the implementation of a programme to monitor stream flow upstream and at the outlet of the dam would aid the proponent in complying with this condition and remove the burden of proof from the CA.
EA 18	The formation of sediment deposits in the dam must be prevented to avoid creating backwater effect and flooding	In order to comply with this condition it will be necessary to undertake bathymetric surveys regularly to determine the extent and rate of sediment accumulation, and to periodically dredge this sediment from the dam. The alternative is to periodically drain the dam completely and excavate any accumulated deposits, an approach which is likely to be

Project Type	Condition	Implications for Monitorability
		extremely disruptive to the agricultural enterprise. Given that the subject of this condition is an off-channel farm dam the cost of complying with this condition as currently worded is likely to be prohibitively expensive. This elevates the likelihood of non-compliance. At the same time the wording of the condition effectively renders it unmonitorable for compliance until the undesired outcomes eventuate. It is unlikely that such a condition would be enforceable in court as it virtually sets the permit holder up for non-compliance, and places the CA in an untenable position to prove non-compliance.
Road EA 21	The culverts must be regularly cleared of debris or obstructions to ensure the free flow of water at all times so as to prevent impacts on the hydraulics of the stream and the damming of water upslope of the culvert	It would be more practical, firstly, to link this condition to the permit holder's existing operation and maintenance programmes, and secondly to require the implementation of an appropriate monitoring programme which feeds into a provincial state of environment reporting system.
Land Preparation EA 7&8	The control of alien invasive plants within the site that result due to this development is the responsibility of <*the permit holder*> for the lifetime of the development or the duration of the lease agreement with the landowner, this control must be undertaken in accordance with the approved EMP.	Monitorability of this condition is clear through its link to the EMP. Responsibility is also clearly and correctly assigned.
EA 20	A waste management agreement/contract with tenants of the shopping centre is to be submitted to this Department once signed.	The monitorability of this condition could be improved by specifying: • a timeframe within which each tenant's signature of the contract is to be obtained, and • a timeframe within which a copy of each signed contract is to be submitted to the CA.
	If any hazardous substances are stored on site, these must be stored adequately and appropriately in the approved containers in terms of South African national Standards (SANS) and be disposed of at a licensed Hazardous Waste Disposal site.	Invocation of the South African National Standards improves the monitorability of this condition.
EA 20	Planting of trees and site landscaping must be done with locally approprate indigenous plants.	Although compliance monitoring with this condition requires some botanical knowledge on the part of the monitoring entity, it is nevertheless an clearly monitorable condition.
	If herbicides, pesticides and other horticultural chemicals are utilized during the landscaping process, these chemicals must be applied in accordance with the manufacturer specifications.	Monitoring of compliance with this condition may be difficult to effect, as the burden of proof lies with the CA rather than the permit holder. Requiring the permit holder to maintain records of chemical usage would go some way to improving its monitorability.
	An Emergency Response Plan must be developed to include risks associated with this operation.	Use of 'include' rather than 'address' makes the formulation of this condition somewhat confusing. Once rectified, however, the condition is quite monitorable.
	In the event of any incident, Emergency	Confirm applicability of s30 of NEMA to this

Project Type	Condition	Implications for Monitorability
	Services or Protection Services of Emnambithi/Ladysmith Municipality, and this Department must be notified immediately in compliance with S30 of National Environmental Management Act, 1998.	activity
Industrial EA 5	Any spillages from rail cars and trucks must be avoided.	Neither of these versions is monitorable. A better alternative would be to require the inclusion of spill management procedures in the EMP/EMPr, and to specify a protocol for reporting on spillages.
EA 6	Spillages from rail cars and product handling areas must be kept to a minimum and if possible eliminated.	
EA 5&6	Spillages and other waste which may lead to pollution of water resources must be managed according to Department of Water Affairs and Forestry regulations and guidelines.	Monitorability of this condition could be improved by specifying the pertinent regulations and guidelines of the Department of Water Affairs which apply.
EA 5	No form of hazardous substances or waste is to be stored on site without an environmental authorization/ permit.	This condition appears to be *ultra vires* (outside the CA's mandate) in that the requirement for an EA or permit is dependant on the volume of hazardous substance or waste stored exceeding a threshold specified in environmental legislation. Storage of these substances at volumes below the specified threshold does not require a permit.
EA 6	Under no circumstances that the amount of Coal stored on this facility reach 100 000 tons at any particular time. Should the amount stored found to exceed the authorized quantity, this environmental authorization will be withdrawn it terms of Regulation 47 of GNR 385 and the activity will stop. Thereafter, a new authorization will be required in terms of Regulation 27 of GNR 385	This condition read in conjunction with a further condition in the EA, which set a monitoring requirement for coal volumes stored, is effectively monitorable.
EA 11	Used Bag-Filter bags contaminated with calcium carbide dust must be disposed of at a registered hazardous disposal site. The disposal certificates thereof must be made available to this Department on request	Both of these conditions are readily monitorable. Although, monitorability of the training condition could be strengthened by specifying the nature of the training documents, e.g., course outline, study material or training register.
	All <*the holder's*> personnel associated with the Bag-Filter and associated equipment are to be properly trained in the operation, and the dangers associated with the operation of the machinery. Training documents must be made available to the officials of this Department on request	
Hazardous Materials Storage EA 12	All registered Interested and Affected Parties and this office of the Department must be notified in writing, and within seven calendar days, of any intended steam out and ventilation activity	If the specified activity is one which takes place at intervals throughout the operational lifetime of the project, then the practicality of this condition is questionable. Over time interested and affected parties (I&APs) will change. Limiting notification to registered I&APs will thus discriminate unfairly against newcomers, something which is counter to the tenets of the Constitution and the provisions of NEMA. A more inclusive approach would be to require the placement of an advertisement in one or more local newspapers and languages notifying all I&APs of the intended activity.
Decommissioning Phase		
Coastal	Prior to decommissioning of the activity a written	The EIA Regulations, 2006, provide that the

Project Type	Condition	Implications for Monitorability
EA 3	notice must be submitted to this Department.	EA must include "conditions determining requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity" (regulation 38(1)(d)(ii)). At the same time regulation 34(b)(v) requires that a draft EMP must include information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of closure, where relevant". This may have caused some confusion in that, as is evident from the conditions regarding decommissioning set in EAs 9, 10, 13 and 21 (roads) many of the authorised projects are so long lived as to render anything other than the vaguest requirement for notification of the CA prior to project closure or decommissioning all but meaningless. The situation with respect to the NEMA EIA Regulations, 2010, is slightly different in that the requirement to specify conditions for the management, monitoring and reporting of project related environmental impacts throughout the life of the project is linked to the project lifecycle as detailed in the approved EMPr.
Water Storage EA 4	In the event that the proposed dam may be decommissioned for what ever reason, this Department must be informed in order to ensure that the appropriate process can be followed prior to decommissioning.	
EA 18	Prior to decommissioning of the structure on site taking place, a written notice must be submitted to this Department	
	Furthermore, a rehabilitation plan must be submitted to this Department for approval prior to the proposed decommissioning taking place	
Road EA 9, 10 & 13	As long as the community resides in the area, the road will be needed. This section of the environmental authorization is therefore not considered further	
EA 21	Should the activity ever cease or become redundant the applicant must contact the Department, at the address specified in condition 2.13 above, to determine the actions required for the rehabilitation and closure of the site.	
	Should the infrastructure or structures need to be decommissioned, the applicant must compile an EMPr for the decommissioning of the project, which must be submitted to the Department for approval prior to decommissioning commencing.	
	The applicant must comply with the EMPr for the decommissioning of the project as approved by the Department.	
Land Preparation EA 7&8	Should the activity cease or become redundant, the holder must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time, this includes compliance with the approved EMP with regards to decommissioning.	
	If the proposed development is to be decommissioned for any reason in the future, then this Department must be notified and a rehabilitation EMP must be submitted.	
EA 20	The Department must be notified in writing of an intended site closure and/or decommissioning of the facility prior to the decommissioning and/or site closure taking place.	
	The decommissioned site must be rehabilitated on closure. Rehabilitation must ensure that the site is at a state that is acceptable to the Environmental Services Directorate of the Department of Agriculture, Environmental Affairs and Rural Development.	
Industrial EA 5&6	In the event that this facility will require decommissioning in future for what ever reason, this Department must be informed in order to ensure that the appropriate process is followed prior to decommissioning	
EA 11	This Department must be notified of an intended	

Project Type	Condition	Implications for Monitorability
	site closure and/or decommissioning of the facility prior to the decommissioning and/or site closure taking place	
Hazardous Materials Storage EA 12	This Department must be notified of an intended site closure and/or decommissioning of the facility prior to the decommissioning and/or site closure taking place.	
EA 15	All tanks and piping equipment must be removed when no longer in use. Once removed, the applicant must undertake an independent soil assessment to determine whether there may be any residue contamination or migration of hydrocarbon product, and submit the report to this Department and the Department of Water Affairs and Forestry	The previous comment notwithstanding, this condition is monitorable and appropriate to the project (a filling station) in the long term.

