REPORT ON EVALUATION OF ENVIRONMENTAL IMPACT ASSESSMENT

(EIA) System

FULL EVALUATION REPORT

February 2019

National Evaluation Report

planning, monitoring and evaluation
Department:
Planning, Monitoring and Evaluation
REPUBLIC OF SOUTH AFRICA

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

This report has been independently prepared by Bembani Water Solutions (Pty) Ltd. The Evaluation Steering Committee comprised the Department of Environmental Affairs, Department of Planning, Monitoring and Evaluation, Provincial Departments and the Service Provider. The Steering Committee oversaw the operation of the evaluation, commented and approved the reports. The members included Sabelo Malaza (DEA), Nox Chitepo (DPME), Vusi Skosana (DEA), Gift Mpyana (DPME), Ahn-Lynn Poniappen (DPME), Paul Hardcastle (DEADP), Victor Mongwe (LEDET), Titus Baloyi, Victor Siphugu, Francois Retief, Sean O'Beirne, Reece Alberts, Portia Krisjan (READ), Obopeng Gaoraelwe (DENC), Siyabonga Gqalangile (DEDEAT), Rudzani Mashangu (DPME), Robyn Luyt (DEDET), William Mgomo (EDTEA), Howard Hendricks (SANParks) and Amanda van Reenen (DEA).

Peer reviewers included Ntsako Baloyi (content), Sunet Jordaan (methodology).

Submitted by:

Director

Bembani Water Solutions
P.O. Box 1589
Sunninghill 2157
Tel: +27 11 038 8671
Fax: +27 86 615 5353
Email: titus@bembani.com

Submitted to:

Director: Evaluation

Department of Planning, Monitoring and Evaluation
Private Bag X944
Pretoria, 0001, South Africa
Tel: +27 12 312 0204
Fax: +27 86 686 4455
Email: nox@dpme.gov.za

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How to cite this report: DPME/DEA (2019) "Evaluation of Environmental Impact Assessment System - Full Report", Pretoria: Department of Planning, Monitoring and Evaluation/Department of Environmental Affairs.

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GLOSSARY

BA	Basic Assessment
CAs	Competent Authorities
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning, Western Cape
DEAT	Department of Environmental Affairs and Tourism
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism, Eastern Cape
DEDET	Department of Economic Development, Environment and Tourism, Mpumalanga
DMR	Department of Mineral Resources
DPME	Department of Planning, Monitoring and Evaluation
DWS	Department of Water and Sanitation
EA	Environmental Assessment
EAPASA	Environmental Assessment Practitioners Association of South Africa
EAPs	Environmental Assessment Practitioners
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
ECOs	Environmental Control Officers
EDTEA	Economic Development, Tourism and Environmental Affairs, KZN
EIA	Environmental Impact Assessment
EIAMS	Environmental Impact Assessment and Management Strategy
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
IAIA	International Association for Impact Assessment
IAIAsa	International Association for Impact Assessment, South African Chapter
IAPA	Impact Assessment and Project Appraisal
IAPs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
KPI	Key Performance Indicator
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LUPO	Land Use Planning Ordinances
M&E	Monitoring and Evaluation
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NEAS	National Environmental Authorisations System
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEPF	National Evaluation Policy Framework
NGOs	Non-governmental Organisations
NQF	National Qualifications Framework
NRF	National Research Foundation
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NWU	North West University
PAJA	Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000)
PPP	Public Participation Process
PSC	Project Steering Committee
PSS	Plan of Study for Scoping
READ	Department of Rural, Environment and Agricultural Development, North West
S&EIR	Scoping and Environmental Impact Reporting
SANParks	South African National Parks
SAQA	South African Qualification Authority
SD	Sustainable Development
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SEOR	State of Environment Outlook Report
SIA	Social Impact Assessment
SMMEs	Small, Micro and Medium Enterprises
SPLUMA	The Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)
ToC	Theory of Change
ToR	Terms of Reference
VIA	Visual Impact Assessment

EXECUTIVE SUMMARY

Introduction and Background to the Evaluation

Environmental Impact Assessment (EIA) is internationally one of the most widely adopted policy implementation instruments, introduced in more than 180 countries world-wide (Morgan, 2012). South Africa has a long and proud history of environmental assessment practice dating back to the 1970s (Mafune et al, 1997; Sowman et al, 1995; Kidd et al, 2018). However, EIA has only been legally mandated since 1997, initially through the Environment Conservation Act (ECA), Act No. 73 of 1989, followed by the National Environmental Management Act (NEMA), Act No. 107 of 1998. It is acknowledged that the main purpose of EIA is to serve as a policy implementation instrument to deliver on our so-called 'environmental right' contained in Section 24 of the Constitution as well as delivering on the objectives of NEMA.

To this end, periodical system evaluation is considered a key component of any well-functioning EIA system, with various system evaluations having been conducted internationally (Sadler, 1996; Arts, 1998; Thissen, 2000; Wood, 2003; Morrison-Saunders and Arts, 2004; Jones et al, 2005; Arts et al, 2012; Lyhne et al, 2017; Loomis and Dziedzic 2018). Following a competitive bidding process, the Department of Planning, Monitoring and Evaluation (DPME) appointed Bembani Water Solutions (Pty) Ltd (Bembani) to undertake an evaluation of the EIA System's Implementation in South Africa. As highlighted in the ToR (DPME, 2017, p2), EIA is sometimes perceived as a barrier to development due to its requirements for rigorous participatory processes and scientific investigation which may often be viewed as time-consuming and expensive. There is also a general and ongoing concern about the efficiency, quality and effectiveness of the EIA system. The first attempt to conduct a system evaluation was after a decade of mandatory EIA practice in 2008 (DEAT, 2008). Following on from the 2008 evaluation study a process was launched to formulate a new strategy for Integrated Environmental Management (IEM) which came to be known as the Environmental Impact Assessment and Management Strategy (EIAMS, 2014). In view of the fact that the last system review was around a decade ago, and in support of the publication of the EIAMS in 2014, now is considered a particularly opportune time to evaluate the EIA system in South Africa.

Overview of the Intervention

The purpose of the evaluation is described in the ToR as follows (DPME, 2017, p3):

> *"The evaluation aims to assess whether or not the EIA process contributes to sustainable development and to provide recommendations on how the implementation of the process can be strengthened. This will also involve the development of indicators for reporting on the economic impact of the environmental impact assessments process on identified sectors that have been authorised."*

Three key evaluation questions are put forward in the ToR in relation to the purpose of the evaluation, namely (DPME, 2017, p3):

1) To what extent has the EIA process been efficiently implemented?
2) To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?
3) What key insights, lessons, and recommendations are offered, for improvement of the EIA process?

The ToR also included so-called guiding questions which were also considered, refined and agreed as part of the inception phase of the project (DPME, 2017, p3-4). Ultimately the evaluation focussed on the following key evaluation questions – as summarised below in relation to the different theory of change and logical framework components.

- What are the objectives of EIA in South Africa?
- How is EIA expected to achieve its objectives?
- Is there sufficient skills and competencies to implement the EIA system?
- What has been the economic impact of the EIA process on identified sectors?
- To what extent has the EIA process been efficiently implemented?
- What is the quality of EIA reports and processes?
- To what extent has EIA influenced decision making?
- To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?

Each of these questions were addressed through the application of a specific methodology as prescribed in the relevant DPME evaluation guidelines and policies.

Methodology

The methodology for the evaluation was designed in line with relevant DPME policies and guidelines as well as experience with EIA system review nationally and internationally. The methodology aimed to address all of the evaluation questions listed above.

Methodological approach

The evaluation applied the so-called Theory of Change (ToC) approach to the evaluation, commonly applied to policy analysis internationally. Central to the evaluation was the conceptualisation and design of the ToC map – see figure below. The content of the map was designed based on the literature review and stakeholder workshop, which communicates the following:

- The causal logic between the different evaluation components from design of the EIA system to the eventual impact it aims to achieve.
- The various key assumptions that underpin the causal logic. These assumptions (there are 19 assumptions across the different system evaluation components) are described in the ToC narrative and captured in the logical framework, to guide the development of evaluation criteria. The numbers indicated in brackets (..) after each assumption described in the ToC narrative, relate to the numbered key assumptions on the ToC map.
- The key performance indicators (KPIs) against which the implementation of the EIA system will be evaluated.

Ultimately the map provides a visual illustration of the causal logic between different evaluation components (i.e. design, inputs, activities, outputs, outcomes and impacts) and underpins the ToC narrative and logical framework to be discussed in the following sections. The ToC narrative is based on the evaluation framework and talks directly to the ToC map introduced in the previous section. The narrative is framed against the different system evaluation components i.e. design and inputs; activities and outputs as well as outcomes and impacts**. At the outset it needs to be stressed that the inner logic that underpins EIA systems is prescribed, well understood and established internationally. The South African system is fundamentally similar to the international understanding of how EIA systems function** (IAIA, 1998; Wood, 1999; 2003; Morgan, 2012; Kidd et al, 2018).

Essentially the ToC narrative suggests that:

> *"The EIA system is embedded in legislation (design component), relies on a certain level of skill and competence (input component) to administer and implement a process (activity component), that produces sufficient information captured in an EIA report (output component), to inform decision making (outcome component), on the authorisation or refusal of future activities that might have a detrimental effect on the environment, towards progressively and continually giving effect to the environmental right contained in Section 24 of the Constitution (impact component)."*

The next step in the evaluation was the conceptualisation and completion of the Logical Framework based on the ToC map and narrative. The input, activity, output, outcome and impact components were described and key assumptions identified. It is acknowledged that it is impractical to review every detail of every aspect of an EIA system, hence the need for representative key performance indicators (KPIs). This ensures the practical viability of pursuing a holistic review of the EIA system. The evaluation preferred the use of 'indicators' instead of 'criteria' because indicators suggest that they are indicative, whereas criteria imply precision not always achievable due to the subjective nature of EIA system evaluations (Todd, 2001, p99).

The use of evaluation indicators has the added advantage that conformance to one purposefully designed indicator implies wider performance in other related aspects, which then need not be evaluated separately. The indicators can be traced back to the ToC and inner logic of the EIA system, which implies that the justification for the evaluation indicators relies on the validity of ToC. The following indicator design criteria were used to justify the design of key indicators:

- The linkage between the indicator and the relevant ToC inner logic and key assumptions must be clear. In many cases the indicators are explicitly linked to key assumptions.
- The indicator should be quantitatively and/or qualitatively measurable. The quantitative and qualitative nature of indicators might vary considerably so that subjectivity does become a particular feature of this EIA system evaluation. Ultimately a level of conformance needs to be measured against the set indicators.

- Information and data to address the indicator should be readily available, within time and resources, through the application of scientifically justifiable methods (i.e. documentation evaluation and interviews).
- The indicator should be easy to understand and interpret. However, the nature of the evaluation does not allow for hard and fast unambiguous indicators. Context and case specific interpretation will always be important to their application.

Finally, in light of the distinctly qualitative and investigative nature of the evaluation, the evaluation scale was not fine grained, and relied on judgment by the evaluator about the conformance of the case to the particular indicator (framed as a question). The conformance score is based on multiple sources of data, which includes documentation and interviews. Only three scales are used, namely 'conformance', 'partial conformance' and 'non-conformance'. This broad scale allows for flexibility in the application of the protocol while retaining the logic provided by the ToC. Provision was also made to consider instances where the 'conformance status could not be established' or are 'not applicable'. In this regard it is important to stress that each case evaluation was conducted by more than one suitably qualified evaluator, with appropriate qualifications (i.e. as Environmental Assessment Practitioner - EAP) and at least five years' experience.

Research methods

Recognising that evaluation research typically requires a combination of methods, that rely on rigorous and systematic data collection to deal with the potential complexity of data (Oakley, 2000; Yin, 2017; Miles and Huberman, 1994; Walcott, 1992), two main data gathering methods for the evaluation where used, namely documentation review of selected case studies and interviews. In terms of the case study reviews, agreement on which sectors and number of cases to be evaluated were key considerations in the overall evaluation design. Ultimately it was agreed in the inception report (Bembani, 2017) that this evaluation would cover the following sectors, due to their significance in terms of contribution to the national economy, and the fact that they are clearly subjected to EIA authorisation:

- Agriculture;
- Bulk Services Infrastructure;
- Energy;
- Housing;
- Mining;
- Tourism; and
- Waste Management.

It was recommended six (6) EIA case studies per sector be selected. The information for these cases was obtained from the competent authorities, which included the nine provinces, national DEA and DMR. The sampling was purposive, based on the following EIA case study selection criteria:

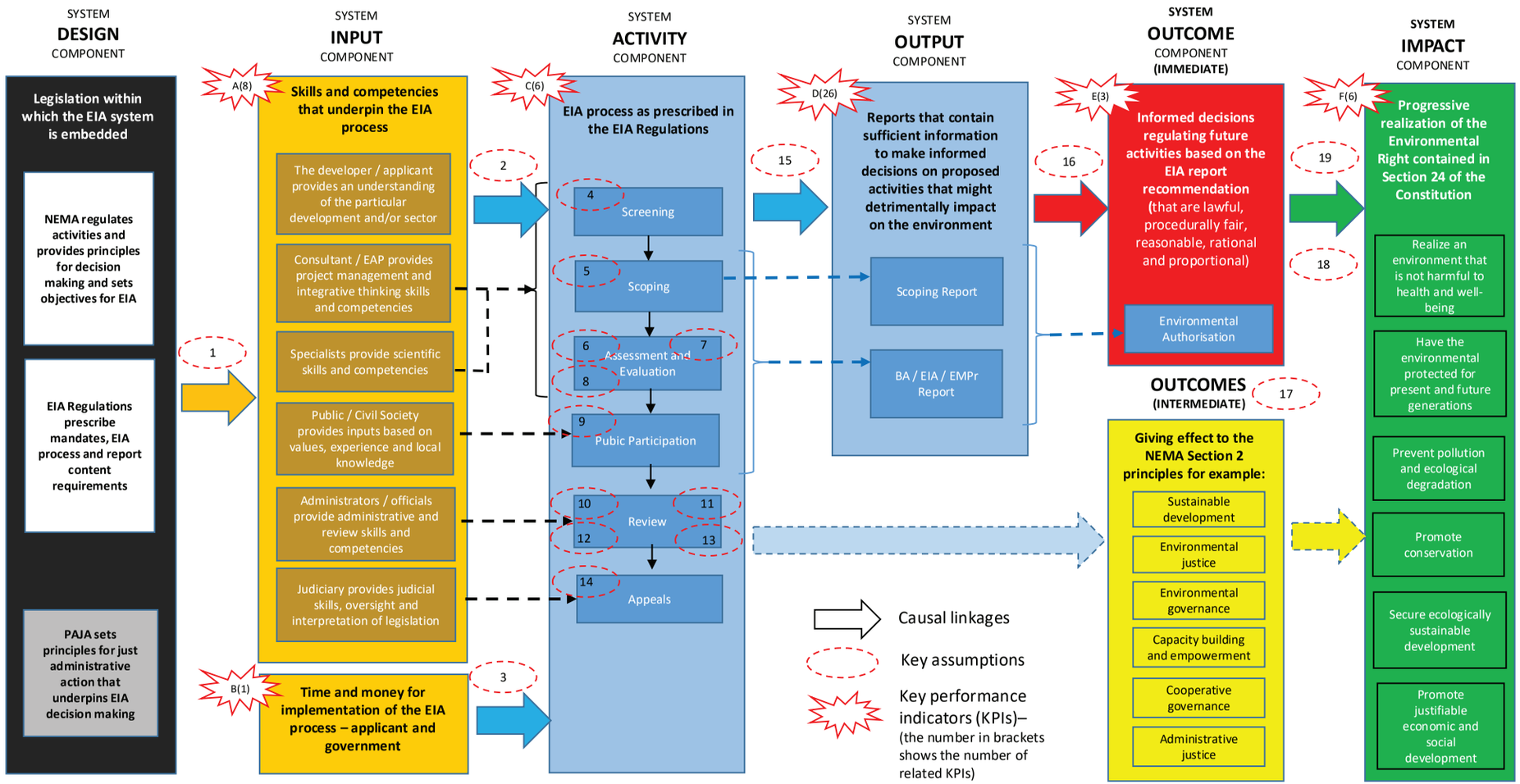
- EIAs for which authorizations have already been issued;
- EIAs where there is full access to the complete case files and documentation;
- EIAs where key stakeholders are accessible for purposes of personal communication (as required); and
- EIAs that together provide a range of scale and complexity (i.e. big and small projects, diverse projects).