In addition, 9 EAs contained conditions regarding waste management during the construction phase that specified the disposal of solid waste and rubble at a licensed landfill site. In principle this requirement is correct, however, in practice this is often problematic - particularly for those development projects located in rural areas where few if any of the recognized disposal sites are licensed. An added issue for development projects in rural areas is also the distance to licensed disposal sites, which frequently carries significant cost implications for the proponent. The point in highlighting these difficulties is to argue for a more pragmatic approach to waste disposal. For example, by focusing on the correct identification and disposal of hazardous waste at appropriately licensed disposal sites, whilst condoning the disposal of inert and non-hazardous wastes at the nearest recognized municipal disposal site the more significant negative environmental impacts are addressed without putting the project proponent into automatic non-compliance or infringing on their economic right.

Project specific monitoring programmes

Eleven EAs included conditions requiring the implementation of project specific monitoring programmes. Table 18 contains examples of these conditions together with comment on their monitorability.

Table 18: Examples of conditions requiring the implementation of monitoring programmes

Project Type	Conditions	Implications for Monitorability
Industrial [EA5]	The following monitoring programmes are to be implemented, but not limited to: 1.11.1 Air quality during construction; 1.11.2 Storm water management; As per DWAF storm water management plan, the applicant must submit a monitory (*sic*) programme to DWAF for pre-and post-construction phases.	Given the nature and location of this project, a cargo handling facility at a large port, it is strange that: a) air quality monitoring is limited to the construction period only, and b) the required monitoring programme is not required to form part of any existing monitoring programmes undertaken by port management. Linking the requirement to existing environmental management programmes and routines could reduce or overcome the uncertainty inherent in the condition due to the omission of monitoring periodicity. It is good practice when setting a condition that refers to a third party authority's requirements to include a copy as an annexure to the authorization. This assists both the proponent and the compliance monitoring officials by providing a frame of reference as to what is required and intended by the condition. It also allows those members of the public with an interest in the project to provide additional support to compliance monitoring efforts.
[EA6]	The following monitoring programmes are to be implemented, but not limited to: 1.11.1 Air quality; 1.11.2 Underground and surface water quality; 1.11.3 Storm water management; 1.11.4 Quantity of coal received, stored and dispatched per day. The Stormwater Management Plan must: … h) Detail a stormwater monitoring and reporting system Supplementary to the existing ground water monitoring at <*the holder's*> site, continuous ground and surface water quality monitoring must be undertaken in the vicinity of the site with respect to coal storage material. Monitoring programme on a quarterly basis over 18 months in order to establish a baseline for surface and ground water quality and quantity must include: • Four surface water sampling points situated around the site to ensure adequate baseline information • Three ground water monitoring points must also be established, one up gradient of the operations and two down gradient • At a minimum the following parameters must	The approach adopted in the formulation of these conditions is to put the onus on the permit holder to determine how the requirements are to be met. This effectively places the burden of proof on the permit holder rather than on the compliance monitoring component of the CA.

Project Type	Conditions	Implications for Monitorability
	be investigated by the water monitoring programme: pH, TSS (Total Suspended Solids), EC (Electrical Conductivity), turbidity, O-PO4 (Orthophosphates), Fe (Iron), Mn (Manganese), Cd (Cadmium), Cu (Copper), Pb (Lead), Ca (Calcium)	
	Continuous air quality monitoring stations (including bucket method) must be undertaken and set up towards at a radius of 5km from the site. Air quality data must be kept available on records and produced on request by authorities. Dust monitoring must also be closely monitored to quantify the resulting impacts from the coal storage stockpiles.	
	Linear infrastructure (roads, conveyors and pipelines) must be inspected on a regular basis (monthly), or soon after major rainfall events, to ensure the associated water management infrastructure is effective in controlling erosion. If any environmental threat, such erosion is identified, remediation measures must be immediately implemented.	
Land Preparation [EA7]	As part of the regular maintenance programme, the upgraded access road must be monitored every 6 (six) months for erosion and drains cleared of silt to ensure their efficient functioning, this includes the parking area.	Although almost identical in wording, the formulation of the condition used in EA7 is clearer with regard to its intent. Monitoring of compliance with this condition will be more readily achieved because the proponent has a clearer picture of what is required both in terms of actions and record keeping in order to prove their compliance.
[EA8]	As part of the regular maintenance programme, the upgraded road (D1885) must be monitored every 6 (six) months to ensure its efficient functioning.	
[EA17]	The impact of the sewage treatment plant and of the proposed development on the surroundings, both before and after, must be monitored both upstream and downstream of any discharge points.	Each of these conditions relates to an aspect of the project which has the potential to impact on the aquatic ecosystem/s in the vicinity of the project. Taken individually the first two appear to address water quality and possibly erosion or scour, whilst the third addresses wetland functionality. Monitorability could have been improved by integrating and structuring these conditions to provide clear guidance as to the nature of impacts to be monitored, and montoring programme to be instituted, for example: the water quality criteria and channel morphology characteristics together with the periodicity or frequency of sample collection and minimum number of sample points to be used.
	The quality of final effluent must be regularly tested to ensure that the plant is operating correctly and efficiently.	
	Any interference with the wetland functioning, including construction of structures across the wetland, must be carefully monitored and be in accordance with specifications of the Department of Water Affairs and Forestry (DWAF). This includes that deviations from the specified route or demarcated working area, which will impact negatively on local biodiversity including sedimentation of the wetland stream and drainage lines must be agreed upon by the ECO concerned, the Engineer and this department.	
Hazmat Storage [EA12]	Appropriate procedures must be implemented to monitor the integrity of the tank, pumps, valves and pipings of the project.	This condition when read with the associated conditions specifying monitoring frequency and reporting can be effectively monitored for compliance.
	The proposed tank integrity assurance	

Project Type	Conditions	Implications for Monitorability
	inspections must be conducted every 36 months, as a minimum, during the tank's operational phase	It may possibly be argued that a more effective means of presentation of these conditions would have been as a single complex condition with numbered sub-clauses.
	The above inspections must be conducted by an external independent company and certificates obtained thereof	
	All Tank integrity assurance inspection (third party inspection) certificates must be obtained and made available to this Department on request throughout the life-cycle of the activity	
[EA15]	All monitoring wells must be inspected for the presence of hydrocarbons on a quarterly basis and the condition of the underground storage tanks and the piping must be inspected on an annual basis, using approved technology	The first portion of this condition is readily monitorable for compliance. However, the enforceability of the second half dealing with inspection of infrastructure could be strengthened by reference to a specific industry or legislated standard for approval of the technology to be used.
Road [EA13]	Programmes for the monitoring of environmental impacts arising from this development must include monitoring of the following: • Soil erosion • Maintenance of the road surface and drainage structures • Alien plant invasion and eradication along the entire length of the road, in the area disturbed by construction • Litter and general waste management during the construction phase • Rehabilitation of areas disturbed by construction activities, and • Pollution of the environment arising from construction activities	The second bullet – maintenance of road surface – is outside the mandate of the regulations. Monitorability of this condition would have benefited from the inclusion of timeframes with respect to frequency and duration of monitoring periods. In addition, guidance as to what parameters are to measured in order to determine pollution associated with construction would render the last bullet/point monitorable.
[EA14]	Programmes for the monitoring of environmental impacts arising from this development must include monitoring of the following: i. Soil erosion, ii. Alien plant invasion and eradication along the road, iii. Litter and general waste management during the construction phase, iv. Rehabilitation of areas disturbed by construction activities, and v. Pollution of the environment arising from construction activities.	
[EA16]	Any interference with river functioning, including construction of structures across the river, must be carefully monitored and must be in accordance with specifications of Department of Water Affairs and Forestry (DWAF). This includes that deviations from the specified route or demarcated working area which will impact negatively on local biodiversity including sedimentation of streams, drainage lines and adjacent wetlands must be agreed upon by the Environmental Control Officer concerned, the Engineer and this Department	Both of these conditions suffer from vagueness in terms of what must be achieved in order to comply with them. In the first condition it would be advisable to include the DWAF specifications in an annexure to the EA. In the second, specifying a percentage of vegetation cover or a time period over which the monitoring and control programmes must be run, for example, would assist in rendering this condition

Project Type	Conditions	Implications for Monitorability
	Alien invasive plant species within the road reserves and affected footpaths must be removed and must be disposed of appropriately. Monitoring and control programs must be put in place until natural vegetation is well established	monitorable.
Water Storage [EA18]	Water samples must be taken once-off in six (6) months in the dam to check for the level of nutrient in order to avoid eutrophication of the dam and pollution of the river system. The results must be submitted to this Department for record purposes.	It is unclear from the wording whether this is intended to be an on-going monitoring programme with sampling taking place on a 6 monthly basis (twice yearly), or whether a single sampling event is to be undertaken 6 months after completion of construction of the dam. Similarly, it is unclear precisely what water quality parameters are to be measured, as nutrient levels may be measured in a variety of ways using different indicators. In its present form this condition cannot easily be monitored for compliance.

Reporting

ECO reporting

Table 19 contains examples of conditions relating to the submission of ECO inspection reports. Two EAs indicated the ECO as responsible for the compilation of environmental audit reports. All except 2 EAs contained conditions requiring the holder of the authorisation to report non-compliances within specified timeframes. It may be assumed that responsibility for such reporting would fall to the ECO. In addition, 2 EAs specified the submission of monthly monitoring reports by the ECO at project meetings.

Table 19: Conditions relating to Reporting by the ECO

	Condition	Implications for Monitorability
[EA 10, 17]	During the construction phase of the proposed project, site monitoring must be conducted monthly by the Environmental Control Officer to be appointed by the contractor to ensure environmental compliance with the Environmental Management Plan. Subsequent to monitoring, a report must be submitted for consideration by the Environmental Project Manager at project meetings to allow for the integration of recommendations into ongoing project schedule. (my emphasis)	Appointment of ECO by contractor, see comment in Table 1. The reporting requirement is practical and effective in terms of effecting improvement in environmental performance of contractors. The condition could be further strengthened by requiring copies of these reports to be submitted to the compliance monitoring and enforcement component as well. This would

		assist in focusing reactive compliance monitoring efforts by highlighting those projects with consistently poor environmental performance and regulatory non-compliance.

Appointment of Environmental Auditor

A total of 10 EAs in the sample contained a condition requiring the appointment of an environmental auditor to undertake periodic audits of the environmental performance of projects. In 3 instances this requirement was the subject of individual conditions (see Table 20), whilst in the remainder it formed part of a broader condition detailing audit requirements (see Table 21). Only 2 EAs specified the duties of the environmental auditor as a specific condition, the remainder made use of compound conditions (Table 20).

Table 20: Conditions requiring the appointment of an Environmental Auditor

	Conditions: Appointment of Auditor	
[EA 9&10]	An independent qualified environmental auditor must compile the audit report.	Monitoring compliance with these conditions is straightforward – a matter of the environmental auditor providing proof of his or her credentials together with the audit report
[EA 12]	The environmental audit reports mentioned above must be conducted by an independent external environmental auditor	
	Condition: Auditor Duties	
[EA 5&6]	Audits must be undertaken with respect to an environmental management plan mentioned in condition 1.10 in order to ensure that mitigation measures are implemented.	Without examining the EMP associated with this EA it is difficult to determine what the auditor is supposed to audit, or whether the audits referred to are in fact ECO inspections.

Audit Reporting

Notwithstanding the small number of EAs in the sample which specified the appointment of an environmental auditor, 19 EAs contained a condition or conditions requiring the submission of audit reports (Table 21). Thirteen EAs specified the content of audit reports, whilst 14 specified the reporting period (e.g., monthly, quarterly) or prescribed timeframes (e.g., within 7 days of completion of construction) for reporting.

Table 21: Conditions pertaining to the submission of environmental audit reports

Project Type	Condition	Monitorability
[EA4]	The holder of the authorization must submit 4 (four) environmental audit reports to the Department i.e. 2 (two) during the construction phase, 1 (one) after the construction phase is completed and one after the dam has been operational for 12 (twelve) months. The environmental audit reports must: 1.22.1. Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring these issues are appropriately addressed 1.22.2. be addressed to the Assistant Director: Compliance, Monitoring and Enforcement… 1.22.3 Be submitted to the Ezinqoleni Local Municipality 1.22.4 Include copies of any approvals granted by other authorities relevant to the development 1.22.5 Be conducted by an independent environmental auditor; and 1.22.6 Evaluate the development against the requirements of the EMP and Environmental Authorization.	These conditions represent examples of best practice, in that they clearly specify what is to be done, when it is to be done, who is to do it, and where and to whom the outputs are to be submitted. At the same time they avoid prescribing how the required audits are to be done, and clearly place the onus of proof of compliance on the project proponent.
[EA 5&6]	The holder of the authorization must submit an environmental audit report to the Department when construction is complete. The environmental audit report must – 1.12.1 Be compiled by an independent qualified environmental auditor. 1.12.2 Contain a site inspection report. 1.12.3 Indicate compliance with the environmental authorization and EMP; 1.12.4 Be submitted to the Assistant Manager: Compliance, Monitoring and Enforcement, ...	
[EA 5&6]	Findings and observations from the audits must be documented in an audits report and forwarded to this Department. (Operational Phase)	This condition appeared with two related conditions requiring regular audits of compliance with the operational EMP to be undertaken by an independent ECO. Read together they represent an example of monitoring requirements specified for the operational phase of a project. The monitorability of these conditions could be strengthened by stipulating timeframes for auditing and reporting.
[EA 7&8]	The holder must appoint a qualified environmental auditor to undertake and submit an environmental audit report to this Department. This environmental audit report must – 1.20.1 Be submitted to the Assistant Manager of the Compliance, Monitoring and Enforcement component of the relevant District Office of this Department, on a 30 (thirty) calendar day (monthly) interval from the date of commencement of the construction phase of the authorised activity (which for purposes of this authorisation includes site preparation). These audit reports must be submitted for the duration of the construction phase, and upon completion of the construction phase. In addition an	This condition demonstrates some of the confusion that exists regarding the roles and functions of an ECO and an environmental auditor. The frequency of audits specified during the construction phase suggests that these audits may in fact be ECO inspections. Although both EAs contain conditions specifying the appointment of an ECO and the ECO's tasks neither EA specifies

Project Type	Condition	Monitorability
	annual audit report (once a year) must be submitted during the operational phase. 1.20.2 Contain the details and relevant expertise of the appointed auditor to undertake environmental audits. 1.20.3 Indicate the date of the audit and the outcome of the audit report in terms of compliance with the conditions of this environmental authorisation and approved EMP. 1.20.4 Records relating to monitoring and auditing in respect of this activity must be kept on site and made available for inspection by any authorised/ relevant official of this Department. Should there be reasonable suspicion that the holder has on one or more occasions contravened the conditions of this environmental authorisation and that the contravention or contraventions have caused or are likely to cause harm to the environment, this Department reserves the right to request the holder to appoint an independent person approved by this Department to undertake this environmental audit.	the frequency of ECO inspections or sets reporting requirements for the ECO. This results in confusion and negatively affects the monitorability of, not only this condition, but the conditions relating to ECO inspections.
[EA 11&12]	The holder of the authorization must submit: 1.18.1. a Post Construction Environmental Audit Report to the Department within (7) calendar days after construction. *Variation 1:* This report must include but not limited to the disposal of construction waste and the old/used Bag-Filter bags 1.18.2. annual Environmental Audit Reports during operation to include but not limited to maintenance reports *Variation 2*: and tank and piping integrity inspections	Neither EA contains conditions requiring the appointment of an ECO. One of these EAs contains a condition specifying the appointment of an external auditor to undertake the audits. As the other doesn't, it implies that an internal audit will suffice for the proponent to demonstrate compliance with the condition.
[EA 13-16]	The holder of the authorization must submit an environmental audit report to the Department on a monthly basis during the construction phase. The environmental audit report must - 1.16.1 be carried out by an independent auditor; 1.16.2 include an audit of the conditions of this authorisation and the environmental management plan *Variation 1*: ii. Include reporting on all monitoring programmes listed in 1.16 above; and iii. Be made available to the DAEARD on request. *Variation 2*: 1.13.1 Include during construction, but not limited to, adverse changes made to the environment and implementation of mitigation measures, deviations from the environmental management plan and reasons for non-adherence to EMP and while during operation maintenance reports must be also be included 1.13.2 recommended changes to be made in the EMP for cases where unmitigated impacts have been discovered	The base condition and variation 1 are clear as to what is to be audited and reported on. The phrase "adverse changes made to the environment" used in Variation 2 introducing an element of vagueness, which will negatively affect monitorability of the condition. However, the requirement for the audit report to identify unexpected impacts and recommend changes to the EMP for dealing with these is an example of best practice entailing adaptive management.
[EA 3, 9, 10 & 18]	A Final audit report must be submitted to this Department after the construction phase is complete.	In the case of EAs 3, 9 and 10 the post construction audit report constitutes the only reporting