Ultimately the environmental authorities provided access to 70 EIA cases (10 per sector) from which the project team then selected 42.

The second data gathering method was interviews. Interviews are particularly important when dealing with the evaluation of intermediate outcomes and impacts. For the purpose of the evaluation the following four broad groups of potential interviewees were identified – for which a total of 20 interviewees were conducted per stakeholder group:

- Applicants or Developers - Those responsible for initiating the EIA: This included for example Engineering consultants, representatives from funding agencies or government officials, responsible for initiating and monitoring of developmental projects, such as sewer systems in municipalities;
- Environmental Assessment Practitioners (EAPs) - Those responsible for conducting the EIA: In most cases external consultants conducted the EIAs. Even in cases where the EIAs are managed 'in house', specialist consultants are usually involved, to review reports and provide specialist inputs on the EIA process.

Figure i: Theory of Change (ToC) map



- Competent Authorities as defined by the NEMA EIA Regulations (CAs): These include government agencies at national and provincial level.
- Non-governmental organizations (NGOs) working in the environmental sector: These include NGOs typically registered as IAPs at part of the EIA process. For the purposes of this study, these NGOs are considered to be representing the general public, as the course they follow is mainly to protect public interest on environmental management.

All interviews were semi-structured although the type of interview varied between open ended and more focused depending on the time available. Interviews were over the phone, face to face or written responses. In the case of the telephone interviews, some were supplemented by written submissions.

The evaluation was also based on an extensive literature review for which a separate report was done. The literature review provided an important reflection on the existing knowledge related to each of the evaluation questions as a point of departure for the evaluation and interpretation of the results. The literature review process entailed the following three steps:

Step 1: A literature search was conducted via the Scopus database of peer reviewed EIA literature. Our literature review used the Scopus database as this includes, at the time of writing, more than 22,800 journals, including all those with a main focus on impact assessment, and more than 150,000 text books. It has been favourably compared by Web of Science in terms of volume of journals and articles covered, both of which are suggested to somewhat bias natural sciences relative to social sciences (Mongeon and Paul-Hus, 2016). As with all searches, the database restricts the results made available. These were constrained to the English language and also to academic sources. Search terms included combinations of “EIA”; “impact assessment”; “performance”; “quality”; “effectiveness”; “cost”; “efficiency”; “developing countries”; “South Africa”. Our literature review was iterative; as we progressed it became clear that additional search terms were required in order to more fully capture relevant literature.

Step 2: A literature search was conducted of the National Research Foundation (NRF) Nexus and National ETD Portal databases which includes all PhD and masters research conducted in South African. We used the search terms “EIA”; “Environment” AND “Impact” AND “Assessment”; “South” AND “Africa” – and a combination thereof. As with the Scopus database our search was iterative until a saturation point was reached.

Step 3: A search was conducted of all policies, legislation and case law related to the South African EIA system. The search relied on environmental law journal searches (such as the South African Journal of Environmental Law and Policy, Potchefstroom Electronic Law Journal) as well as the Lexis Nexis environmental law database. Moreover, the search also included national and provincial environmental department websites.

The main literature review findings as framed against the key evaluation questions, the ToC and the logical framework are summarised below together with the main evaluation findings and recommendations.

Key Evaluation Findings and Recommendations

The data analysis was done according to the methodological approach and methods described (case study reviews and interviews) above and structured around the different evaluation components of the logical framework and ToC evaluation framework. The evaluation was done against purposefully designed KPIs and scored in terms of conformance, partial conformance and non-conformance as stated above and addresses the evaluation questions. The key evaluation findings and recommendations are summarised in the table on the next page.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
DESIGN (See Assumption 1 on Figure 3-1 and section 3-1)	What are the objectives of EIA in South Africa?	• EIA System is prescribed and vested in law. • Realisation of the environmental right described in Section 24 of the Constitution of the Republic of South Africa. • Promotion of the Section 2 principles of NEMA. • Achievement of sustainable development as defined in NEMA and relevant case law. • Ensure the realisation of section 33 of the Constitution which requires just administrative action	• No recommendations. However, there are various recommendations listed below which might require law reform which will change the design component towards improving the overall system performance.
INPUT: SKILLS AND COST (See Assumptions 2-3 on Figure 3-1 and section 3.1)	How is EIA expected to achieve its objectives?	• EIA recognises the validity of quantitative and qualitative data, thereby accommodating more subjective elements of impact predictions, values and views as well as objective evidence. EIA is understood to be both value judgement and scientific. • The state is mandated to authorise and regulate activities, after considering the potential consequences or impacts of these activities on the environment. • Legislation provides clear procedural and content requirements as basis for decision making, which requires decisions to be procedurally fair, lawful and reasonable (rational and proportional). • The decision making mandate is vested with provincial and national spheres of government where administrative capacity is provided. • The implementation of the EIA system is reliant on sufficient inputs around skills and competencies as well as time and money.	• No recommendations. See recommendations described below related to key evaluation questions on skills and competencies as well as cost.
	Is there sufficient skills and competencies to implement the EIA System?	• The consultant qualifications seem to meet NQF level 8 standards. However, the fields of study vary widely, with seemingly no standardised EIA training. Therefore, it is difficult to gauge the extent of skills and competencies related to different programmes. Although the experience of consultants was not always verifiable, many had more than five years' experience. • The specialist skills and competencies can be clearly divided between those specialist fields with focussed qualification and registration authorities such as the ecologist, archaeologists, heritage specialists, engineers, etc. and those who don't such as SIA, VIA, noise impact assessment, etc. The line of distinction seems to be between the so-called hard and soft sciences. The lack of specific training and registration options for certain fields of specialisation continue to present a particular challenge to the credibility of the EIA outcomes. • Officials seem to be qualified in relevant fields of study with reasonable experience beyond two years. However, from the cases evaluated there seems to be a particular need for officials to extend their qualification to NQF level 8.	• There is a need to verify the incorporation of the developed unit standards for environmental assessment practitioners across different university programmes. This action should aim to address the need for standardised training for EAPs across different programmes. We suspect that this function will typically reside with EAPASA. • Ideally certain fields of specialisation commonly used in EIA, should be working towards formal qualification standards and registration bodies to strengthen the credibility of the EIA outcomes. In particular, SIA and VIA. • Provision needs to be made to confirm the designation of the individual EAP/consultant throughout the process. This is to ensure that responsibility and accountability can be assigned. • There seems to be a specific need for further post graduate studying opportunities for government officials, in view of the fact that many don't comply with NQF level 8. Interaction between tertiary education bodies and environmental authorities might be required.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
	What has been the economic impact of the EIA process on identified sectors? (See KPI 1.1)	• There is no existing literature on the full economic impact of EIA on specific sectors in South Africa. • Determining the economic impact of EIA is exceedingly difficult from a conceptual and methodological perspective. • Research based on 148 cases suggests that the average direct cost of EIA in South Africa is particularly low compared to international EIA systems. • As a percentage of total project costs (international benchmark being 1% of total project cost), EIA in South Africa compares with the higher spectrum of international practice. This suggest that a large number of EIAs are being conducted for relatively small scale projects, which might be placing a notable cost burden on small and medium enterprises. • Certain sectors are more effected than others. The EIA requirements for big projects in the mining, energy, bulk services and housing sector for example, with potential significant impacts, do not seem to present a major cost burden to the sector and support the assumption that the benefits of EIA outweigh the costs. • It seems evident that a meaningful economic burden result for certain projects in the agriculture and waste sectors such as small scale waste management and small scale agricultural developments. In these cases, the cost benefit of EIA in questionable. However, this economic burden could be addressed should the EIA regulatory requirements be applied in a more discretionary manner, taking to account for example project size, location and environmental impact during the application and screening phase. There should be a mechanism n law to allow for discretion around the need for and extent of EIA related to such small projects.	• To amend the current screening mechanism for small to medium size activities in order to reduce the EIA regulatory cost burden. However, the environmental impact is not only a function of project size, for example the high potential impact of feedlots and waste management facilities. Therefore, we recommend a referral system which requires interpretation and discretion by government on the need for and extent of EIA required on a case by case basis for lesser impact activities (typically listed in the current listing Notice 1). This approach is common internationally and reflects the options for exemption and/or exit after scoping under the previous ECA regime. The current initiatives around EMF and delisting as well as Listing Notice 3 could also contribute.
ACTIVITIES (See Assumptions 4-14 on Figure 3-1 and section 3.1)	To what extent has the EIA process been efficiently implemented?	• Measured purely against meeting the legal timeframes as prescribed under different EIA legal regimes, a high level of efficiency has been achieved. The procedural amendments introduced through the 2014 EIA Regulations seemed to have consistently produce EIA processes of around 300 days. • The EIA system therefore presents a high degree of procedural certainty in terms of timeframes. This result is significant from an indirect cost perspective because it suggests that developers can have a high degree of certainty in terms of the EIA timeframes, which could then be built into project planning to avoid delays and related construction cost inflation.	• It is worth highlighting that under the ECA EIA regime 50% of applications were completed within six months and around 30% received Section 28A exemption. Therefore, the ECA regime produced arguably the best efficiency results measured purely against number of days from registration to decision. The mechanisms under ECA that made this possible was exemption provisions (during screening) and early exit options (after scoping). The latter however, was supported by allowing a degree of government discretion and overall more procedural flexibility. To further improve efficiency, it is recommended that early exit options be considered, for example during the screening and scoping phases of the EIA process.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
			• The total number of EIA consultants in South Africa is not known and impossible to determine through traditional surveys. However, the registration database to be developed by EAPASA over the next few years should provide a clearer picture of the number of EAPs in the private and public sector. Once the numbers are known, it should be possible to develop a capacity formula for government that sets an optimum standard in terms of the number of EIAs assigned per official, to guide capacity decisions related to the profession in future.
OUTPUT (See Assumption 15 on Figure 3-1 and section 3.1)	What is the quality of EIA reports and processes?	• The evaluation shows that in terms of 'completeness' the cases performed well. The detailed legislative requirements and prescribed report templates no doubt assisted in producing completeness. • The report quality in terms of 'substance' performed poorly in relation to dealing with aspects such as alternatives, significance and mitigation. • Explanations on why the quality of EIA reports were weak in terms of 'substance' remain somewhat speculative, although certain causal arguments could be made. For example, causal questions could be asked: o To what extent the drive for procedural efficiency is eroding the substance quality of EIA reports? o How is it that consultants with seemingly appropriate training and experience produce weak substance reports? o Why do government officials with seemingly appropriate qualifications and experience approve weak substantive reports? o How is it possible that across 42 EIAs (in seven sectors including mining, bulk services infrastructure, energy, etc.) not a single case found a high significant impact after mitigation? Can all impacts therefore be mitigated to low and medium significance?	• It is evident that clarification around the concept of significance is needed to improve the quality of EIA report substance. In particular, a common understanding is needed in terms different methodological approaches to significance. It is therefore recommended that clarification and guidance be provided from a legal and methodological perspective. Improving EIA quality in terms of significance will indirectly also positively address a number of other weaknesses such as need and desirability, alternatives and mitigation. • It is recommended that both the EAPs and CAs consider life-long learning and capacity building through continuing professional development programmes. Where feasible, these should be part of personal development plans
OUTCOME (See Assumption 16 on Figure 3-1 and section 3.1)	To what extent has EIA influenced decision making?	• The evaluation results show that overall, with some minor exceptions the environmental authorisations were lawful in that the activities approved correlated with the activities applied for. • The good performance in terms of procedural efficiency and compliance suggest that the decisions were generally procedurally fair, based on the legislative standards. The compliance in terms of public participation requirements also supports this conclusion.	• The recommendation to improve the outcomes of the EIA system (i.e the decision making) relates to the improvement of the substantive quality of the EIA report described above.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
		• The content and environmental authorisations did reflect the content and recommendations from the EIA report and therefore a level of reasonableness (which includes rationality and proportionality) was achieved. However, many EIA reports produced weak substance on which to base decisions, which puts into question the quality of decisions made from a substantive perspective. So the question is: o Can we make good decisions based on substantively deficient EIA report quality? o Are lawful, procedurally fair and reasonable decisions enough to make an impact?	
IMPACT (See Assumptions 17-19 on Figure 3-1 and section 3.1)	To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?	• The interview results show that the perceived impact of the EIA system do speak directly to important NEMA Section 2 principles as well as the content of Section 24 of the Constitution. The only aspect of Section 24 not explicitly achieved to some extent seems to be the promotion of conservation outcomes. • The overall outcome of the system evaluation supports the international understanding (discourse) that EIA systems produce incremental gains contributing towards sustainability (see Pope et al 2017). In the case of South Africa, the incremental gains refer to the progressive realization of NEMA Section 2 principles and Section 24 of the Constitution. • It is not possible to measure the impact of the EIA system towards specific goals or objectives because the objectives of EIA defined in NEMA and Section 24 of the Constitution has not been quantified (if this is even possible?).	• The system evaluation suggests that as it stands, the impact of the EIA system cannot be measured and/or evaluated until such time as well defined and measurable objectives are developed. This is due to the lack of quantifiable and well defined targets and objectives for the EIA system as a whole, as well as the contextual nature of the concept “sustainability”. .

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1 INTRODUCTION

This section starts by providing background to EIA as a policy implementation intervention (section 1.1), which is followed by a background explanation to the evaluation itself (section 1.2) and a description of its purpose (section 1.3). It concludes with a summary of the key evaluation questions (section 1.4).

Background to EIA as a Policy Intervention

Environmental Impact Assessment (EIA) is internationally one of the most widely adopted policy implementation instruments, introduced in more than 180 countries world-wide (Morgan, 2012). South Africa has a long and proud history of environmental assessment practice dating back to the 1970s (Mafune *et al,* 1997; Sowman *et al,* 1995; Kidd *et al,* 2018). However, EIA has only been legally mandated since 1997 in South Africa, initially through the Environment Conservation Act (ECA), Act No. 73 of 1989, followed by the National Environmental Management Act (NEMA), Act No. 107 of 1998. The main purpose of EIA is to serve as a policy implementation instrument to deliver on our so-called 'environmental right' contained in Section 24 of the Constitution as well as delivering on the objectives of NEMA. The literature review that accompanies this evaluation provides a detailed discussion on the historic evolution of the EIA system as well as the legal mandate for EIA in South Africa (Bembani, 2017, p12-40). As a brief background, this section highlights the following main shifts in the understanding of EIA since its inception, namely:

- First, there was an early move in the development of EIA in South Africa away from a focus on the biophysical environment or conservation to dictate dealing with the integration of sustainability with decision-making, therefore introducing a broad understanding of the term 'environment'.
- Second, the need to legislate EIA has led to the concept becoming increasingly prescriptive and rigidly strait jacketed in relation to the defined legal mandate, a move away from the need for flexibility and issues-driven approaches during the early years of EIA application.
- The lack of a clear distinction between Integrated Environmental Management (IEM) and EIA been the cause of much confusion. It has been argued that the concept of IEM is too narrow to deal with the full extent of environmental management and too wide to be considered only as EIA. Subsequently environmental management and EIA has drifted away from the IEM concept towards new understandings of environmental management and assessment. The 2014 National Environmental Impact Assessment and Management Strategy (EIAMS) reflects the most recent thinking around the interface between EIA and environmental management in South Africa (DEA, 2014).
- The limitations of project-level EIA have led to the realisation that EIA requires a wider remit to also include strategic level assessment. During the early years of IEM this was referred to as the assessment of policies and programmes, followed by the introduction of strategic environmental assessment (SEA) during the mid-1990s. A number of strategic environmental management instruments have been developed and legislated in the last decade to support project level EIA decision making such as Environmental Management Frameworks (EMFs), State of the Environment Outlook Reports (SEOR), etc. (see for example Retief et al, 2008; Retief et al, 2011a; Marais et al, 2015; Cilliers and Retief, 2017).

Table 1-1 provides a summary of EIA benchmark events, which suggest that four stages can be distinguished in the evolution of the South African EIA system, namely inception, formation, formalisation and refinement. Each stage represents a change in understanding and approach to EIA, which in turn was affected by a combination of international thinking and local experience and requirements.

Table 1-1: Historic EIA benchmark events in South Africa (Source: Kidd *et al,* 2018)

	UP TO EARLY 1990s — INCEPTION
1976	South African Council for the Environment Report: The report proposed methods and procedures for environmental evaluation in South Africa.
1979	Symposium 'Shaping our environment': Emphasised the value of EIA as an aid to the management of environmental change to incorporating principles of EIA into guidelines for use by professional planners.
1980	White Paper on a National Policy Regarding Environmental Conservation: Aimed to formulate a national policy on environmental conservation and proposed that the environment (both natural and manmade) should become a normal consideration in the planning and development cycle of projects.