Project Type	Condition	Monitorability
	Variation 1: within 30 days after project completion. *Variation 2*: The holder of the authorization must submit an environmental audit report to the Department "once-off" during construction phase	requirement to the CA, but not the only audit requirement. It is suggested that this may be evidence of confusion regarding the roles and functions of ECOs and auditors. In the case of EA 18 the use of the term "once-off" is imprecise and confusing, particularly when read in conjunction with other conditions in that EA pertaining to monitoring.
[EA 20]	The holder of the authorization must submit the following environmental audit reports to the Department prepared by ECO: 1.26.1 Monthly environmental audit reports during the construction phase. 1.26.2 Annual environmental audit reports during operation. The above reports must include the level of compliance and non-compliance to this authorization and the EMP, and the reasons for non-compliance.	This condition clearly shows the confusion between the roles of ECO and environmental auditor.
[EA 21]	The holder of the authorization must submit an environmental audit report to the Department within 30 (thirty) calendar days of the completion of construction. The environmental audit report must - 2.20.1 Be undertaken by the independent ECO appointed in terms of condition 2.12 above 2.20.2 Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMP 2.20.3 provide copies of records relating to monitoring and auditing undertaken during the construction phase; and 2.20.4 Be submitted to the address specified in condition 2.13 above	The conditions of this EA relating to the ECO are clear as to the surveillance and monitoring role of the ECO. It is therefore suggested that it is poor practice to have the ECO audit his/her own work.

Compliance with other legislation

All EAs in the sample contained a standard condition stipulating the proponent's obligation to comply with other relevant legislation. Notwithstanding this condition, further conditions identifying specific requirements in terms of other legislation, such as the provincial heritage resources legislation and the National Water Act, 1998 (Act 36 of 1998) (NWA), were frequently included. Table 22 provides examples of these conditions.

Table 22: Examples of conditions requiring compliance with other legislation

EA No.	Condition	Implications for Monitorability
All	This authorisation does not negate the holder of the authorization's responsibility to comply with any other statutory requirements that may be applicable to the carrying on of the activity	It is debatable whether this should in fact be a permit condition. A valid argument can be made that this clause should be located in a 'reminders' section, or form part of the covering letter (as is done with water use licenses issued under the NWA). EA 21 included a footnote noting that "It is the responsibility of the applicant to identify legislation relevant to the proposed activity". Whilst it may be good practice to include this as a standard reminder, it would also be good practice to include specific reference to those pieces of legislation which commenting authorities have identified as being applicable to the project.
EA1 EA2	The conditions laid down by the eThekwini Municipality - Development Planning, Environment and Management Department in their letter dated 8 November 2007 must be complied with. (Attached as an Annexure)	This is an effective way in which to incorporate the requirements of another authority without having to rewrite them, provided that a legible copy of the document referred to is included as an Annexure to the EA. If the document is not or cannot be included (e.g., due to the manner of wording used) as an Annexure to the EA, then each requirement must be reformulated as a condition in the EA. Regardless of the approach taken, care must be exercised to ensure that inclusion of these requirements does not result in a condition which is outside the mandate of the NEMA or its EIA regulations, as this will create difficulties with enforcement of the condition.
EA1 EA2	All procedures and equipment must be used in accordance with the Occupational Health and Safety Act Regulations (OHSA) of South Africa, Act no. 85 of 1993	It may be argued that this condition oversteps the mandate of the CA and is therefore unenforceable. Although the definition of 'environment' provided in the NEMA is generally understood to include social and cultural aspects of the environment, the mandate conferred by NEMA and its EIA regulations on the CA does not extend to administration of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and its regulations.
	Should any archaeological or heritage resources be uncovered due to the development, all activities within the immediate vicinity of the finding must stop and Amafa AKwaZulu-Natali must be informed immediately. Should a grave be discovered during construction, the following procedure must be followed; 1.61.1 Construction must cease 1.61.2 The finding must be reported to a local police station	Twelve EAs used a condition similar to this requiring notification of the provincial heritage resources agency in the event of a heritage resource find during construction. Section 24(4)(b)(iii)[20] of NEMA requires that every application for environmental authorization include an assessment of the potential impact on heritage resources. The inclusion of a condition such as this one therefore does not constitute overstepping of

[20] 24(2)(b)(iii) Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must include, with respect to every application for an environmental authorisation and where applicable investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act.

EA No.	Condition	Implications for Monitorability
	1.61.3 The finding must be reported to Amafa AKwaZulu-Natali to investigate 1.61.4 An application to Amafa AKwaZulu-Natali must be made for a permit to move the grave 1.61.5 Permission must be obtained from the community to move the grave	the mandate in the same way as the previous example does. The monitorability of this condition may be improved by requiring the permit holder to document such finds, actions taken in relation to notification of the heritage resources agency, and the response of the heritage resources agency.
EA4	The standard condition requiring notification of interested and affected parties was expanded to include: "1.8.4 Authorization must be obtained from the Land Claims Commissioner for the purchase of the land by the applicant prior to the construction phase"	Monitoring compliance with this condition is straightforward, simply requiring documentary evidence of the necessary authorisation. Including a requirement that such evidence be submitted to the CA prior to commencement of construction would facilitate monitoring. Monitorability notwithstanding, the outstanding permission reflects a major risk to the project. Some means of highlighting the significance of this condition and underlining its 'show stopping' potential is necessary.
EA5 EA6	Spillages and other waste which may lead to pollution of wetlands and groundwater must be managed according to Department of Water Affairs and Forestry regulations and guidelines. The applicant must identify any sources of pollution from this development and comply with the requirements of the National Water Act (Act 36 of 1998) in order to prevent any pollution to the environment	These conditions are effectively unmonitorable, and probably unenforceable without entering into a joint enforcement action with the Department of Water Affairs as the authority responsible for implementation of the NWA. In the first condition monitorability could be improved by identifying the particular regulations and guidelines that are applicable. In the second condition monitorability could be improved by requiring the holder to compile or maintain a register of substances stored, handled or used in construction and operation of the project which could pose a pollution risk to water resources and detailing management measures for these substances aimed at preventing pollution.
EA11	The holder must apply to the Directorate for Air Pollution Control of the Department of Environmental Affairs and Tourism (DEAT) for an amendment to their existing Scheduled Process Registration Certificate in terms of the Atmospheric Pollution Prevention Act, 1965 (APPA) prior to operation	Compliance monitoring of these conditions is straightforward, either the prescribed amendment, approval, authorisation or licence is available or it is not.
EA12	The updated Major Hazard Installation (MHI) Report must be submitted to the Department of Labour and Protection Services Department of the Local Municipality for approval, prior to operating the tank	
EA19	Should vehicular access be required along the beach, authorization will need to be obtained by the applicant from the Department of Environmental Affairs and Tourism in terms of Regulation 7 of the National Environmental Management Act: Off Road Vehicular Regulations.	
EA8	Activity 1 (s) previously listed in the Government Notice R386 has been repealed and incorporated in the National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA). The	

EA No.	Condition	Implications for Monitorability
	proposed activity (wastewater, effluent or sewage treatment facility) is no longer listed within the Government Notice R386 of the Environmental Impact Assessment (EIA) Regulations, 2006. The proposed activity stipulated as; the treatment of effluent, wastewater or sewage with an annual throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres; is listed in terms of Schedule 1, Section 19 (1) of the NEMWA and the applicant must obtain a waste management licence in terms of Section 20 of the NEMWA also in terms of Section 43 (1) of the NEMWA. This application for a waste management licence must be submitted to this Department. The holder may not commence with the installation or construction of the sanitation/ domestic effluent disposal system until such time as they have obtained a waste management licence in terms of the NEM:WA.	

Reasons for Decision

Although the reasons for decision do not constitute an enforceable element of the environmental authorisation in the same way that the conditions do, they are integral to understanding the decision and its associated conditions. In reviewing the 'Reasons for Decision' annexures in the sample it was found that only one EA made direct reference to conditions of authorisation, linking specific decision making factors to numbered conditions. The remaining twenty EAs linked reasons to conditions by inference or implication.

CHAPTER 4 DISCUSSION

A number of the issues identified in the foregoing chapter warrant further discussion, either because they touch on matters of principle, legal interpretation or have implications for best practice. The discussion which follows starts by addressing general issues, touches on some of the more obvious interpretation matters from a practical perspective, and ends by addressing matters of best practice in some detail.

Format of Environmental Authorisation

It is evident from the findings presented in Chapter 3 that differences in understanding, or interpretation, of both legislated provisions and sub-section headings within the environmental authorisation template prevent the achievement of complete uniformity in presentation. Presentation of the authorisation document influences the perceived ease of monitoring compliance with requirements of the authorisation. If there is a logical flow in the presentation of the conditions section of the authorisation it is easier to identify interrelations between requirements, and thus actions to be undertaken in complying with the authorisation.

Unfortunately achieving uniformity in presentation is not a simple matter of providing a basic template or outline. That said, there are a number of ways in which greater uniformity in interpretation can be encouraged. These include the use of explanatory notes within the template, which are deleted at the time of compiling an environmental authorisation; the development of compilation and review checklists; and the development of guidelines for compilation of environmental authorisations.

Quality control appears to be something of an issue judging by the number of conditions rendered nonsensical by typographical and grammatical errors. Given the software tools available there are few excuses for the majority of typographical errors, particularly where these are a result of injudicious ‘cut and paste’. Grammatical errors are more difficult to avoid, given the default usage of a single official language in permit preparation.

It is suggested that the requirement for submission of an EMPr for all applications introduced with the NEMA EIA Regulations, 2010, may simplify the range of issues addressed by conditions of authorisation. For example, measures for managing the stockpiling of topsoil, preventing petrochemical spills during refueling, or the provision of ablution facilities for construction workers should be addressed in the EMPr. The focus of permit conditions can therefore be shifted from 'generic' impacts to project specific impacts. Where the environmental impacts of a particular project are of low significance this could result in a reduction in the number of conditions of authorisation and simplification of the compliance monitoring effort.

It is argued that the number of conditions attached to an environmental authorisation should be linked to the significance and extent of anticipated environmental impacts. Thus for projects with few anticipated significant environmental impacts (little negative environmental impact) it should be possible to produce an environmental authorisation with fewer than 25 conditions, all of which are monitorable. The chances of doing this may be significantly increased if conditions which are effectively reminders of legal obligations, such as the reminder of NEMA section 28 responsibilities or of other specific legislated requirements, are either combined into compound conditions or placed in a separate 'reminders' section of the authorisation. It may be argued, in any case, that it is nonsensical to make such reminders conditions of authorisation, as they are statutory obligations in and of themselves and must be complied with regardless of the existence of an environmental authorisation.

Regulatory deficiencies

Regulation 38(1)(b) specifies that an environmental authorisation must include a description of the activity that is authorised. What is unclear is whether this description is limited to the project as described by the proponent, or whether it should include a list of the activities identified in terms of sections 24 and 24D of the Act. Of the 21 environmental authorisations reviewed 12 identified the listed activities authorised and 9 did not. It is submitted that, as a matter of 'best practice', every environmental authorisation should include in the project description a list of the identified activities forming part of the project description and therefore

authorised in terms of the specific authorisation document. This will assist on two fronts: firstly, in facilitating compliance monitoring by clearly identifying which listed activities are covered by, and which are excluded from a particular authorisation. Secondly, it will assist in facilitating decision making with respect to any future applications for authorisation or amendment, by aiding determination of substantive and non-substantive changes to a given project.

There is a degree of ambiguity in the regulations (or interpretation of the regulations) with respect to reporting requirements – regulation 38(1)(d)(ii) requires that "*an environmental authorisation must specify… requirements for management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity*", whilst regulation 38(2)(c) provides that an authority may set conditions requiring the submission of environmental audit reports on the impacts of the activity on the environment. No clarity is provided as to whether the reports referred to in 38(1)(d)(ii) are monitoring reports or whether they may also be audit reports. Similarly, 38(2)(d) stipulates that "*an environmental authorisation may include any other condition that the competent authority considers necessary for the protection of the environment*". The regulations, however, provide no clarity as to what measures are included in 'management' and what are, or may be, included in 'protection of the environment'.

Location of activity

Another issue is with regulation 38(1)(c) and the use of standard cadastral identifiers for properties in communal landownership areas. These provide at best a vague indication of the general location of the project, given the extent of these cadastral units. The use of site corner co-ordinates in geographic format (degrees, minutes, and seconds) together with a detailed description of travel directions become essential in locating the property and that portion of it where the project is situated. The inclusion of a locality map or maps as an appendix to the authorisation, whilst unacceptable as the sole means of locating the subject activity and its location, should be regarded as best practice.

Transfer of Rights and Obligations

Two issues were identified which merit discussion here, the first relates to the wording used in regulation 38(1)(d)(iii), which refers to "*change of ownership in the property on which the activity is to take place*". This is clearly limited to land ownership; however, not all development projects are linked to land ownership. Linear developments, for example, are linked to servitudes registered against multiple properties, a change in property owner does not affect the development, nor does it require the landowner to be party to the environmental authorisation or management of the development. Similarly, land preparation projects such as the development of a shopping centre and filling station, or industrial estate; do not necessarily entail transfer of landownership to constituent enterprises (shops, filling stations, factories or warehouses). Thus, whilst the intent of this clause is evident, the requirement set is not logical.

The second issue relates to the manner in which the requirements for transfer of rights and obligations are formulated in permit conditions. This transfer cannot be adequately addressed through the imposition of a single standard condition. It requires the formulation of a project specific condition or conditions, which takes into account the peculiarities of how a given development sector deals with project ownership, and how particular development project types link to landownership (see Table 12 for an example of best practice in this regard). In developing sector specific provisions for the transfer of the rights and obligations associated with environmental authorisations it is advisable to refer to section 28 of the NEMA for guidance. Subsection 28(2) provides that the duty of care and remediation of environmental damage imposes a particular obligation on "*an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises*". Thus in transferring rights and obligations associated with the environmental authorisation of a project, formulation of the requisite condition should address project ownership, project control and usage rights associated with the project.

Amendment of EMP/EMPr

The regulations provide that a competent authority may, when considering reports submitted in support of an application for environmental authorisation request additional information (basic assessment process) or amendment of the report (scoping and EIA process). Given that the draft EMP is required to be submitted with these reports (EIA report under NEMA EIA Regulations, 2006; basic assessment and EIA reports under NEMA EIA Regulations, 2010), it is contended that consideration of reports by the competent authority includes consideration of the draft EMP/EMPr. Therefore any gaps or omissions in the draft EMP/EMPr should be dealt with at this stage, and should not be addressed through conditions of authorisation. Effectively, no authorisation decision may be made until such time as both the assessment report and the EMP/EMPr fulfill the requirements of NEMA and the EIA Regulations.

It is, however, conceivable that the draft EMP/EMPr may have to be amended or revised during the lifetime of the project, either to reflect specific requirements of the environmental authorisation or to address practical realities of the project which may unfold during construction, operation or decommissioning. The regulations provide for the amendment of environmental authorisations, but not specifically for the amendment of an EMP/EMPr. It is possible that there may be a valid legal argument for the use of the regulated process when amending an EMP/EMPr. However, in terms of practicality, particularly during the construction phase, it is argued that a more pragmatic approach is required. Only four of the EAs in the sample included provisions for amendment of the EMP/EMPr, all of these relied on formal written approval by the CA and were applicable to “any” change or amendment. This is clearly impractical, as all changes or amendments will require the written approval of the competent authority, thus adding considerably to the authority’s administrative burden and potentially increasing the risk of project delays and costs to the proponent. A more practical arrangement is for the draft EMP/EMPr to include a section setting out the provisions, requirements, processes or procedures for amending the EMP/EMPr. This section should clearly identify the phase or phases of the project to which it is applicable, which types of amendment require formal approval by the CA, which may be approved by the ECO, and the procedures and timeframes (if necessary) for making amendments. Approval of the

EMP/EMPr by the CA will effectively signal the CA's agreement and formalise the amendment mechanism.

Auditor vs Environmental Control Officer

There appears to be confusion in interpreting regulation 38(2)(b) and 38(2)(c), namely, confusion between the roles of an environmental control officer (ECO) and an environmental auditor. To resolve this conflict it is necessary to go back to regulation 38(1)(d)(ii) and to consider this against regulation 38(2)(b). Regulation 38(1)(d)(ii) is the empowering provision for setting conditions of authorisation dealing with management, monitoring and reporting on the impacts of an activity. Regulation 38(2)(b) provides for, amongst others, the specification of timeframes for the submission of reports **on the level of compliance** with authorisation conditions achieved. Regulation 38(2)(c), on the other hand, provides for the authority to set conditions requiring the undertaking of audits of the **impacts of the activity on the environment**, the periodicity of such audits and the submission of the resultant audit reports to the authority. From this comparison of regulatory provisions it may be argued that the role of an ECO is to monitor and report on compliance with the environmental authorisation and associated environmental management plan/programme (EMP/EMPr) – that is legal compliance and the collection of environmental impact monitoring data. Whilst that of an environmental auditor is to monitor and report on the actual impacts of an activity in comparison to the predicted impacts of that activity on the environment – that is on the adequacy and accuracy of the environmental impact assessment. Alternatively, it may be argued that, in the terminology of Sadler and McCabe (2002), the ECO fulfills the surveillance function, whilst the auditor reports on the adequacy with which the mitigation and management measures have succeeded in controlling environmental impacts and the accuracy of the EIA in identifying and predicting impacts associated with the project.