	Environmental Planning Professions Inter-disciplinary Committee: Proposed guidelines to assist planning professionals in taking environmental aspects into account.
1982	Environment Conservation Act 100 of 1982: Provided for the establishment of a statutory Council for the Environment, which played a significant role in the development of EIA thinking.
	The President's Council: (an advisory council to the President) requested to advise on the principles according to which priorities between development and conservation can be stated.
1983	Council for the Environment and a subcommittee for EIA: The EIA Committee initiated research, workshops and consultation on EIA to develop a mechanism that would suit the South African context.
1984	President's Council: Published two reports that requested compulsory introduction of EIA for development projects outside Guide Plan areas.
1985	National Workshop on the significance and necessity of EIA: Government officials, professionals and academics indicated unanimous support for the introduction of EIA as part of a 'comprehensive holistic planning procedure'.
1987	Working Group (consisting of the EIA Committee and members of the Council for the Environment): Was appointed to develop the philosophy on environmental assessment for South Africa.
1989	Environment Conservation Act 73 of 1989: Made provision for an environmental policy (Section 2) and EIA (Sections 22, 23 and 26).
	Integrated Environmental Management (IEM) report: Set out the principles and a procedure for the evaluation of policy, programmes and projects.
	EARLY TO MIDDLE 1990s — FORMATION
1992	IEM Guideline Series reports: Served as guidance on the implementation of IEM.
	EIA for the Eastern Shores of Lake St Lucia: Presented the largest and most expensive assessment at the time conducted according to IEM philosophy and included both strategic and project level issues.
	MIDDLE 1990S TO MIDDLE 2000s — FORMALISATION
1996	SEA — a Primer Report: Aimed to initiate debate in order to develop an agreed convention or protocol on SEA in South Africa.
1997	EIA Regulations: Promulgated in terms of ss 21, 22 and 26 of the Environment Conservation Act 73 of 1989 for listed project level actions only.
1998	White Paper on an Environmental Management Policy for South Africa: Laid the foundation for SEA to be included into future legislation.
	IEM Discussion Document: Aimed to clarify IEM for environmental authorities and the private sector before it became legislated.
	National Environmental Management Act 108 of 1998 (NEMA): Included enabling legislation for EIA under Chapter 5.
2000	SEA Guidelines for South Africa: Set out a definition, approach, principles and process elements for SEA.
2004	NEMA Amendment Act 8 of 2004: Included specific enabling provisions for SEA.
	IEM information series 10: Provides an introductory information source on SEA.
	FROM 2006 ONWARDS — REFINEMENT AND SECTORAL EXPANSION
2006	2006 EIA regulations: Provides the first EIA Regulation in terms of section 24 of NEMA
	2006 Guideline Series on EIA: The guideline series aims to provide a user-friendly interpretation of the EIA Regulations
	Amendments to 2006 EIA Regulations: The amendments aim to refine definitions and listed activities
2007	Updated SEA Guidance: The updated SEA guidance provides a description of practice and the different interpretations of SEA in South Africa
2009	Regulations for listed activities - Waste Management: This Act provides specific EIA requirements for waste management related activities
	2010 EIA Regulations: Revision and refinement of the 2006 EIA Regulations in terms of section 24 of NEMA
2010	2010 Guideline Series on EIA: The guideline series aims to provide a user-friendly interpretation of the EIA Regulations
	Regulations for listed activities - Air Quality: This Act provides specific EIA requirements for air quality related activities
2014	Introduction of EMF Regulations: Introduction of EMF Regulations as a decision support tool for EIA and strategic planning
	2014 EIA Regulations: Refinement and replacement of the 2010 EIA Regulations in terms of section 24 of NEMA
	2014 Listing Notices: Refinement and replacement of the 2010 EIA Listing Notices with a view to strengthen the screening mechanism for EIA.
	Establishing of the "One Environmental System"

Background to the EIA System Evaluation

Periodical system evaluation is considered a key component of any well-functioning EIA system, with various system evaluations having been conducted internationally (Sadler, 1996; Arts, 1998; Thissen, 2000; Wood, 2003; Morrison-Saunders and Arts, 2004; Jones, *et al*, 2005). Following a competitive bidding process, the Department of Planning, Monitoring and Evaluation (DPME) appointed Bembani Water Solutions (Pty) Ltd (Bembani) to undertake an evaluation of the EIA System's Implementation in South Africa. As highlighted in the ToR (DPME, 2017, p2), EIA is sometimes perceived as a barrier to development due to its requirements for rigorous participatory processes and scientific investigation which may often be viewed as time-consuming and expensive. There is also a general and ongoing concern about the efficiency, quality and effectiveness of the EIA system. The first attempt to conduct a system evaluation was after a decade of mandatory EIA practice in 2008 (DEAT, 2008). Following on from the 2008 evaluation study a process was launched to formulate a new strategy for Integrated Environmental Management (IEM) which came to be known as the Environmental Impact Assessment and Management Strategy (EIAMS, 2014). In view of the fact that the last system review was around a decade ago, and in support of the publication of the EIAMS in 2014, now is considered a particularly opportune time to evaluate the EIA system in South Africa.

Purpose of the Evaluation

The purpose of the evaluation is described in the ToR as follows (DPME, 2017, p3):

> *"The evaluation aims to assess whether or not the EIA process contributes to sustainable development and to provide recommendations on how the implementation of the process can be strengthened. This will also involve the development of indicators for reporting on the economic impact of the environmental impact assessments process on identified sectors that have been authorised."*

Key Evaluation Questions

Three key evaluation questions are put forward in the ToR in relation to the purpose of the evaluation, namely (DPME, 2017, p3):

1) To what extent has the EIA process been efficiently implemented?
2) To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?
3) What key insights, lessons, and recommendations are offered, for improvement of the EIA process?

The ToR also included so-called guiding questions which were also considered, refined and agreed as part of the inception phase of the project (DPME, 2017, p3-4). Ultimately the evaluation focussed on the following key evaluation questions – as summarised in Table 1-2 in relation to the different theory of change and logical framework components. The relation between the questions and the different components will be further explained in sections 2 and 3 below.

Table 1-2: Key evaluation questions (Bembani, 2017a)

EVALUATION QUESTIONS	Related Evaluation Components (compare Figure 3-1)
What are the objectives of EIA in South Africa?	Design
How is EIA expected to achieve its objectives?	Input
Is there sufficient skills and competencies to implement the EIA system?	Input
What has been the economic impact of the EIA process on identified sectors?	Input
To what extent has the EIA process been efficiently implemented?	Activity
What is the quality of EIA reports and processes?	Output
To what extent has EIA influenced decision making?	Outcome
To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?	Impact

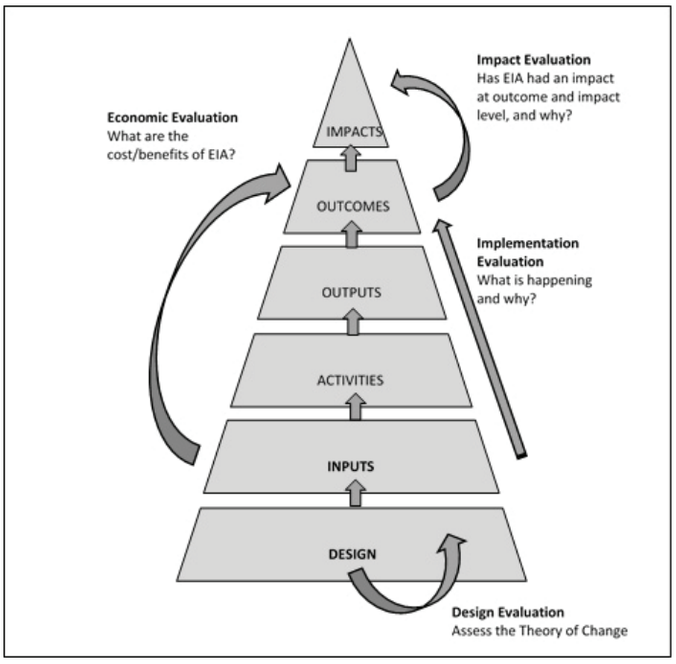
2. METHODOLOGY

The methodology for this evaluation was designed in line with relevant DPME policies and guidelines as well as experience with EIA system review nationally and internationally. This section briefly describes the evaluation framework (section 2.1) and methods (sections 2.2) as well as limitations to the evaluation (section 2.3). For a more detailed description of the methodology please refer to the Theory of Change and Methodological Design Report (Bembani, 2018).

2.1 Evaluation Framework

Essentially this project entails an evaluation of environmental impact assessment (EIA) as a 'policy implementation instrument', which could be considered synonymous with the evaluation of a policy intervention. The framework used for this evaluation is based on the results-based management pyramid recommended by the National Treasury and DPME (2011) as a preferred approach to evaluation. There is a traceable logic to the design of EIA as a policy implementation instrument which can be explained through logic models and/or Theory of Change (ToC) thinking in relation to the results-based management pyramid. In other words, explained through the causal logic chain between the design, activities, outputs, outcomes and impacts – as shown in Figure 21. It supports the hypothesis that if we implement certain interventions and achieve certain outputs we can expect certain outcomes and impacts (subject to certain clearly articulated assumptions). In relation to the results-based pyramid, the National Evaluation Policy Framework (NEPF) (DPME, 2011) introduces certain types of evaluation, focussing on specific areas in the causal logic chain, as also illustrated in Figure 2-1. This evaluation is mainly an 'implementation evaluation' as defined by the NEPF (DPME, 2011), although admittedly the evaluation questions included in the ToR do extend the scope of the evaluation to also include elements of 'impact evaluation'.

Figure 2-1: Results-based pyramid - relation of different types of evaluation (DMPE, 2011)



Therefore, in order to address the purpose and key evaluation questions set out in the ToR (and described in sections 1.3 and 1.4), the entire pyramid needs to be covered in the design of the ToC narrative, from design through to impact. The challenge for this evaluation is therefore to develop a logical framework and criteria specifically for EIA system evaluation by adapting the results-based management pyramid as a preferred framework. Indicators need to be developed across the different review components, and then applied to multiple case studies. Ultimately the result of the evaluation needs to be fed back in the form of recommendations to improve the system design and the implementation of the system. The latter is also part of the logical framework approach and ToC testing – which aims to reverse-engineer the evaluation results.

The literature review has shown that evaluation research is well established in the EIA field and that frameworks for evaluation have also already been developed (Retief, 2007). For a detailed discussion on existing frameworks, see section 2.1 in the Literature Review Report (Bembani, 2018). Although it is recognised that the ToC approach is preferred for DPME evaluations, there exist three main weaknesses of applying it to EIA system evaluation, that will be highlighted below:

- The first is that the inner logic of EIA has already been developed, agreed upon and prescribed in legislation, so the ToC in this process reflects a description of what is and what exists, which does not lend itself well to a process where the ToC is expected to be 'designed' through for example a participatory process.
- Secondly, the aims of the EIA system are very difficult to measure and in most cases are not quantifiable, different to other interventions which typically rely on well-defined and quantifiable outcomes and impacts. Moreover, the success of EIA in achieving its aims (or having an impact) can only be determined over years or even generations.
- Thirdly, the ToC approach is underpinned by the assumption that rational causal linkages exists across the different components, which is highly questionable and does not recognize the complexity of pursuing sustainability and the resultant complexity of decision making, which is not always a purely linear process. This makes claims of causality very difficult. In short, it implies an oversimplification of the world which is not always borne out by reality.

It is mainly due to these weaknesses that ToC approaches are not generally used in EIA system evaluations internationally. Therefore, an adaptation of the ToC approach was applied to this evaluation, where these three weaknesses were addressed in the ToC process and methodological design.

2.2 Evaluation Methods

Evaluation research typically requires a combination of methods, that rely on rigorous and systematic data collection to deal with the potential complexity of data (Oakley, 2000; Yin, 2017; Miles and Huberman 1994; Walcott, 1992). The next sections briefly describe the two main data gathering methods for the evaluation, namely case study evaluations and interviews.

2.2.1 Case Study Evaluation

Experience in evaluation research suggests that case study approaches are particularly appropriate and that a detailed investigation of 'cases' rather than 'samples' is preferred (Eisenhardt, 2002; Yin, 2017). This is particularly true for the South African EIA system where thousands of EIAs are conducted annually, which makes a representative sampling approach unviable. The strongest evaluation studies also seem to have used comparisons between cases, *"The flexibility in design and execution of the case study, together with the fact that most evaluations are concerned with the effectiveness and appropriateness of an innovation or programme in a specific setting, make the case study strategy appropriate for many evaluations."* (Robson, 2002, p205).

Agreement on which sectors and number of cases to be evaluated were key considerations in the overall evaluation design. Ultimately it was agreed in the inception report (Bembani, 2017) that this evaluation will cover the following sectors, due to their significance in terms of contribution to the national economy, and the fact that they are clearly subjected to EIA authorisation:

- Agriculture;
- Bulk Services Infrastructure;
- Energy;
- Housing;
- Mining;
- Tourism; and
- Waste Management.

The question of how many cases to select per sector was a difficult one. While the literature propagates the use of more case studies to improve the robustness of results (Schofield, 2002; Yin, 2017) there is the understanding that a so-called 'saturation point' can be reached where the addition of extra cases would not significantly add to the results and conclusions. However, the availability of resources, more often than not, plays an important part in determining how many cases would be viable and real saturation might only be reached over years of follow-up research. This evaluation

supports the view of Eisenhardt (2002, p27) who concludes that,

> *"Finally, while there is no ideal number of cases, a number between 4 and 10 cases usually works well. With fewer than 4 cases, it is often difficult to generate theory with much complexity, and its empirical grounding is likely to be unconvincing, … With more than 10 cases, it quickly becomes difficult to cope with the complexity and volume of data."*

Therefore, we recommended the selection of six (6) EIA cases per sector. The information for these cases was obtained from the eleven competent authorities, which included the nine provinces, national DEA and DMR. The sampling was purposive, based on the following EIA case selection criteria:

- EIAs for which authorizations have already been issued;
- EIAs where there is full access to the complete case files and documentation;
- EIAs where key stakeholders are accessible for purposes of personal communication (as required); and
- EIAs that together provide a range of scale and complexity (i.e. big and small projects, diverse projects).

Ultimately the competent authorities provided access to 70 EIA cases from which the project team then selected 42. The selection aimed as far as possible to select cases from across environmental authorities to get a national profile of cases. This second round of selection across authorities is to avoid perceptions of manipulation by the environmental authorities and to ensure that the final case selection is as objective as possible. It must however be stressed that the evaluation did not include a competent authority specific analysis, i.e. analysis of the performance of specific authorities. The methodological design did not allow for this.

The documentation evaluation refers to all documentation related to the EIA application for each EIA case study as contained in the project files. The evaluation of the documentation informed the analysis of the inputs, activity, outputs and immediate outcome components. The evaluation was scored against purposefully designed KPIs as reflected in the logical framework – see Appendix B. An evaluation sheet served as the main evaluation instrument for the documentation evaluation – see Appendix C. The result of the documentation evaluation for each case was scored and justified per KPI as being conformed (A), partially conformed (B) and non-conformed (C). A summary of all the evaluation results across all 42 cases and all the KPIs are included in Appendix D.

2.2.2 Interviews

Interviews are particularly important when dealing with the evaluation of intermediate outcomes and impacts. This is because the intermediate outcomes and impacts are not always reflected in the documentation. For example, interviews with different role players is the only way to gauge the extent the EIAs gave effect to administrative justice (intermediate outcome) and/or contributed to ecologically sustainable development (impact). The main questions considered as part of the interview design were, 'who to interview?', 'what types of interview would be most suitable?' and 'which questions to ask?'. As proposed by Yin (2017), the lines of enquiry for the interviews are based on the evaluation indicator questions. Thus, it was necessary to determine who would be able to deal with the particular line of enquiry, and what type of interview would be best suited for that individual, given the time available for the interview and the logistics involved. For the purpose of the case study evaluation the following four broad categories of potential interviewees were identified – for which a total of 20 interviewees were conducted per stakeholder group:

- Applicants or Developers - Those responsible for initiating the EIA: This included for example Engineering consultants, representatives from funding agencies or government officials, responsible for initiating and monitoring of developmental projects, such as sewer systems in municipalities;
- Environmental Assessment Practitioners (EAPs) - Those responsible for conducting the EIA: In most cases external consultants conducted the EIAs. Even in cases where the EIAs are managed 'in house', external and specialist consultants are usually involved to review reports and provide specialist inputs on the EIA process;
- Competent Authorities as defined by the NEMA EIA Regulations (CAs): These include government agencies at national and provincial levels; and
- Non-governmental organizations (NGOs) working in the environmental sector: These include NGOs typically registered as IAPs at part of the EIA process. For the purposes of this study, these NGOs are considered to be representing the general public, as the course they follow is mainly to protect public interest on environmental management.