The role of the ECO is thus to focus on the collection of data in support of monitoring programmes specified in conditions of authorisation. This would require the ECO, as a minimum to confirm that monitoring data is being collected, but leaves the analysis and interpretation of this data to the auditor.

Frequency of ECO Inspections

Although eighteen of the environmental authorisations sampled required that an ECO be appointed and several stipulated the duration of this appointment, only four provided clear guidance as to the frequency of ECO inspections. It is critical during the construction phase, at least, that guidance is provided on the frequency of ECO inspections, as it is possible for significant environmental damage to be inflicted on a site within a short space of time during this phase. However, in determining the frequency of ECO inspections the following need to be balanced against each other:

- the nature of the project
- the likely length of its construction period
- the likely length of its lifetime
- the sensitivity of its receiving environment
- the predicted environmental impacts of the project
- the likely project construction cost
- predicted operational and maintenance costs
- operational income accruing from the project
- other environmental monitoring programmes required and the costs thereof

If the project is a minor one and the receiving environment is not particularly sensitive it may be possible to have fewer ECO inspections, or longer intervals between inspections. If on the other hand, the project is large or complex or located in a sensitive receiving environment it will be necessary to increase the frequency of ECO inspections. However, cognizance must be taken of the costs associated with an increased frequency of inspections. As has been noted by Arts and Morrison-Saunders (2004) the cost of EIA follow-up is a significant factor contributing to poor EIA follow-up efforts and a hesitancy to enforce such follow-up internationally. Nevertheless, inclusion of a condition or sub-condition specifying inspection frequency constitutes best practice and improves monitorability of the EA. It also aids in clarifying the distinction between ECO and auditor roles and functions, as an ECO may, in

fulfilling the surveillance function reasonably be expected to inspect the activity on a continuous-regular[21] basis. An auditor, on the other hand, may be expected to audit the activity on a periodic-regular[22] basis, that is, less frequently than the ECO inspects the activity.

It may further be argued that where the nature of the receiving environment is such that costs of monitoring and mitigation of environmental impacts (i.e., EIA follow-up), are so high as to render the project either marginally profitable or effectively non-profitable the only responsible option is to refuse to grant environmental authorisation.

Reporting

In general conditions stipulating reporting requirements further compounded the confusion between environmental control officers and auditors, as most only set requirements for the submission of audit reports. This lack of clarity was further compounded by the variety of reporting frequencies set, the number of conditions which identified the ECO as responsible for the submission of audit reports, and the focus on compliance reporting. A single condition was set specifying the presentation of ECO reports to the project management team.

Arguably the main focus of all reporting was on compliance with the EMP and conditions of authorisation. Only one condition required audit reports to identify unexpected impacts and recommend changes to the EMP for dealing with these. Such a requirement should be included in all future environmental authorisations as it goes to the heart of environmental management and provides for a necessary level of flexibility.

Self-regulatory Approach and Organs of State

Internationally there is a move towards self-regulation as a means of reducing costs and workload for the competent authority. For this reason many large companies use systems

[21] "continuous-regular" is used here to describe regular inspections undertaken at a high return frequency or a short repeat cycle, e.g., twice weekly, weekly, fortnightly or monthly.
[22] "periodic-regular" is used here to describe regular audits at a low return frequency or a longer repeat interval, e.g., quarterly, biannually, or annually.

such as those linked to the ISO 14000/14001 standard to manage their impacts on the environment. However, Youthed (2009) found that government entities constituted the highest risk of compliance default (i.e., government entities were the most likely to be non-compliant with permit conditions). This situation is exacerbated by the constitutional imperative for co-operative governance, which enjoins government entities to avoid prosecuting one another (the entire chapter 4 of NEMA deals with fair decision making and dispute resolution between government entities). Given Youthed's findings and personal experience, it is suggested that care should be taken when permitting government entities to self regulate that stringent requirements for periodic-regular independent environmental audits are set. These audit requirements should feed into the non-financial reporting system of the relevant treasury department and auditor-general.

Compliance with Other Legislation

All EAs included at least one condition stipulating that all other relevant applicable legislation must be complied with. This condition effectively amounts to a reminder that an environmental authorisation does not constitute authorisation in terms of any other legislation which may be applicable to the development project. Several of the EAs in the sample included other conditions stipulating compliance with specific legislation requirements, such as, occupational health and safety regulations or water use licensing. Firstly, it is argued that these conditions effectively have the standing of reminders and therefore do not belong in the EA itself. Secondly, it is questionable whether seeking to make authorisation conditional upon compliance with other legislation is legal. Thirdly, section 24(3) of NEMA stipulates that compliance with procedures for environmental authorisation does not relieve a proponent of their obligations in terms of any other legislation to obtain permission to undertake the development project. For these reasons it is considered that a reminder to conform to the requirements of other applicable legislation should be included in the covering letter rather than the EA. The phrasing of such a reminder could, where deemed necessary, include the identification of specific pieces of legislation which are applicable to the particular development project.

Period of Validity and Provisions for Amendment

The NEMA EIA Regulations, 2006, included for the first time since the formalization of EIA requirements clear provision for the amendment of environmental authorisations. Only one of the EAs in the sample (see Table 10) attempted to inform the permit holder of this provision, but did so in such a manner that it formed part of the period of validity condition. It is argued that the period of validity constitutes a standalone item or condition in the EA and should not be combined with other items or information.

The particular example presented in Table 10 sought to impose a timeframe within which an application for amendment specifically intending to amend the period of validity should be lodged. This would appear to be a questionable practice. Rather, it is suggested that the EAP and proponent should include information in the final assessment reports of relevant practicalities, such as other administrative processes and design processes, which are still to be completed and the likely timeframes applicable to these. The competent authority will then be able to take this information into account in their decision-making, particularly in setting the period of validity. Informing the permit holder of the availability of provisions for amendment of the EA then becomes an issue which may best be addressed through a reminder separate from the EA.

Reasons for Decision includes Reasons for Conditions

In providing reasons for its decision the CA must take into account its obligations in terms of the Constitution and PAJA. This is to say that speaking only to the Yes/No aspect of the decision to grant or refuse authorisation is inadequate. It is necessary that the reasons for decision be extended to include reasons for the conditions attached to a permit.

Greater use of the reasons for decision annexure to provide more detail regarding the purpose and intent of specific conditions would facilitate implementation of condition requirements, as well as compliance monitoring and, possibly, enforcement of the conditions. By doing so, the CA will not only discharge its obligation to the permit holder and the public, it will also provide assistance to its own compliance enforcement staff, as well as the ECO and

auditor. The very act of explaining the reasoning behind specific conditions of authorisation will assist the case officer in developing a clear vision of the intention of the condition/s.

It is argued that there is a need for some form of technical advisory service to assist competent authority officials in understanding the technical details of projects which are the subject of permit applications. This is because of the large variety and diverse nature of projects for which an EA is required, which precludes any single individual acquiring sufficient depth of understanding of all the possible technical details and potential points of environmental impact in an operationally meaningful timeframe. The aim of such a service would be to provide a reference resource for interpreting engineering or industry 'speak' to terms understandable by permitting and compliance monitoring and enforcement (CME) officials.

The inclusion, as conditions of authorisation, of actions identified in another document (e.g., an EMP) which is itself the subject of a permit condition is unnecessary. Further, it may result in confusion in interpretation if there are differences in wording, leading to difficulties in compliance enforcement. Which will take precedence – the permit condition specifying the action, or that specifying implementation and compliance with the EMP/other document?

Baseline Monitoring and Monitoring Programmes

Only one of the EAs in the sample required the collection of baseline data for monitoring programmes prior to commencement of construction, even though several of the EAs (e.g., EA 3) required the implementation of monitoring programmes that would have benefited from collection of baseline data. From this it follows that the majority of environmental authorisations did not in fact consider follow-up of the EIA or its predictions, an essential element of EIA follow-up according to Morrison-Saunders *et al* (2007). There is therefore no real scope for learning from experience, or for contributing to cumulative impacts monitoring which may be achieved through the incorporation of monitoring results into state of the environment reporting.

On the other hand, it may be argued that baseline monitoring requirements are implicit in the many conditions setting requirements for monitoring programmes. For example, a condition specifiying the monitoring of air or water quality during the operational phase implies that state of air or water quality must be known prior to implementation/commencement of the development project, and therefore that a period of baseline monitoring for this parameter must be undertaken.

Reliance on implication is, however, an uncertain means of obtaining commitment and compliance. In situations where long term monitoring is an important aspect of detecting environmental change it is suggested that as a matter of 'best practice' a condition/s specifying the baseline monitoring requirements should be included. In addition, the logical link between baseline monitoring and monitoring programmes to be instituted during construction and/or operation should be included in the "Reasons for Decision" appendix.

In summary, areas of strengths and weakness in practice have been identified. Some of these, such as the confusion between ECO and auditor may be linked to lack of clarity in the legislation itself, or to a failure to distinguish between compliance monitoring and the monitoring of EIA predictions. Others, such as the focus on construction related impacts in the face of shifting focus in the regulations may be due to rapid staff turnover and the loss of institutional memory (DEAT, 2008), which provides guidance and reminders of the rationale behind particular conditions or phrasing.

CHAPTER 5 CONCLUSIONS

Judge Albie Sachs (2009, p229) quoting from his judgement on the Rustenberg Platinum Mines case, writes of the Constitution:

> 'The values of the Constitution are strong, explicit and clearly intended to be considered part of the very texture of the constitutional project. They are implicit in the very structure and design of the new democratic order. The letter and the spirit of the Constitution cannot be separated: just as the values are not free-floating, ready to alight as mere adornments on this or that provision, so is the text not self-supporting, awaiting occasional evocative enhancement. The role of constitutional values is certainly not simply to provide a patina of virtue to otherwise bald, neutral and discrete legal propositions. Text and values work together in integral fashion to provide the protection promised by the Constitution.'

Similarly, the competent authority cannot focus solely on the provisions of the NEMA EIA Regulations, but must take into consideration the provisions of the NEMA, its inter-relation with the Constitution and other constitutional or sectoral legislation when making decisions on applications for environmental authorisation. This is a complex and challenging task requiring the combination of philosophical and practical elements, an understanding of legal and technical issues, and the development of such intangible skills as 'on the fly' risk assessment and trustworthiness detection. An underrated and neglected aspect of this decision making skills suite has, however, been in the development of monitorable permit conditions. This study has attempted to assess conditions formulated under the NEMA EIA Regulations, 2006, regime, analyse their implications for compliance monitoring and make recommendations for strengthening practice in the area of permit condition formulation.

In concluding this study, recommendations for incorporating the lessons learned into practical knowledge transfer mechanisms are made and areas for future study are highlighted.

***Recommendations*:**

It is recommended that the authorisation template is re-organised to group conditions according to requirements of the regulations. Box 1 provides an example of how such a template may be organized, including explanatory reminders for compilers so that uniformity in both appearance and interpretation is facilitated.

Details of Holder: *Name, Address, Tel. No.*

Description of Activity: *As per Application and listed activities authorized*

Location of Activity: *Cadastral description of property, Geographical co-ordinates of activity (from application form), Detailed route description (linear development), Detailed directions to property (especially rural projects)*

Period of Validity: *(Time period should take into consideration other permitting processes associated with the project, e.g., rezoning, subdivision, water use licensing, etc.)*

Commencement of Activity: *Notification of CA, Notification of I&APs, Reports to be submitted prior to commencement*

Management:
- Design Impacts *(specific project components to be included, e.g. storm water retention ponds, location of services)*
- Construction Impacts (*e.g., implementation of EMPr, appointment of ECO, frequency of ECO inspections*)
- Operational Impacts
- Decommissioning Impacts

Monitoring:
- Design Phase *(pre-construction/baseline data collection, monitoring programme design/development)*
- Construction Phase *(monitoring programmes to be implemented, frequency of monitoring (both impacts and compliance))*
- Operational Phase *(monitoring programmes to be implemented, frequency of monitoring)*
- Decommissioning Phase *(monitoring programmes to be implemented, frequency of monitoring)*

Reporting:
- Design Phase:
  - Compliance *(content, submission of reports/record keeping, reporting frequency)*
  - Impact Audits *(frequency, content, submission)*
- Construction Phase:
  - Compliance *(content, submission of reports/record keeping, reporting frequency)*
  - Impact Audits *(frequency, content, submission)*
- Operational Phase:
  - Compliance *(content, submission of reports/record keeping, reporting frequency)*
  - Impact Audits *(frequency, content, submission)*
- Decommissioning Phase:
  - Compliance *(content, submission of reports/record keeping, reporting frequency)*
  - Impact Audits *(frequency, content, submission)*

Transfer of Rights and Obligations: *Notification, content, timeframe*

Reminders: *Compliance with other legislated requirements (specific permits needed and general obligation)*

Box 1: Proposed EA outline structured according to the prescripts of the regulations and with explanatory notes for compilers

Such re-organisation should aid in minimizing confusion, ensure conformance with requirements of regulations, and reduce repetition of conditions which results in an unwieldy number of conditions.

The following simple rules for formulating monitorable conditions of authorisation could form the core of an authorisation conditions drafting manual, and should be adopted:

1. Phrase all conditions in the imperative, for example, the holder must.., the holder shall not…
2. Phrase conditions such that the burden of proof of compliance falls on the permit holder, for example, "*the holder must inform the new owner of their rights and obligations in terms of this authorisation, and must furnish the CA with documentary proof of the new owner's acceptance at least 30 days prior to formal transfer of ownership*".
3. Double check spelling and cross references to other documents or items in the text of the EA. Mistakes here can negatively affect implementation, compliance and enforcement of conditions.
4. Use the 'reasons for decision' annexure to explain why particular conditions have been imposed and what they are intended to achieve. Not only does this fulfill the requirements of NEMA and PAJA with respect to giving effect to administrative justice, it will also assist those who are tasked with monitoring compliance with the EA and its conditions to understand what is intended to be achieved.
5. Instead of drafting multiple related conditions as 'stand alone' conditions, consider the use of 'compound' conditions (i.e., bullet points and sub-clauses). This has the effect of reducing the overall number of conditions whilst providing clarification of what is required.
6. Avoid repetition of conditions, particularly if this entails the use of slightly different wording in subsequent versions. Rather stipulate the application of the condition to different phases of the project lifecycle in sub-clauses.
7. Do not include conditions which are outside the legal mandate of the CA, such as, compliance with Occupational Health and Safety Act Regulations, as they cannot be enforced by the CA.
8. Do not use the Conditions section of an EA for reminders of other legal obligations or penalties for non-compliance, create a separate Reminders section for these or put them in the covering letter.

9. Identify conditions which the holder must include in service provider contracts, but don't word the condition in such a way that it attempts to directly bind an unknown third party. (e.g., the holder must appoint an ECO who will be responsible for …, NOT the contractor must appoint an ECO…)
10. Consider the additional administrative burden that is being added to the CA's workload and the cost implication of delays to the permit holder, particularly during construction, when imposing conditions that require further CA input or approval.

Areas for Future Study

Three areas of possible future investigation have been identified during this study. The first takes into account the recent change in legislation to expand on the current study. This could include an assessment of changes in practice in the formulation of permit conditions under the NEMA EIA Regulations 2010. Together with an analysis of the experiences of compliance monitoring and enforcement officials in monitoring and enforcing compliance, and the experiences of proponents in implementing conditions of authorisation under the three generations of permitting legislation, this would provide a broader foundation for the development of a formal guideline to writing permit conditions.

The second examines the role of the public in EIA follow-up in South Africa, and potential barriers to public engagement in this phase of the EIA process. Few, if any, of the EAs examined in this study made provision for the participation of the public in post-decision EIA processes, yet in many jurisdictions the public is acknowledged to play a significant role in monitoring of post-EIA compliance. However, the lack of a condition of authorisation providing for the engagement of the public in EIA follow-up monitoring activities is not the sole determinant of public engagement in this phase of EIA. Other receiving community specific issues, such as the prevailing level of awareness of the aims and objectives of environmental management in general, and EIA as a specific environmental management tool, or the language in which the EA is written may affect the level to which a given community is able to play a role in EIA follow-up.

The third examines the fate of data and information collected as a result of EIA follow-up. Many of the conditions of authorisation relating to monitoring specified the institution of monitoring programmes, and the gathering and maintenance of monitoring data. None of the EAs, however, were clear in explaining the purpose for which these data were to be collected, or how they were to be used in achieving the goal of integrated environmental management. This is despite growing concerns in the field that the goal of integrated environmental management is not being achieved. An avenue worth investigating in this regard is the feasibility of utilizing data emanating from compliance with monitoring programmes, instituted in response to conditions of environmental authorisation, in the state of environment reporting system.