The evaluation had to ensure sufficient representation from each category to satisfy the particular line of enquiry. Appendix C provides the interview design sheet with all the interview questions, also those related to the six impact KPIs. All interviews were semi-structured although the type of interview varied between open ended and more focused depending on the time available. Interviews were over the phone and face to face, supplemented by written submissions (where this was needed). They ranged in time from 15 to 45 minutes. The results of the interviews are analysis in relation to the impact component described in the ToC map.

2.3 Limitations of the Evaluation

The following limitations are highlighted:

- How to generalise from case study research has been a topic of debate amongst scholars for decades. To deal with this question the evaluation followed so-called 'replication logic' and not 'sampling logic' (see Yin, 2017). Thus the research did not make broad generalizations but rather context specific conclusions that could be expected to replicate under similar conditions or within similar contexts/sectors;
- Defining what is meant by 'cost' is a particular challenge for the evaluation. The authors have already done conceptual and empirical research in this regard, specifically in relation to EIA (see for example Retief *et al,* 2007; Retief, 2010). These challenges are described against the data analysis dealing with the cost input component;
- Measuring the contribution of EIA to sustainability is difficult to conceptualise and evaluate empirically. Also in this regard the authors have done meaningful research (see for example Retief, 2011; Retief, 2013). The interview method which mainly tests perceptions of different stakeholders was mainly used to deal with this challenge, as it is common practice internationally (see for example Arts, *et al*, 2012; Lyhne *et al*, 2017; Loomis and Dziedzic 2018);
- Dealing with causality is a general challenge associated with case study and evaluation research. For example, there are many external influencing factors that affect outcomes and the impact of EIA. Therefore, it is important that the ToC and logframe be designed to allow for reasonable and rational explanations, with clearly defined assumptions;
- Measurement and interpretation of results: Use of terms such as 'conformance evaluation' instead of 'compliance audit' and 'indicators' instead of 'criteria' are acknowledgement of the complexities involved in measuring EIA system performance;
- Weighting of indicators: It is acknowledged that certain inputs and activity indicators are more significant in influencing outputs and outcomes than others. However, until a better understanding is gained of how the EIA system functions, it would not be desirable to prioritise or weight the relevant importance of each indicator. Following the logic and assumptions contained in the ToC does however provide a rational basis for arguing the relative importance of different indicators; and
- Limited baseline data and/or targets for indicators: The indicators used in this system evaluation had to be designed from scratch and therefore no blueprint in terms of targets and indicators existed, together with limited existing baseline data.

2.4 Capacity Development Element

Bembani has created and implemented a Skills Transfer Framework on a number of projects that we had worked on. This entailed involving qualified, but inexperienced persons on aspects of the projects, monitoring and measuring progress on skill transfer over time, and providing feedback to both the skill transfer candidates and also the client, at regular intervals. In essence, this includes mentoring and coaching the incumbents, and reporting on progress.

Similar model was proposed for implementation in the EIA Evaluation project as well. In particular, skills transfer candidates were to be engaged during the development of the logical framework as well as during the evaluation of the case studies. Typically, quality evaluation of EIA reports requires more than one evaluator to calibrate results. The Bembani project team intended to involve junior personnel from DEA and other departments in the review process to share and transfer knowledge and experience.

However, no candidates were availed by DEA or any of their provincial Departments for engagement on the skills transfer exercise, as intended. Notwithstanding, the DEA had reported that a number of their junior and inexperienced personnel had been central in the collection of the data files that had been the subject of evaluation, and it is believed that some data gathering skills had been transferred during the process.

3. THEORY OF CHANGE

This section describes the ToC approach followed in conducting the EIA system evaluation as set out in section 2.1 above.

3.1 Theory of Change Map and Narrative

This section explains the ToC map to be used for this evaluation – see Figure 3-1. The content of the map is designed based on the literature review and stakeholder workshop, which communicates the following:

- The causal logic between the different evaluation components from design of the EIA system to the eventual impact it aims to achieve;
- The various key assumptions that underpin the causal logic. These assumptions (there are 19 assumptions across the different system evaluation components) are described in the ToC narrative and captured in the logical framework, to guide the development of evaluation criteria. The numbers indicated in brackets (..) after each assumption described in the ToC narrative, relate to the numbered key assumptions on the ToC map; and
- The key indicators against which the implementation of the EIA system will be evaluated.

Ultimately the map provides a visual illustration of the causal logic between different evaluation components (i.e. design, inputs, activities, outputs, outcomes and impacts) and underpins the ToC narrative and logical framework to be discussed in the following sections. The ToC narrative is based on the evaluation framework (see section 2.1) and talks directly to the ToC map introduced in the previous section. The narrative is framed against the different system evaluation components i.e. design and inputs; activities and outputs as well as outcomes and impacts**. At the outset it needs to be stressed that the inner logic that underpins EIA systems is prescribed, well understood and established internationally. The South African system is fundamentally similar to the international understanding of how EIA systems function** (IAIA 1998; Wood 1999; 2003; Morgan 2012; Kidd et al, 2018).

Therefore, the ToC narrative presented here should be generally clear and understood by anybody working in the field. This also means that the inner logic of how an EIA system works is prescribed and known, and cannot for example be changed / 'designed' / 'agreed upon' at a workshop – it is what it is. The inner logic is based on almost half a century of international EIA practice, and more than two decades of South African EIA practice, and is breathtakingly simple as summarised in the statement below. So the fact that the inner logic of EIA is prescribed and agreed makes the whole design of ToC somewhat redundant because we are actually merely describing how EIA works, and our description is either right or wrong (or possibly incomplete) – but cannot be changed. This is very different to the evaluation of interventions where the inner logic still needs to be developed and/or designed. In actual fact, for EIA system evaluation, a case could well be made to skip the 'design of ToC' step and move right onto the evaluation itself, which is standard practice internationally. So the ToC described in this section is not controversial or contentious and was not 'designed' – but accurately describes the agreed inner logic of how the EIA system works, as well as the assumptions that underpin the logic.

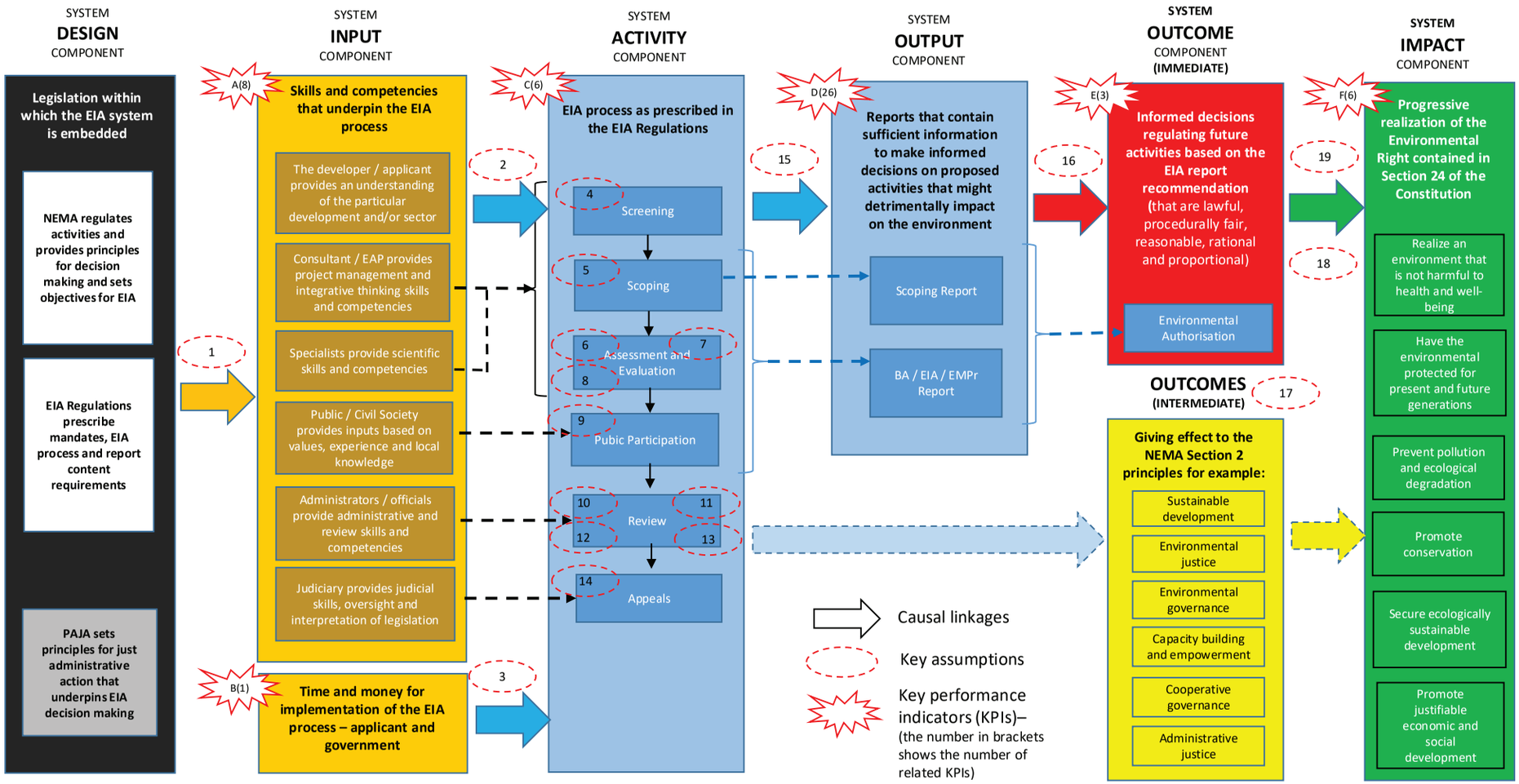
Essentially the ToC narrative suggests that:

"The EIA system is embedded in legislation (design component), relies on a certain level of skill and competence (input component) to administer and implement a process (activity component), that produces sufficient information captured in an EIA report (output component), to inform decision making (outcome component), on the authorisation or refusal of future activities that might have a detrimental effect on the environment, towards progressively[1] and continually giving effect to the environmental right contained in Section 24 of the Constitution (impact component)."

The following sections will expand further on the above inner logic statement. The narrative of the inner logic should be read from left to right on the ToC map (Figure 3-1) and starts with a discussion of the design and input components in the next section.

1 *It is recognized by the authors that section 24 is not as progressive per se however an argument is made that achieving section 24(b) of the Constitution in so far as sustainable development is concerned is a progressive task, and thus the notion that of progressive realization. As the evaluation in essence is focusing on the contribution of EIA to sustainable development, the authors refer to the progressive realization of section 24 throughout the report being mindful of the fact that section 24(a) is for all intents and purposes an immediate right in so far as health and wellbeing are concerned.*

Figure 3-1: Theory of Change Map



3.1.1 Design and Input Components

Summary definition:
Design and input components deal with the resources that contribute to the delivery of the activities and output component (DMPE, 2011). **In this case the design and input components relate to the design of and inputs to the EIA system as reflected and prescribed in EIA legislation as well as skill and competency requirements.** Ultimately the system is embedded in legislation and implemented through certain skills and competencies. Understanding of the design and input components is used as the basis against which to analyse the ToC, inner logic and consistency of the intervention (DMPE, 2011).

Evaluation questions (as prescribed in the ToR) related to the design and input components are:

- What are the objectives of EIA in South Arica?
- How is EIA expected to achieve its objectives?
- Are there sufficient skills and competencies to implement the EIA system?
- What has been the economic impact of the EIA process on identified sectors?

The EIA system design happened over the course of two decades. Before 1997, EIA in South Africa was conducted on a voluntary basis, mainly in line with international understandings adopted from the United States. During this pre-legislation period no formal EIA system existed, because there was no administration or regulatory requirements in place. The period between 1997 and 2006 could be seen as a transitional period for the EIA system when the mandate for EIA was changed from the old dispensation (i.e. Environment Conservation Act, 1989) to be aligned with the National Environmental Management Act of 1998. For a more detailed discussion on the historic evolution of the EIA system in South Africa see section 3.2 in the Literature Review (Bembani, 2018). This ToC narrative relates specifically to the period post 2006, or the so-called NEMA EIA system/regime.

The preamble to NEMA shows that the NEMA EIA system was explicitly designed to give effect to the environmental right contained in Section 24 of the Constitution – as will also be highlighted in section 4.3 in relation to the system impact component. EIA as a policy implementation instrument is seen as a 'reasonable measure' to give effect to the environmental right. As a framework Act, NEMA mainly provides for:

- Setting of principles to inform actions, duties and responsibilities that may impact on the environment (Section 2, 23 and 24);
- The development of Environmental Management Plans and Environmental Implementation Plans (Chapter 3);
- Promulgation of Regulations for command and control instruments to regulate future 'activities' (Section 24, Chapter 5);
- Setting of objectives for IEM, which includes EIA (Section 23, Chapter 5); and
- Setting in place the One Environmental System.

For implementation, NEMA relies on policy implementation instruments and the promulgation of Regulations. The first NEMA EIA Regulations were promulgated in 2006 and have since been revised four times, in 2010, 2014 and 2017. The EIA Regulations mainly prescribe:

- Mandates / responsibilities for different role players;
- The EIA procedures to be followed;
- Report content requirements;
- Defines specific activities to be regulated; and
- Issuing of conditional environmental authorizations (i.e. command and control approach).

However, because EIA is also essentially an administrative action it is also strongly governed through administrative justice and more specifically Section 33 of the Constitution and the Promotion of Administrative Justice Act (PAJA), Act No. 3 of 2000 and the principles for just administrative action and decision making.

In view of the above the EIA system design in South Africa is therefore established, prescribed and embedded in legislation. For a more detailed discussion on the legal mandate for EIA see section 3.3 of the Literature Review (Bembani, 2018). Without the legal basis there is no EIA system. Therefore, the EIA system is designed and prescribed around legislation that explicitly governs decision making related to our environmental right (NEMA and EIA Regulations) and implicitly to just administrative action (PAJA).

The main inputs to the EIA system are specific skills and competencies. The logic that underpins this is that in order to make informed decisions, information is required which is derived from different role players with different skills and competencies, such as:

- Consultant / EAP provides project management and integrative thinking skills and competencies as defined in NEMA and the South African Qualification Authority's qualification standard for Environmental Assessment Practice (SAQA ID 61831);
- Specialists provide scientific skills and competencies. These inputs are typically considered as the scientific basis for decision making;
- Public / Civil Society provides inputs based on values, experience and local knowledge. These inputs are typically considered as evidence for decision making;
- Organs of state to be consulted with during the process, but also certain organs of state within whom a cooperative government approach must be followed;
- Administrators / officials provide administrative and review skills and competencies. This typically requires integrated thinking and understanding of issues;
- Judiciary provides judicial skills, oversight and interpretation of legislation; and
- The developer / applicant provides an understanding of the particular development and/or sector.

The EIA system also relies on inputs related to time and money. In this regard the main direct financial burden lies with the applicant who pays for the appointment of the EAP and conducting of the EIA. The cost input in terms of EIA administration and review is borne by government.

Key assumptions that underpin the design and input components of the EIA system:

- A Command and Control based approach geared towards regulating future activities is an effective way to give effect to the environmental right of all South Africans (1);
- Sufficient skills and competencies exist to implement the EIA system (2); and
- The benefits of doing EIA outweigh the costs (defined in its broadest sense) (3).

3.1.2 Activity and Output Components

Summary definition:
The activity component deals with the process or actions that use the inputs to produce the outputs (DMPE, 2011). **In this case the activity component is related to activities comprising the EIA process.** The output component represents the final goods or services which the intervention delivers (DMPE, 2011). **In this case the output component relates to the EIA reports (i.e. Scoping, Basic Assessment, EIA, EMPr) used to inform decision making by the competent authority**. The main activity and output components related to the EIA system are the EIA process and EIA reports.

Evaluation questions (prescribed in the ToR) related to activity and output components are:

- To what extent has the EIA process been efficiently implemented?
- What is the quality of EIA reports and processes?