REFERENCES

Arts, J., Caldwell, P. and Morrison-Saunders, A. 2001. Environmental impact assessment follow-up: good practice and future directions— findings from a workshop at the IAIA 2000 conference. *Impact Assessment and Project Appraisal*, 19:3, pp 175–185.

Arts, J. and Morrison-Saunders, A. 2004. Theoretical Perspectives on EIA Follow-up. In A. Morrison-Saunders and J. Arts (editors) *Assessing Impact: Handbook of EIA and SEA Follow-up.* Earthscan, London.

Au, E. and Hui, S. 2004. Learning by Doing: EIA Follow-up in Hong Kong. In A. Morrison-Saunders and J. Arts (editors) *Assessing Impact: Handbook of EIA and SEA Follow-up.* Earthscan, London.

Bailey, J., Hobbs, V., and Saunders, A. 1992. Environmental Auditing: Artificial Waterway Developments in Western Australia. *Journal of Environmental Management* 34, pp 1-13.

Bray, E. 2009. Administrative Justice, IN A. Paterson and L.J. Kotze: *Environmental Compliance and Enforcement in South Africa: Legal Perspectives*. Juta Law. Cape Town.

Craigie, F., Snijman, P. and Fourie, M. 2009. Dissecting Environmental Compliance and Enforcement, IN A. Paterson and L.J. Kotzé: *Environmental Compliance and Enforcement in South Africa: Legal Perspectives*. Juta Law. Cape Town.

Department of Economic Development, 2006. Provincial Spatial Economic Development Strategy. Province of KwaZulu-Natal, Pietermaritzburg. Accessed on 23 May 2011 from http://www.kznded.gov.za/Portals/0/Policies%20and%20Legislation/PSEDS%20final%20draft%2010%20oct06.pdf.

Department of Environmental Affairs and Tourism, 1998. White Paper on Environmental Management Policy for South Africa. Government Notice 749 of 1998. Government Gazette No 18894 of 15 May 1998.

Department of Environmental Affairs, 2007. Authorization Manual for Assessing and Issuing Environmental Authorisations. Report prepared by Mandy Taylor and Janet Bodenstein.

Department of Environmental Affairs and Tourism, 2008. Capacity Audit and Needs Analysis Survey for Environmental Impact Assessment Administrators. Report prepared by Regenesys. Pretoria.

Department of Environmental Affairs, undated. Implementation Plan to deal with Challenges, Constraints and Needs Facing the Environmental Sector. Report prepared by Golder Associates. Pretoria.

Dik, H. and Morrison-Saunders, A. 2002. The Influence of EIA Approval Conditions on Environmental Practices. Presented at: *IAIA'02 Assessing the Impact of Impact Assessment: Impact Assessment for Informed Decision-making*. 22nd Annual Meeting of the International Association for Impact Assessment, 15-21 June 2002, Netherlands Congress Centre, The Hague, Netherlands.

Du Plessis, A. 2009. Understanding the Legal Context. IN A. Paterson and L.J. Kotzé: *Environmental Compliance and Enforcement in South Africa: Legal Perspectives*. Juta Law. Cape Town.

Environmental Protection Authority. 2009. *Draft Environmental Assessment Guideline No. 4: Towards Outcome-based Conditions*. Western Australia. http://epa.wa.gov.au/EPADocLib/3095_DraftEAGNo4OBCs211209.pdf Accessed 19 August 2011.

Feris, L. 2009. Environmental Rights and Locus Standi. IN A. Paterson and L.J. Kotzé: *Environmental Compliance and Enforcement in South Africa: Legal Perspectives*. Juta Law. Cape Town.

Hulett, J. and Diab, R. 2002. EIA Follow-up in South Africa: Current Status and Recommendations. *Journal of Environmental Assessment Policy and Management*, 4:3, pp 297-309

Kipling, R., 1908. The Elephant's Child, IN R. Kipling: *Just So Stories for Little Children*. Macmillan and Co., London.

Ministry for the Environment, 2001. Effective and Enforceable Consent Conditions: A guide to drafting conditions under the Resource Management Act 1991. http://www.mfe.govt.nz/publications/rma/enforceable-consents-jun01/enforceable-consents-jun01.pdf accessed 14 March 2010.

Morgan, R.K. 2001. *Environmental Impact Assessment: A methodological perspective*. Kluwer Academic Publishers, Dordrecht.

Morrison-Saunders, A., Arts, J., Caldwell, P. and Baker, J. 2001. EIA Follow-up: Outcomes and Improvement Discussion Paper. Presented at: *IAIA '01 Impact Assessment in the Urban Context conference*. 21st Annual Meeting of the International Association for Impact Assessment, 27 May-2 June 2001, Cartagena, Colombia, 'EIA Follow-up: Outcomes and Improvements' workshop.

Morrison-Saunders, A., Baker, J. and Arts, J. 2003. EIA Follow-up Lessons from Practice: Towards Successful Follow-up. *Impact Assessment and Project Appraisal*, 21:1, pp 43-56.

Morrison-Saunders, A., and Arts, J. 2004. Introduction to EIA Follow-up. In A. Morrison-Saunders and J. Arts (editors) *Assessing Impact: Handbook of EIA and SEA Follow-up.* Earthscan, London.

Morrison-Saunders, A., Marshall, R. and Arts, J. 2007. *EIA Follow-up: International Best Practice Principles*. Special Publication Series No. 6. Fargo, USA: International Association for Impact Assessment.

Munro, D.A., Bryant, T.J. and Matte-Baker, A. 1986. *Learning from Experience: A state-of-the-art review and evaluation of environmental impact assessment audits*. A Background Paper Prepared for the Canadian Environmental Assessment Research Council, Minister of Supply and Services, Quebec, Canada.

Republic of South Africa, 1989. Environment Conservation Act. Act No. 73 of 1989. Government Printer, Pretoria.

Republic of South Africa, 1996. Constitution of the Republic of South Africa. Act No. 108 of 1996. Government Printer, Pretoria.

Republic of South Africa, 1998a. National Water Act. Act No. 36 of 1998. Government Printer, Pretoria.

Republic of South Africa, 1998b. National Environmental Management Act. Act No. 107 of 1998. Government Printer, Pretoria.

Republic of South Africa, 2000a. Promotion of Administrative Justice Act. Act No. 3 of 2000. Government Printer, Pretoria.

Republic of South Africa, 2002. Minerals and Petroleum Resources Development Act. Act No. 28 of 2002. Government Printer, Pretoria.

Republic of South Africa, 2006. Regulations in terms of chapter 5 of the National Environmental Management Act, 1998. Government Gazette No. 28753 Notice Number R 385 of 21 April 2006. Government Printer, Pretoria.

Republic of South Africa, 2008a. National Environmental Management: Integrated Coastal Management Act. Government Printer, Pretoria.

Republic of South Africa, 2008b. National Environmental Management: Waste Act. Government Printer, Pretoria.

Republic of South Africa, 2010. National Environmental Management Act, 1998, Environmental Impact Assessment Regulations. Government Gazette No. 33306 Notice No. R. 543 of 18 June 2010. Government Printer, Pretoria.

Sachs, A., 2009. *The Strange Alchemy of Life and Law*. Oxford University Press, Oxford.

Sadler, B. and McCabe, M. 2002. *Environmental Impact Assessment Training Resource Manual*. 2nd edition. UNEP: Division of Technology, Industry and Economy: Economics and Trade Branch, Geneva. http://www.environment.gov.au/net/eianet.html accessed 14 March 2010.

Sowman, M., Fuggle, R. and Preston, G. 1995. A Review of the Evolution of Environmental Evaluation Procedures in South Africa. *Environmental Impact Assessment Review*, 15, pp 45-67.

United States Environmental Protection Agency. 1999. *Guidelines: Practical Enforceability*. Draft (Rev. 1). http://www.epa.gov/region09/air/permit/titlev-guidelines/practical-enforceability.pdf Accessed 14 March 2010.

Wessels, J. 2004. 'Adequate Reasons' in Terms of the Promotion of Administrative Justice Act. In C. Lange and J. Wessels, *The Right to Know: South Africa's Promotion of Administrative Justice and Access to Information Acts.* Siber Ink, Cape Town.

Wood, C. 1999. Pastiche or Postiche? Environmental Impact Assessment in South Africa. *South African Geographical Journal*, 81:1, pp 52-59.

Youthed, J. 2009. *Assessing and Managing the Potential for Compliance Default of Applications Submitted in Terms of South Africa's Environmental Impact Assessment Regulations*. D. Phil Thesis. UNISA.

Appendix 1

Example of 2006 EA format

Appendix 2

Example of 2010 EA format