It has long been argued internationally that environmental assessment is more about process than about product (Glasson et al, 2001; Owens et al, 2004). In other words, there is an agreed causal link between the activities related to the EIA process and the eventual quality of the EIA report (Bond et al, 2018). The international so-called best practice operational principles (IAIA 1998) sets out the different EIA activities, which are understood to underpin good quality reports. The activities within the South African EIA system reflect the international best practice operational principles and are prescribed as procedural phases in the EIA Regulations. These phases are linked to prescribed regulated timeframes. Broadly speaking they include:

- **Screening:** The aim of screening is to determine if an EIA is required, and if yes, which authorization process to follow, Basic Assessment or Scoping and EIR. The Regulations prescribe that screening be done by the independent EAP appointed by the applicant. It involves the screening of the proposed development against lists of activities published in the EIA Regulations;
- **Scoping:** There are seven scoping objectives described in Appendix 2 of the EIA Regulations. It mainly requires the EAP to identify key issues to be addressed in the assessment phase. Public participation is an important action during scoping;

- **Assessment and evaluation:** NEMA defines the actions of assessment and evaluation slightly differently, with assessment being more objective and science based while evaluation recognises the subjective and value driven nature of assessment. The EIA Regulations define eight objectives for the environmental assessment process. Ultimately the assessment and evaluation activity needs to identify significant impacts and communicate the finding in an EIA report to inform decision making. Typically, the assessment includes activities such as site visits and consideration of specialist inputs;
- **Public participation:** This activity is mandated through specific sections in NEMA as well as the EIA Regulations. The comments received during the public participation process must be recorded and responded to by the EAP and reflected in the final EIA reports;
- **Review:** This activity is done by the EIA administrators / officials against prescribed decision making criteria contained in NEMA and PAJA. There are primarily four documents (outputs) that get reviewed depending on the process triggered during screening namely, Scoping Report, Basic Assessment Report, EIA Report and the EMPr. The outcome of the review should be reflected in the eventual decision / authorisation. The Regulations also make recommendation for 'external review' to inform the ultimate review and decision making by the competent authority; and
- **Appeal:** This activity is triggered post decision making and is regulated by Appeal Regulations. It requires a reconsideration of the decision by the appeal authority and may result in a revised decision.

It has long been acknowledged that the post decision phase or implementation phase of the EIA process is important. An entire research focus has emerged over the years around so-called EIA follow-up. In this regard the South African system also aimed to strengthen the post decision phase by for example introducing post decision auditing requirements. The EIA dispensation therefore is no longer only a permitting process but also a management process which requires continued implementation with management actions, ongoing environmental auditing and continuous improvement. Also, the fact that auditing has been "formalised" in the 2014 Regulations is a significant step in addressing the implementation of EIA. However, in terms of the EIA system in South Africa the administrative and governance arrangements for EIA authorisation on the one hand and post decision follow-up and management is distinctly separate.

The outputs of the EIA process are good quality reports that contain sufficient information to make informed decisions on proposed activities that might detrimentally impact on the environment. Therefore, the inner logic suggests that the EIA system primarily produces good quality reports as the main output or 'product'. The type of report is dependent on the process triggered during screening. The quality of EIA reports is probably one of the most research aspects of EIA (see for example Hallat et al, 2015; Sandham et al, 2007; 2008a; 2008b; 2010; 2013a; 2013b). For a detailed discussion on the status of report quality in the South African EIA system see section 4.3 of the Literature Review (Bembani, 2018). The reports are the result of the different activities prescribed in the EIA process.

Key assumptions that underpin the activity and output components of the EIA system:

- Nondiscretionary List based screening effectively triggers the need for EIA (4);
- It is possible to identify key issues during scoping (5);
- It is possible to determine significance during assessment and evaluation (6);
- Environmental assessment is a scientific exercise where EAPs and specialists are rational and unbiased (7);
- Assume high level of accuracy of prediction (8);
- The public is willing and sufficiently capacitated to participate and participate in good faith (9);
- Reviewers read reports (10);
- Reviewers understand the content of reports (11);
- Reviewers are rational, impartial, unbiased and objective (12);
- Reviewers share the same value system (13);
- Appeal Authorities are objective and impartial (14);
- An efficient process, as defined by the set timeframes, will produce good quality reports (15); and
- Good quality reports will lead to informed decisions (16).

3.1.3 Outcome and Impact Components

Summary definition:
The outcome component reflects the results of achieving certain outputs (DMPE, 2011). In this case the outcome component is represented by the extent to which EIA influences proposal design and decision making. The impact component represents the results of achieving certain outcomes (DMPE, 2011). In this case the impact component relates to the extent to which EIA is giving effect to the progressive realisation of the environmental right contained in Section 24 of the Constitution.

Evaluation questions (prescribed in the ToR) related to the outcome and impact components are:

- To what extent has EIA influenced proposal design and decision making?
- To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?

The main, immediate outcome of EIA, is a decision informed by the content of the EIA report. Although decision making happens incrementally throughout the EIA process, the final outcome is a single decision authorising future activities. It could therefore be argued that the immediate outcome of the EIA system is numerous authorisation or refusal decisions on listed activities related to individual projects. The decision is communicated through an environmental authorization or refusal that provides the rationale for the decision. The decision outcome is governed by set criteria against which the decision must be taken as stipulated in inter alia NEMA (for example section 2, Section 24, EIA Regulations, relevant Guidelines) as well as PAJA which determines that decisions must be lawful, procedurally fair, reasonable, rational and proportional (Kotze and Van der Walt, 2003).

The EIA literature and the ToC workshop have highlighted numerous intermediate outcomes such as changes in values, promotion of transparency in decision making, capacity building and empowerment, promotion of administrative justice, as well as knowledge generation and better understanding of impacts. Ultimately it was agreed at the workshop that these intermediate outcomes are accurately reflected in the NEMA Section 2 principles. Therefore, giving effect to the NEMA Section 2 principles represents the intermediate outcomes of EIA. This makes perfect sense since the NEMA Section 2 principles must underpin EIA decision making toward realisation of Section 24 of the Constitution. For a detailed discussion of the legal mandate for EIA and the relation to NEMA see section 3.3, and specifically section 3.3.1.3 in the Literature Review (Bembani, 2018). However, in terms of EIA system evaluation methodology these intermediate outcomes provide a number of difficulties. The most important of these is the difficulty in measuring and/or arguing causality. Therefore, although these important intermediate outcomes are highlighted and acknowledged, the methodological difficulties in evaluating against them should be pointed out and recognised.

The main impact of EIA is a progressive realization of the environmental right contained in Section 24 of the Constitution (Kidd, 2011; Kidd et al, 2018), which 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."

For a more detailed discussion on the environmental mandate for EIA and the interpretation of Section 24 see section 3.3 of the Literature Review (Bembani, 2018). Having a constitutional right as the ultimate impact of an intervention provides various methodological challenges, because measuring progressive realisation of anything is problematic. It is not an objective you ever fully 'achieve'. The difficulties in defining aspirational objectives (and ultimate impact) in clear quantitative terms, is one of the reasons why ToC approaches are not ideal for EIA system evaluation and is not commonly used internationally. It is not like other interventions where the aim and objectives are clearly and quantitatively defined, which lends itself more towards ToC approaches. This is however, a methodological challenge which has been dealt with as part of the methodological design.

The following assumptions underpin the inner logic of having EIA as a policy implementation instrument, especially assumption 19, which goes to the heart of what EIA is about.

Key assumptions that underpin the outcome and impact components of the EIA system:

- Decisions are underpinned by the NEMA Section 2 principles (17);
- Decisions are lawful, reasonable and procedurally fair (18); and
- Informed decisions regulating future activities, that are lawful, reasonable and procedurally fair as well as underpinned by NEMA Section 2 principles, will lead to progressive realization of the Section 24 environmental right (19).

3.2 Overview of the Logical Framework

The Logical Framework has been conceptualised and completed based on the ToC map and narrative – see Figure 3-1. The input, activity, output, outcome and impact components have been described and key assumptions identified. It is acknowledged that it is impractical to review every detail of every aspect of an EIA system, hence the need for representative key performance indicators (KPIs), as shown on Figure 3-1 and described in Table in Appendix B. This ensures the practical viability of pursuing a holistic review of the EIA system. The evaluation preferred the use of 'indicators' instead of 'criteria' because indicators suggest that they are indicative, whereas criteria imply precision not always achievable due to the subjective nature of EIA system evaluations (Todd, 2001, p99).

The use of evaluation indicators has the added advantage that conformance to one purposefully designed indicator implies wider performance in other related aspects, which then need not be evaluated separately. The indicators can be traced back to the ToC and inner logic of the EIA system, which implies that the justification for the evaluation indicators relies on the validity of ToC. The following indicator design criteria were used to justify the design of key indicators:

- The linkage between the indicator and the relevant ToC inner logic and key assumptions must be clear. In many cases the indicators are explicitly linked to key assumptions;
- The indicator should be quantitatively and/or qualitatively measurable. The quantitative and qualitative nature of indicators might vary considerably so that subjectivity does become a particular feature of this EIA system evaluation. Ultimately a level of conformance needs to be measured against the set indicators;
- Information and data to address the indicator should be readily available, within time and resources, through the application of scientifically justifiable methods (i.e. documentation evaluation and interviews); and
- The indicator should be easy to understand and interpret. However, the nature of the evaluation does not allow for hard and fast unambiguous indicators. Context and case specific interpretation will always be important to their application.

Finally, in light of the distinctly qualitative and investigative nature of the evaluation, the evaluation scale is not fine grained, and relies on judgment by the evaluator about the conformance of the case to the particular indicator (framed as a question). The conformance score is based on multiple sources of data, which include documentation and interviews. Only three scales are used, namely 'conformance', 'partial conformance' and 'non-conformance'. This broad scale allows for flexibility in the application of the protocol while retaining the logic provided by the ToC. Provision was also made to consider instances where the 'conformance status could not be established' or are 'not applicable'. In this regard it is important to stress that each case evaluation will be conducted by more than one suitably qualified evaluator, with appropriate qualifications (i.e. as Environmental Assessment Practitioner - EAP) and at least five years' experience.

4. LITERATURE REVIEW

This section briefly summarises the outcome of the extensive literature review that underpins this evaluation. It starts by explaining the methodology followed and then gives an overview of the international and South African EIA literature. For a detailed discussion of the literature the reader is referred to the Literature Review Report (Bembani, 2017).

4.1 Literature Review Methodology

The literature review process entailed the following three steps:

Step 1: A literature search was conducted via the Scopus database of peer reviewed EIA literature. Literature review process used the Scopus database as this includes, at the time of writing, more than 22,800 journals, including all those with a main focus on impact assessment, and more than 150,000 text books. It has been favourably compared by Web of Science in terms of volume of journals and articles covered, both of which are suggested to somewhat bias natural sciences relative to social sciences (Mongeon and Paul-Hus, 2016). As with all searches, the database restricts the results made available. These were constrained to the English language and also to academic sources. Search terms included combinations of "EIA"; "impact assessment"; "performance"; "quality"; "effectiveness"; "cost"; "efficiency"; "developing countries"; "South Africa". Literature review was iterative; and it became clear that additional search terms were required in order to fully capture more relevant literature, as the review process progressed.

Step 2: A literature search was conducted of the National Research Foundation (NRF) Nexus and National ETD Portal databases which includes all PhD and masters research conducted in South African. The search terms "EIA"; "Environment" AND "Impact" AND "Assessment"; "South" AND "Africa" – and a combination thereof were used. As with the Scopus database this search was also iterative until a saturation point was reached.

Step 3: A search was conducted of all policies, legislation and case law related to the South African EIA system. The search relied on environmental law journal searches (such as the South African Journal of Environmental Law and Policy, Potchefstroom Electronic Law Journal) as well as the Lexis Nexis environmental law database. Moreover, the search also included national and provincial environmental department websites.

4.2 International EIA Literature

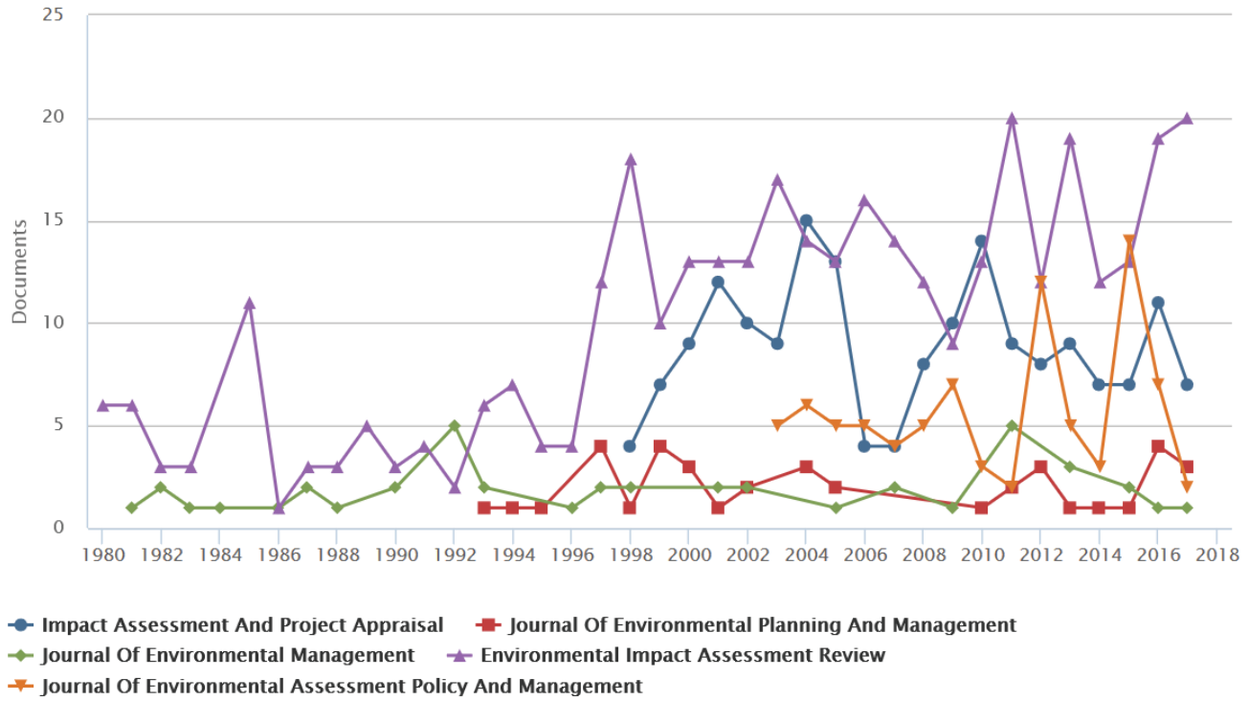
The international body of knowledge dealing with environmental impact assessment (EIA) is vast. Since its inception in the late 1960s, EIA has been widely adopted, with more than 200 countries having conducted some form of impact assessment (Lee and George, 2000; Wood, 2003; Dalal-Clayton and Sadler, 2005; Morgan, 2012). When considering the nature of EIA literature two particular features emerge. Firstly, although a wealth of literature has developed over the past five decades, the content and related debates tend to be practice orientated with limited theoretical grounding (Bartlett and Kurian, 1999; Cashmore, 2004; Owens *et al,* 2004). Therefore, the evolution of EIA thinking has been driven by practice rather than theory. In recent years, progress in theory building has been made, especially between the fields of environmental assessment, planning, decision making and political sciences (Bartlett and Kurian, 1999; Kornov and Thissen, 2000; Nilsson and Dalkmann, 2001; Richardson, 2005; Wallington *et al,* 2007, Bond *et al,* 2018a, 2018b) and the need to promote learning and retrospective analysis in EIA has become a strong focus (Jha-Thakur *et al,* 2009; Morrison-Saunders and Retief, 2015a). The second feature is that the literature tends to have a context specific, usually a country or case specific focus, which makes generalisation and knowledge transfer difficult. The depth and level of debate differs significantly between different contexts, mainly reflecting the history and maturity of the particular EIA system. At some risk of oversimplification a broad overview of environmental assessment literature suggests that key international debates revolve around three main interrelated themes (Wood, 2003; Jay *et al,* 2007; Retief, 2008; Retief, 2010; Morgan, 2012; Pope *et al,* 2013), as illustrated in Figure 4-1. Although these themes relate to environmental assessment (EA) more broadly we could in this case apply them specifically to EIA.

Figure 4-1: Main international themes for debate in environmental assessment (EA)
(Source: adapted from Retief, 2010; Morgan, 20102; Pope et al, 2013)

The first theme deals with the identity and theoretical grounding of EIA, and asks the fundamental question "What is EIA?". Underlying debates concern the need for EIA, its purpose and, ultimately, its definition. The practice driven nature of EIA as well as the fact that EIA is still a relatively new field of research explains the somewhat limited theoretical grounding. During the early inception of EIA, debates seem to have focussed mainly on, "How can EIA be applied?/How can we do EIA?", which forms the second main theme of debate. It covers macro level issues such as best practice guidelines, system requirements as well as micro level issues concerning quality of processes, reports and methodologies. The sheer volume of literature dealing with this theme illustrates how it has dominated EIA debate (Wood, 2003; Dalal-Clayton and Sadler, 2005). Following on, the third EIA theme deals with performance evaluation, which has gained prominence over the past decade and ask the questions, "How well is EIA being done — and — what is EIA achieving?" with the understanding that by answering the latter, themes one and two could also be further refined. Questions around EIA effectiveness, follow-up and value are all related to the third theme. Finally, it needs to be stressed that none of the three key themes can be considered in isolation since they inform each other in an iterative manner. Although a broad overview of international literature supports the features and key themes described above, very limited empirical research has been conducted in order to analyse and trace debates. One such study is by Retief (2010), which is described in more detail in the next section.

An October 2017 search of Scopus (see section 2.1 for an explanation on how this search was conducted) revealed that 3 090 peer reviewed scientific publications have been published on EIA between 1980 and 2017. The majority of these publications are published in five main journals as shown in Figure 4-2. The trend in sheer volume of publications over time suggest that the number of publications increased dramatically since 2000 in the wake of two new journals being launched.

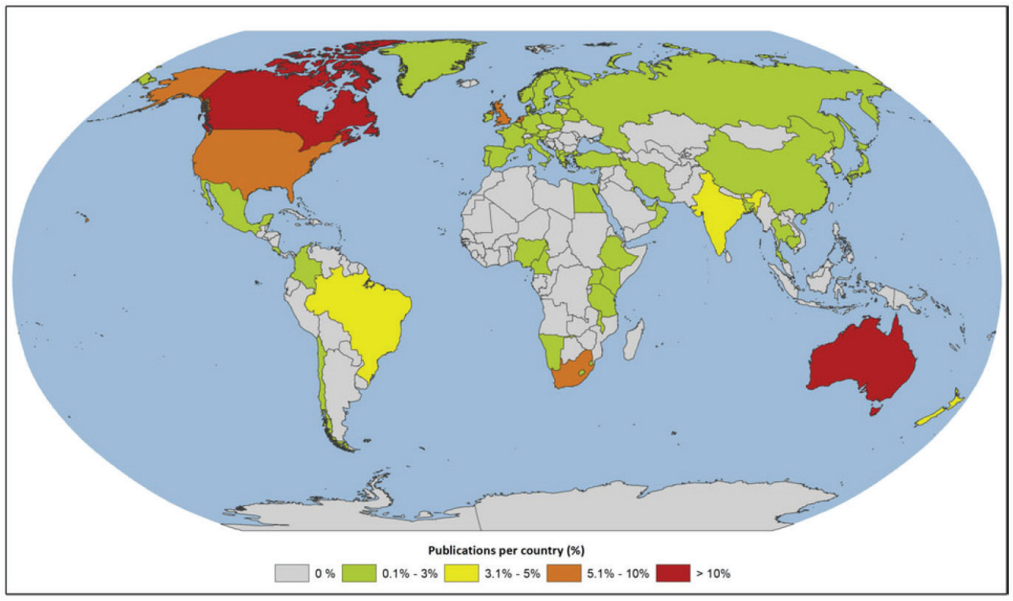
Figure 4-2: Main International Impact Assessment Journals *(Source: Scopus search 2017)*



The editorial by Morrison-Saunders and Retief (2015b) shares the outcome of an evaluation of paper submissions to the Journal Impact Assessment and Project Appraisal (IAPA) for the period 2009-2015. During this period, the IAPA journal received over 270 manuscript submissions, of which over 130 papers were subsequently accepted for publication. In round figures, there were more than 420 authors associated with the total manuscript submissions received, representing 60 countries. Figure 4-3 illustrates the relative number of authors per country and demonstrates that EIA is truly an international field of research. Overall some 370 reviewers from 32 countries were involved in the peer review of papers.

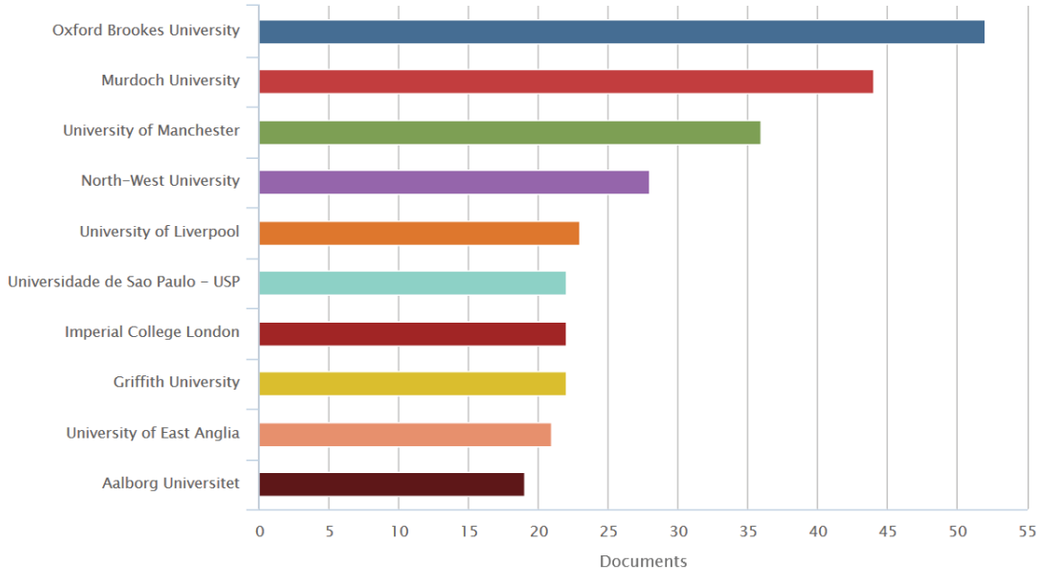
Figure 4-3: Frequency and distribution of authors for manuscripts submitted to IAPA Journal 2009–2014

(Source: Morrison-Saunders and Retief 2015b)



The October 2017 Scopus search also reveals the main universities that contributed to the total number of impact assessment publications between 1980 and 2017. It is worth noting that North West University (NWU), South Africa is according to this search rated 4th in terms of its contribution to EIA research.

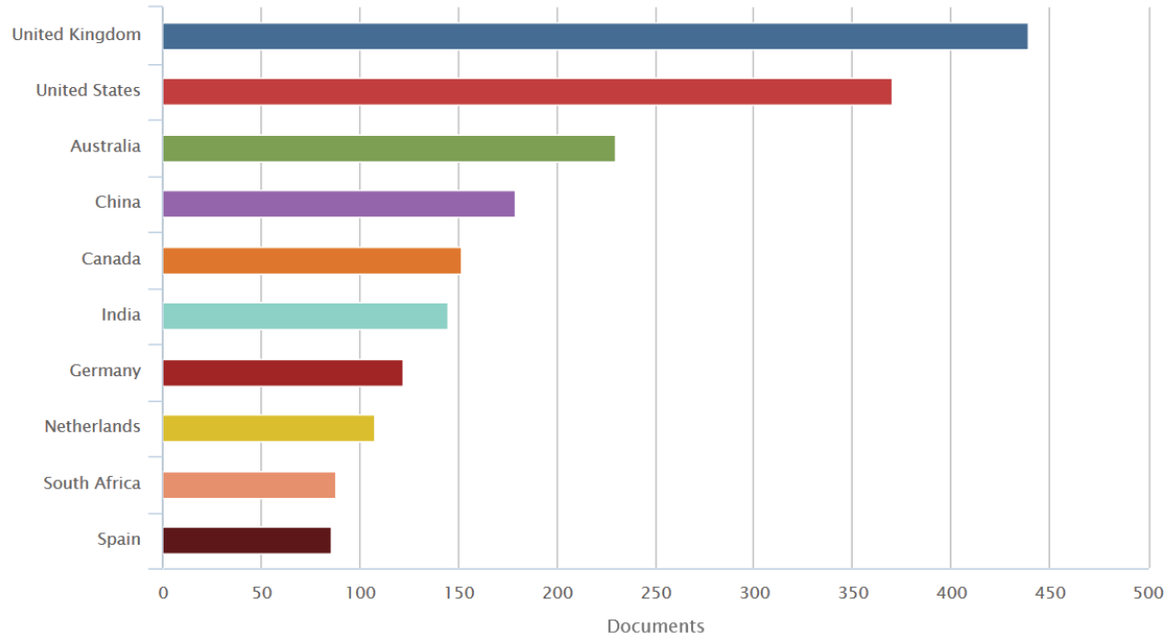
Figure 4-4: Main International Universities producing EIA research, 1980-2017 *(Source: Scopus search 2017)*



4.3 South African EIA Literature

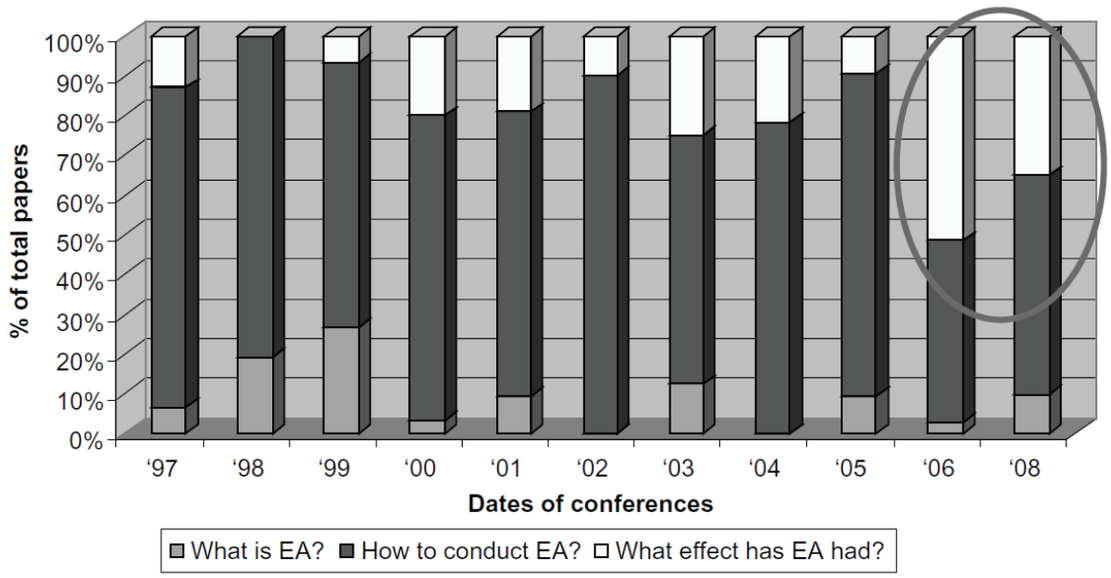
The October 2017 Scopus literature search revealed that South Africa ranks 9th in terms of overall peer reviewed EIA publications, below the Netherlands and above Spain, as shown in Figure 4-5. This is a particularly good performance considering that other countries such as UK, US and the Netherlands have had at least a decade's head start in terms of the introduction of EIA policy and legislation. Off course this does not mean that all the publications from South Africa relate to the South African EIA system. The data only reflects number of publications and not the particular focus of the research.

Figure 4-5: Main countries producing EIA research, 1980-2017
(Source: Scopus, 2017)



The only attempt at empirically tracing EIA debates within the South African context is by Retief (2010), which involved an analysis of the proceedings of the annual International Association for Impact Assessment, South African chapter (IAIAsa) conferences between 1997 and 2008 (the 2007 IAIA conference is not included in the analysis because it was an invited thematic conference). The analysis involved a review of 472 papers presented at these conferences. Figure 4-6 shows that the majority of papers (81%) dealt with issues around EIA practice and how to conduct EIA. Only 6% could be considered contributions to the theoretical grounding of EIA exploring questions related to the theoretical identity of EIA. The remaining 13% explored the effect EIA has had. However, when considering the data over time as illustrated in Figure 4-6, it suggests that the third question dealing with the effect of EIA, became significantly more prominent, making up around half of the contributions in 2006 and 2008. Unfortunately, a more recent analysis has not been conducted but anecdotal evidence suggests that the debates around effectiveness have continued this trend beyond 2008.

Figure 4-6: Trends in engagement with main international environmental assessment (EA) debates at IAIAsa conferences 1996 to 2008 (Source: Retief, 2010)



Therefore, the results suggest that since around 2006 debates have shifted away from concerns with quality and application of EIA towards serious questions about effectiveness and the value that EIA is adding. It is clear that the EIA profession has gone through a period of intense introspection over the past ten years, questioning the need for and contribution of EIA. The Retief (2010) analysis also shows that debates in EIA are complex and wide ranging, which makes it difficult to clearly trace learning or so-called "evolution". Rather debates can at best be traced along certain themes or topics over time. Within each theme more detailed analysis is possible. However, learning in EIA seems to happen in an incremental and/or muddled fashion and not according to a neat linear and/or logical progression, which is probably not unique to EIA. There are proven instances of redesigning the wheel, but also instances of rapid progression in the complexity and range of debates. Therefore, attempts to explore and/or gain a better understanding of EIA debates need to recognise complexity and non-linear progression.

The key international themes of debate described in section 4.2 provide a conceptual point of departure for the analysis of the South African EIA System. In view of this conceptual understanding, it is recognised that there will always be a need to reflect on best practice and to improve on guidelines, but maybe not to the extent required during the early years of EIA. The trend over the past decade to focus more on questions around effectiveness of EIA will continue in future, as will attempts to strengthen the theoretical grounding of EIA.

4.4 Outcome of the Literature Review

The outcome of the literature review is summarised against the different evaluation components and questions in Table 4-1.

Table 4-1: Synthesis and conclusions from literature review

EVALUATION COMPONENTS	EVALUATION QUESTIONS	SYNTHESIS FROM LITERATURE REVIEW
DESIGN	What are the objectives of EIA in South Africa?	• Progressive realisation of the environmental right described in Section 24 of the Constitution of the Republic of South Africa. • Promotion of the Section 2 principles of NEMA. • Achievement of sustainable development as defined in NEMA and relevant case law. • Ensure the realisation of section 33 of the Constitution which requires just administrative action.
INPUT	How is EIA expected to achieve its objectives?	• 'Critical realism' is an appropriate ontological position for EIA as it recognises the validity of quantitative and qualitative data, thereby accommodating more subjective elements of impact predictions, values and views as well as objective evidence. EIA is understood to be both value judgement and scientific. • The state is mandated to authorise and regulate activities, after considering the potential consequences or impacts of these activities on the environment. • Legislation provides clear procedural and content requirements as basis for decision making, which requires decisions to be procedurally fair, lawful and reasonable (rational and proportional). • The decision making mandate is vested with provincial and national spheres of government where administrative capacity is provided. Skill requirements are prescribed for EAPs in legislation and qualification standards. In terms of skills training significant progress seem to have been made with personnel in most provinces having sound qualifications, although overall staff shortages and inexperience are highlighted as key challenges.
ACTIVITIES	To what extent has the EIA process been efficiently implemented?	• Anecdotal evidence suggest that EIA processes are generally conducted within set legal timeframes and that effective frameworks for monitoring procedural efficiency exist in government. • Serious questions are being asked to what extent the drive for procedural efficiency is eroding the potential benefits of EIA in terms of improving decision making and providing for transparency and participation.
OUTPUT	What is the quality of EIA reports and processes?	• Report quality has been evaluated over time as well as for different provinces and sectors. • Overall report quality decreased slightly from the ECA (pre 2006) to the NEMA regime (post 2006). • Lower quality grades are achieved for dealing with impact identification, alternatives, mitigation and significance. • Higher quality grades are achieved for dealing with more descriptive and presentational areas of evaluation.
	What has been the economic impact of the EIA process on identified sectors?	• There is no existing literature on the full economic impact of EIA on specific sectors in South Africa. • Determining the economic impact of EIA is exceedingly difficult from a conceptual and methodological perspective. • Research suggests that the average direct cost of EIA in South Africa is particularly low compared to international EIA systems. • As a percentage of total project costs, EIA in South Africa compares with the higher spectrum of international practice. This suggest that a large number of EIAs are being conducted for relatively small scale projects, which might be placing a notable cost burden on small and medium enterprises.
OUTCOMES	To what extent has EIA influenced decision making?	• EIA has significant mandate to positively influence decision making towards sustainable development. • There is limited empirical research on the extent to which EIA influences decision making with most research focussing on post-decision follow-up. South Africa has made significant strides in law and administrative arrangements to deal with compliance monitoring and follow-up. • The research emphasise the importance of post decision monitoring and adaptive management to deal with unforeseen impacts.

EVALUATION COMPONENTS	EVALUATION QUESTIONS	SYNTHESIS FROM LITERATURE REVIEW
IMPACT	To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?	• There is limited research available on the extent to which EIA has delivered sustainability and/or more sustainable outcomes. • There seems to be ignorance amongst both officials and practitioners in respect of the sustainable development mandate and purpose of EIA. • The research demonstrated that in the South African context EIA already has a very strong and explicit sustainability mandate which means that the challenge for EIA does not lie with the mandate (or the establishment of appropriate enabling legislation) but rather with giving effect to this mandate in practice. • Particular challenges in applying sustainability thinking in EIA is related to incorporating longer term thinking and dealing with uncertainty.

4.5 Comparative System Evaluation

The ToR for this EIA system evaluation required an international EIA system comparison to be done but no countries were specified. The recommendation by the project team as agreed in the inception report was that countries for comparative evaluation need to be selected against certain contextual criteria, for example: comparable socio-economic context; EIA system similarities; availability of information and networks as well as reciprocal value of the comparison. However, since the project did not make provision to conduct a comparative review from scratch, the evaluation relies on existing literature. Therefore, the focus was on existing comparative system reviews between South Africa and other countries.

Based on the 1997 ECA EIA Regulations, Wood (1999, 2003) conducted what, to date, has been the only macro-level comparative review of the South African EIA system. He compared the South African EIA system with six other developed countries namely, US, UK, Netherlands, Canada, Australia and New Zealand, and concluded that the South African EIA System met seven of the 14 evaluation criteria, partially met two and failed to meet five. As shown in Table 4-2, the main areas of weakness relate to report review, the centrality of the full range of impacts to decision-making, impact monitoring, public participation, EIA System monitoring and the SEA of programmes, plans and policies. When considering the 2006, 2010 and 2014 EIA regulations against these criteria, it seems that only two of these weaknesses have been addressed, namely the centrality of the report to decision-making and the requirements for monitoring of actions and impacts.

Table 4-2: Comparative Evaluation of EIA Systems (Source: Wood, 2003)

Evaluation criterion	Criterion met within jurisdiction						
	United States	UK	Netherlands	Canada	Australia	New Zealand	South Africa
1. Legal basis	●	●	●	●	●	●	●
2. Coverage	◗	●	●	○	◗	●	●
3. Alternatives	●	◗	●	●	●	◗	●
4. Screening	●	●	●	●	●	●	●
5. Scoping	●	◗	●	●	●	◗	●
6. EIA report preparation	●	◗	●	◗	●	○	◗
7. EIA report review	●	◗	●	◗	●	◗	○
8. Decision making	◗	◗	◗	◗	◗	◗	○
9. Impact monitoring	○	○	◗	◗	◗	○	○
10. Mitigation	●	●	●	●	●	●	●
11. Consultation and participation	●	◗	●	●	●	◗	◗
12. System monitoring	◗	○	●	●	●	○	○
13. Benefits and costs	●	●	●	●	●	●	●
14. Strategic EA	●	◗	●	◗	◗	◗	○

● Yes ◗ Partially ○ No

The literature searches of PhDs and masters research revealed that further meaningful work has been conducted in terms of regional comparison of EIA legislation. For example:

- South Africa vs Namibia and Swaziland (Roux, 2003): This research compared the EIA legislation of the three countries against Wood (1995; 2003) system evaluation criteria. It found that the three systems compared well with many of the shortcomings identified to be addressed in the different country's proposed legislative reform processes (in the case of South Africa the NEMA 2006 EIA Regulations). Moreover, the similarities of the different EIA legislative regimes make the alignment of EIAs for cross border developments easier.
- South Africa vs Malawi (Harrison, 2005): In this research EIA legislative frameworks for South Africa and Malawi was evaluated against the Wood (2003) system evaluation criteria. It found that the two systems performed very similarly against the set criteria, which suggest similar legislative arrangements.

Other more focussed comparative analysis has been done on specific aspects such as public participation. Decadt (2001) compared EIA public participation between South Africa, United Kingdom and United States (US). The comparative analytical framework in the research reveals significant variations between the three countries. Of the three countries the US have the most extensive public participation provisions, particularly as far as the level and degree of public participation and range of techniques are concerned.

5. DATA ANALYSIS

The data analysis was done according to the methodology described in section 2 above and structured around the different evaluation components of the logical framework and ToC evaluation framework described in section 3. A summary matrix of the case study data is provided in Appendix D. The evaluation is done against purposefully designed KPIs and scored in terms of conformance (A), partial conformance (B) and non-conformance (C).

5.1 Input Component: Skills and Cost

The input component deals with the resources that contribute to the delivery of the activities and output components (DMPE, 2011), in this case inputs around skills and competencies together with time and money have been considered. The inner logic of the EIA system as reflected in the ToC map suggest two key assumptions related to the input components namely: that sufficient skills and competencies exist to implement the EIA system and that the benefits of conducting EIA outweigh the costs. Based on the outcome of the literature review and the outcome of the case study analysis against nine purposefully designed KPIs, these assumptions can now be tested.

5.1.1 EIA Cost

The successful adoption of EIA internationally can be traced to the implicit or explicit assumption that the benefits of EIA outweigh its costs and/or economic impact. Although internationally it has been stated that the aim of any EIA system should be to maximise environmental benefits, to minimise environmental costs, and to minimise the costs to the proponent (i.e. economic impact), some have argued that it would be impossible to establish precisely either the benefit or the cost of EIA (Wood, 2003). This is because comparing the benefits and costs of EIA is ultimately a matter of judgment which depends on how they are weighted, which remains extraordinarily difficult to measure and largely unquantifiable (Arrow et al, 1996; Sadler, 1996). Debates on 'EIA cost' invariably raise basic fundamental (and at times contentious) questions on the need for EIA, its value, and ultimately if EIA is worthwhile pursuing. In recent times increasing and renewed pressure has been building around EIA systems internationally (i.e. European Union, Canada, United States, South Africa, etc.) to become more efficient and to demonstrate its added value (Retief et al, 2007b; Bond et al, 2014). However, research in dealing with the fundamental issues related to cost has been limited internationally and especially within the South African context (Retief and Chabalala, 2009). This is probably due to the substantial conceptual and methodological challenges presented by such research, which include the difficulties associated with clarifying terminology and disentangling what is meant by the 'cost' of EIA. Therefore, this discussion is started by providing an overview of how 'cost' have been conceptualised in relation to EIA.

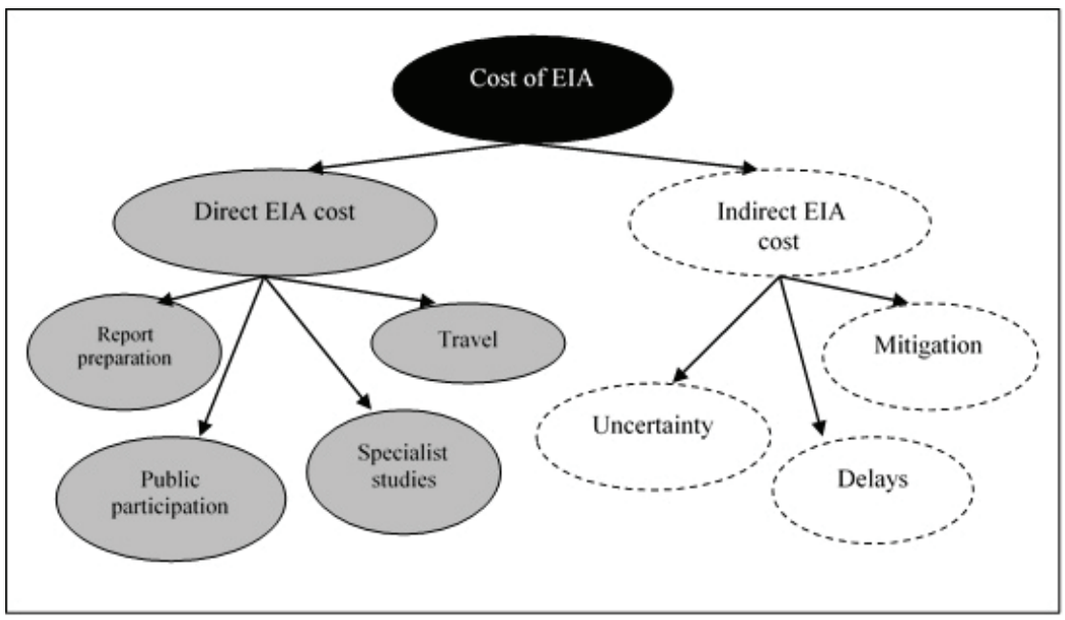
Conceptualising the 'cost' of EIA

One of the main reasons for the surprisingly limited international empirical research on the 'cost' of EIA, is the substantial methodological challenges it presents. In this regard three main difficulties can be distinguished. Firstly, it is evident that dealing with terminology and disentangling what is meant by the term 'cost' poses a challenge to consistency

in analysis and subsequent internal and external validity of results. Secondly, there are no databases from which sound and verifiable empirical quantitative data on the costs of EIA can be readily extracted. To ensure accurate data, research have to rely on direct access to project files. Finally, data on the cost of EIA are not always readily available and role players are reluctant to disclose information. This is especially applicable to the South African context where private sector consultants are mainly responsible for conducting EIAs within a competitive market.

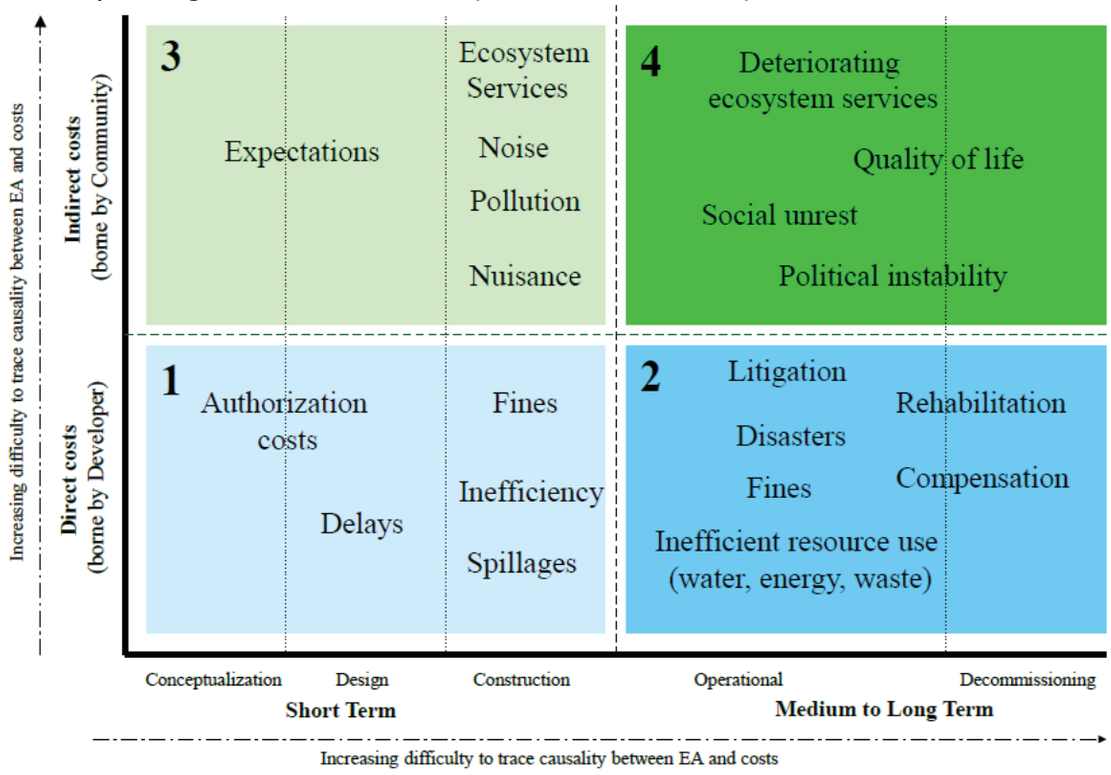
The difficulties in defining what is meant by 'EIA cost' have been clearly highlighted in the international literature (Glasson et al, 2001; Wood, 2003). However, notwithstanding these difficulties some progress has been made to conceptualise and distinguish different 'EIA cost' classifications – see for example Figure 5-1. Gilpin (1996) distinguishes between 'direct costs' referring to fees developers and regulators incur to comply with relevant EIA legislation and 'indirect costs' arising from delays associated with a lack of coordination and conflicting demands. Similarly, Hart (1984) distinguishes between four principal cost elements i.e.; costs of document preparation, review circulation, and administration of the law; costs of delay; costs of uncertainty and costs of mitigation. When considering the different components, it appears that most research has focussed on exploring 'direct EIA cost' as well as the effect of time delays on total project cost. The European Commission (EC 1996; 1997, 2003) also contends that an inevitable need exists to obtain more reliable cost estimates of the likely range of both financial and time costs and benefits associated with the implementation of EIA regulations.

Figure 5-1: 'EIA cost' elements (Sources: Hart, 1984; Gilpin, 1996; Retief and Chabalala, 2009)



The conceptualization presented in Figure 5-1 has been further refined by Retief et al (2007) by considering direct and indirect cost (y-axis) of EIA in a matrix format over time (x-axis) – see Figure 5-2. Therefore, it suggests that when thinking about cost one needs to consider not only the direct and indirect nature thereof but also the time element, since many of the effects of EIA only occur long after the EIA has been completed. The conceptualisation also suggest that direct costs are mostly borne by the developer/proponents and the indirect costs by communities and/or society in general. Moreover, the conceptualisation also shows that arguing causality between EIA and cost elements becomes more difficult when moving from direct to indirect costs (y-axis) as well as over time, moving from the conceptualization, design, construction, operational to decommissioning phases (x-axis).

Figure 5-2: Conceptualising the business case for EIA (Source: Retief *et al,* 2007)



Based on the conceptualisation in Figure 5-2, Retief et al (2007) suggest the following four categories of EIA costs. It is evident empirical research on the cost of EIA is more viable for Category 1 because proving causality for categories 2, 3 and 4 becomes exceedingly difficult. This is also why this evaluation only focussed on category 1:

- Category 1: Short term direct costs borne by the developer in relation to aspects such as Authorisation costs during the design phase as well as potential delays, fines, inefficiencies, spillages, etc. during the construction phase;
- Category 2: Medium to long terms direct costs borne by the developer related to possible litigation, disasters, fines, inefficient use of resources (i.e. water and energy), etc. during operations, as well as direct rehabilitation and compensation costs during decommissioning;
- Category 3: Short term indirect costs borne by the community such as unrealised expectations, loss of ecosystem services, nuisance, pollution, etc. during design and construction phases; and
- Category 4: Medium to long term indirect costs during operational and decommissioning phases borne by the community such as deterioration ecosystem services, quality of life, political instability and social unrest.

When considering the objectives of EIA in South Africa as determined by the policy and legal context it becomes evident that categories 3 and 4 have particular relevance. **Therefore, results obtained when measuring direct EIA cost, must be considered and understood within the broader conceptual framework understanding presented by Figure 5-2.**

One of the main reasons for the surprisingly limited international empirical research on the 'cost' of EIA, is the substantial methodological challenges it presents. In this regard three main difficulties can be distinguished. Firstly, it is evident that dealing with terminology and disentangling what is meant by the term 'cost' poses a challenge to consistency in analysis and subsequent internal and external validity of results (as discussed above). Secondly, there are no databases from which sound and verifiable empirical quantitative data on the costs of EIA can be readily extracted. To ensure accurate data, research has to rely on direct access to project files. Finally, data on the cost of EIA is not always readily available and role players are reluctant to disclose information. This is especially applicable to the South African context where private sector consultants are mainly responsible for conducting EIAs in a competitive market. Recognizing these challenges this evaluation relied on the international benchmark for direct EIA costs set as 1% of total project cost which was included as KPI 1.1.

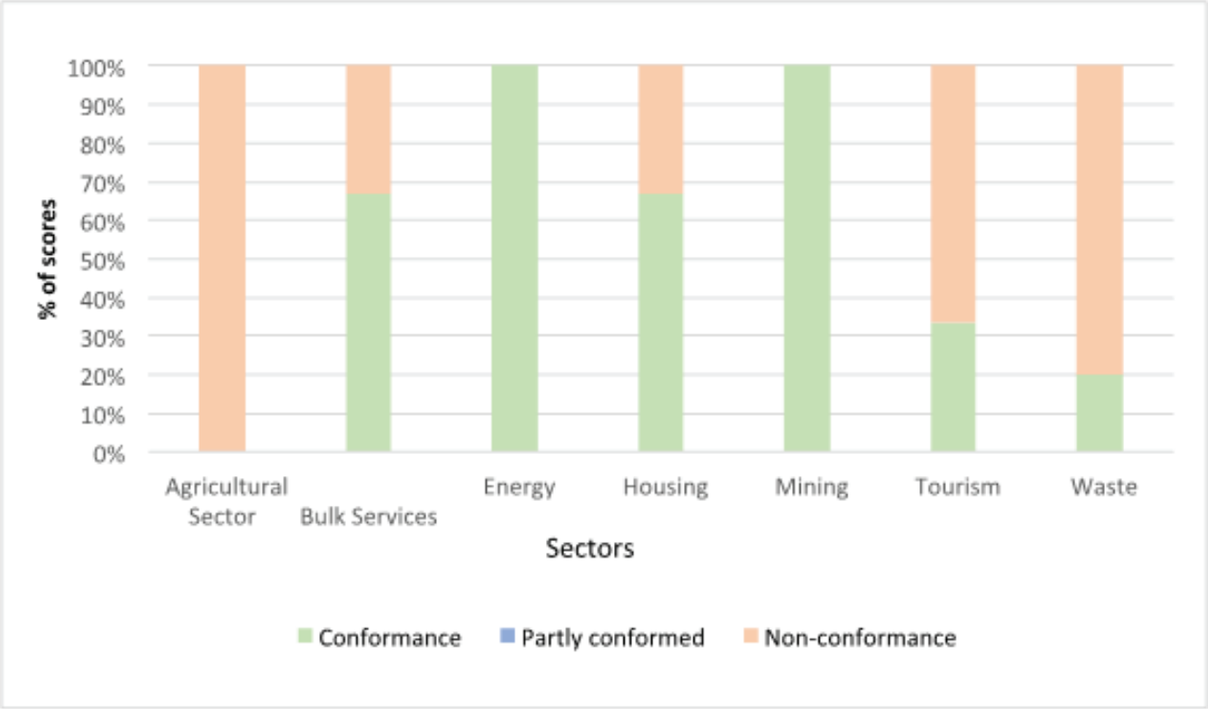
The literature review showed that the only empirical research on the 'direct EIA cost' in relation to 'overall project cost' in South Africa was conducted by Retief and Chabalala (2009). The data was obtained from a detailed analysis of 148 EIAs conducted across three provinces of South Africa under the ECA regime (pre-2006). The research suggests that the average direct cost of EIA in South Africa is particularly low compared to international EIA systems. However, the direct EIA costs as a percentage of total project cost ranged between 0,01% and 8,0%, with the majority of the EIAs grouped between 0,04% and 3%. This confirmed that a meaningful number of cases exceeded the 1% benchmark. However, the 1% benchmark should always be considered in context because there is no obvious direct correlation between overall project cost and the overall significance of potential environmental impacts. For example, you could reasonably foresee instances where very large infrastructure projects such as sewerage works might have an obviously minimal negative and significantly positive environmental impact while a smaller capital project such as a battery waste storage facility might have significant potential environmental impacts. The outcome of the case study analysis for this project should be considered against this contextual understanding.

Data Analysis – 'Cost' of EIA:

This system evaluation provides an ideal opportunity to build on the research by Retief and Chabalala (2009). The analysis of the 42 cases against KPI 1.1 suggests that the case evaluations produced four possible cost trends across sectors as reflected in Figure 5-3, namely:

- Sectors under 1% threshold include energy and mining. This is not surprising since the total project cost for these projects varied between billions and hundreds of millions of Rand. For example, the establishment of a new mine within the Mpumalanga province was budgeted at R1.5bn, giving an estimated EIA cost of R15 million should the 1% threshold be applied. With regards to all the cases reviewed that dealt with the establishment of mining infrastructure, therefore, the direct EIA cost is bound to be insignificant compared to the overall project cost. Similarly, the energy cases which were reviewed all dealt with newly built renewable energy projects, with Case 3 claiming a total project cost of R4bn. Although the exact EIA costs could not be determined it is highly unlikely that it would exceed R40 million rand and the 1% threshold. For these types of projects EIA does not present a particular cost burden.
- Sectors with majority projects falling under the 1% threshold include bulk services and housing. Although for the majority of cases within these sectors the EIA cost was way below the 1% benchmark, exceptions were found. These included two housing projects which dealt with staff accommodation and a small 1.6ha residential development as well as an access road to a low water bridge which had a total project cost of R7.6m and a rural housing hub which had a total project costs of R5.5. These are however considered exceptions and it is reasonable to conclude that EIA cost is not considered meaningful in relation to housing and bulk services infrastructure projects.
- Sectors where majority of cases exceed the 1% threshold are tourism and waste management. For these sectors EIA cost is becoming meaningful direct cost item. Particularly in relation to waste management projects related to small, micro and medium enterprises (SMMEs), as also borne out by the work of Retief and Chabalala (2009). However, since waste management in general (and even small scale waste management facilities) should be considered potentially high impact activities, a case could be made that higher EIA costs relative to total project cost is justified. The tourism sector is however slightly different in that the high cost of the EIAs could be well justified against the sensitive locations of these developments, typically in nature reserves and national parks. These locations do have reasonable cost implications related to specialist studies, public participation, traveling, etc. Examples of such projects which were reviewed included the construction of a luxury lodge in the Kgalagadi National Park as well as a new visitor gate and access road in the Kruger National Park.
- Sectors which exceeded 1% threshold: Agriculture was the one sector where for all the cases direct EIA cost exceeded the 1% threshold. Considering that agricultural developments take place in sensitive environments (similar to tourism), resulting in high specialist inputs/cost this result is maybe not surprising. Moreover, agricultural developments, generally, do not have the infrastructural cost components that many other sectors have which lowers the total project cost. These two factors partly explain why agricultural developments are more likely to exceed the 1% threshold. Finally, the agricultural sector is especially prone to phased developments which drive up the relative cost of EIA. For example, EIA applications are typically submitted for the next feasible area to be cultivated rather than simultaneously applying for all the future areas to be one day cultivated.

Figure 5-3: Performance of the cost input component per sector against the 1% benchmark



5.1.2 Skills and Competencies

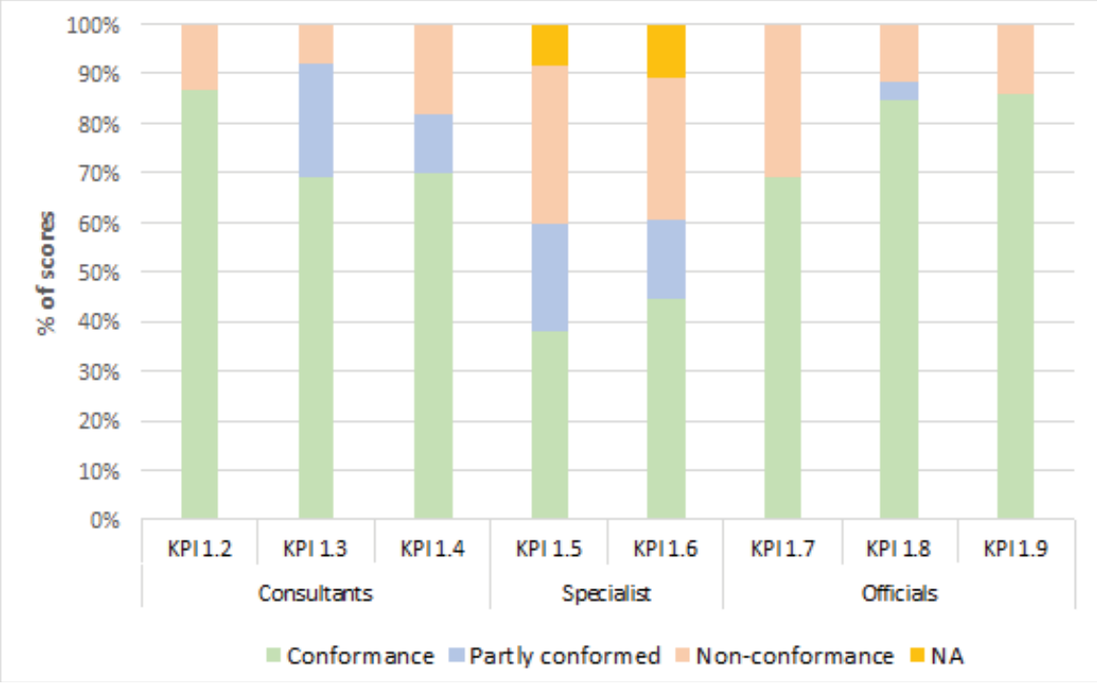
The literature review showed that there is scant reflection in the peer reviewed literature on skills and competency within the South African EIA system. For example, the literature searches on Scopus and the NRF database revealed only three peer reviewed papers (Sowman et al, 1995; Duthie, 2001; Sandham and Retief, 2016), one conference paper (Van der Heyden et al, 1998) and a single masters' dissertation (Abdulla, 2002) that deals with this topic. This is unfortunate because the lack of skills and competency is commonly raised as an underlying reason for inefficiency and lack of quality in EIA (see for example Abdulla, 2002; Kotze and Van der Walt; 2003; Nel, 2005; Sampson, 2007; Kidd and Retief, 2009; DEA, 2014), yet there seems to be limited peer reviewed research to draw on to substantiate such claims.

The literature shows that in 1995 fewer than 200 persons had higher degrees related to environmental assessment expertise, and fewer than 500 persons had been exposed to short intensive training programmes to equip them to undertake environmental assessments (Sowman et al, 1995). The paper by Duthie (2001) entitled "A review of provincial environmental impact assessment administrative capacity in South Africa" concluded that in terms of training significant progress had been made by 2000, with personnel in most provinces having sound qualifications, although overall staff shortages and inexperience were highlighted as key weaknesses. More recently, Sandham and Retief (2016) found that in South Africa, EIA is widely taught at South African universities and has developed a robust body of research.

The evolution of EIA in South Africa towards becoming a fully-fledged profession has also led to attempts at standardizing work, formalizing training and the establishment of a registration authority, namely the Environmental Assessment Practitioners Association of South Africa (EAPASA). The multidisciplinary nature of EIA makes it a contested field, and various disciplines have attempted to lay claim to this area of expertise, most notably the biological/ecological community, especially during the early years of EIA. However, the growing realization of the importance of the human dimension of EIA has supported the growing contribution of a body of EAPs from non-ecological backgrounds, and the ongoing demand for postgraduate education in EA for students from a wide range of disciplinary backgrounds. In order to formalise the registration process of EAPs with EAPASA so-called unit standards had to be developed and a qualification registered with the South African Qualification Authority (SAQA) outlining core competencies for EIA training at a SAQA Level 8.

For the purpose of this evaluation three groups of role players were evaluated against eight KPIs (1.2 to 1.9) for all 42 cases. The KPIs aimed to evaluate level of education, professional registrations and experience. These KPIs talk to the basic assumptions that the relevant skills and competencies do exist in the South African EIA sys presents the outcome of the evaluation.

Figure 5-4: Performance of skills and competencies per KPI / relevant role player



The following conclusions are evident from Figure 5-4 in terms of consultants (EAP) skills and competencies (related to KPIs 1.2, 1.3 and 1.4):

- In relation to KPI 1.2, which considers conformance of skills and competencies of the consultants in relation to NQF level, the majority of cases conformed (33 from 38 with four that could not be determined) which confirms that the consultants were qualified at NQF level 8. The exceptions typically were four-year Landscape Architecture degrees and BSc undergraduate degrees. However, a particular challenge that emerged when evaluating the consultant skill and competencies is that it was not always clear who the assigned EAP was. The individual who signed the application form was not always the same individual who drafted the report. In some instances, much was made of the general competencies of the consultancy with less emphasis on the competence of the actual individual EAP. Ideally the EIA system should ensure that the identity of the EAP responsible for the EIA is clear and consistent throughout the process i.e. the person who signed the application form. We suspect some abuse might occur where more senior consultants are put forward as the EAP but that the actual work is done by more junior staff who might not yet qualify in terms of minimum skills and competencies. This is difficult to regulate, although the liability should be clearly assigned to a particular individual. This particular concern may be addressed in future when a projects must be signed off by a registered EAP (i.e. the EAP must be the primary reviewer or compiler of an EIA)
- In terms of field of study, the evaluation produced a mixed bag. A total of 27 cases conformed which suggest qualification that include specific environmental management/assessment training. Nine cases partly conformed which suggest related but not specifically environmental management/assessment training such as environmental engineering and landscape architecture. In three cases the consultant did not conform with qualification that had no relevance such as education and business management.
- In terms of experience the cases scored well with 23 conforming (more than five years), four partly conforming and six non-conforming. For nine cases the years' experience could not be determined from the case files. This is somewhat concerning since the years' experience should ideally be communicated in the EIA reports. The high number of EAPs with more than five years' experience is welcoming, with some having more than 20 years' experience. This experience data might suggest some level of success in retaining professionals within the EIA field.

In terms of specialist skills and competencies the following conclusions are made (related to KPIs 1.5, considering conformance of specialists' skills and competencies to relevant registration authorities; and 1.6, considering conformance of specialists' skills and competencies to relevant field of study):

- A total of 14 cases conformed where all specialists could demonstrate relevant registrations. In eight cases the majority of specialists demonstrated relevant registrations indicating partial conformance. In 12 cases non-conformance was adjudged where the majority could not demonstrate relevant registrations. Five cases could not be determined and three cases in the agricultural sector did not require specialist studies. Agriculture was worst performer with 3 non-conformances and 3 NAs. Energy had 1 non-conformance and 3 partial conformances and mining 4 non-conformances and 1 partial conformance, waste 3 non-conformances and 1 partial conformance seems to also perform poorly. When interpreting the latter results it should be acknowledged that many specialist fields don't have formal registration bodies, especially in relation to the social sciences i.e. SIA, VIA, etc. It is reasonable to conclude that where registration bodies did exist the relevant specialist were registered.
- The evaluation results for relevant fields of study (KPI 1.6) correlates well with the outcome in terms of relevant registrations (KPI 1.5). It is concluded that specialist studies related to ecological/biodiversity assessment (fauna, flora, aquatic, etc.), heritage impact assessment, archaeological assessment and technical engineering studies (i.e. bulk services, traffic, noise, etc.), relevant training and registration requirements were met. However, the competence of specialist conducting studies such as social impact assessment and visual impact assessment is more difficult to gauge due to lack of formal training and registration options in these specialist fields.

The evaluation concluded as follows regarding the skills and competencies of officials (related to KPIs 1.7, 1.8 and 1.9):

- In terms of KPI 1.7, relating to conformance of skills and competencies of officials in relation to NQF level 8, 18 conformances and 8 non-conformances were recorded. For a large percentage of the officials, the relevant information could not be sourced for this evaluation, which warrants specific mention and which raises concerns as almost a third of the recorded data shows non-compliance with the minimum requirements. This is particularly relevant to the mining and housing sectors which scored 50% non-compliance each.
- For KPI 1.8, considering conformance of skills and competencies of officials with relevant field of study, 22 conformances, 3 non-conformances and a partial conformance were recorded. From the data it seems that although the officials were qualified in the relevant fields of study, the level of qualification falls below NQF level 8 as discussed above. This means that opportunities for further study could address this shortcoming.
- KPI 1.9, that considered conformance of skills and competencies of officials with relevant experience, saw 24 conformances and 4 non-conformances being recorded. This shows that more than 50 % of officials have more than 2 years' experience. The experience however ranges from 2 to 20 plus years.

The registration authority, once in place will not distinguish between the registration of those doing the EIAs and those reviewing and administrating EIAs. In this regard competent authorities need to ensure an administrative system which ensures that registered EAP takes responsibility for, and signs off on the final review, especially in cases where a case file has been awarded to a candidate and/or EAP in training. Moreover, the requirement for registration will also (over time) require of EAPs to adhere to a code of conduct and to participate in Continuous Professional Development activities to maintain their EAP registration.

5.2 Activity Component: Efficiency

The activity component deals with the process or actions that use the inputs to produce the outputs (DMPE, 2011). In this case the activity component is related to activities comprising the EIA process and mainly relate to questions around procedural efficiency. The ToC inner logic identified 11 assumptions that underpin the different stages of the EIA process. Based on the outcome of the literature review and the case study analysis against six purposefully designed KPIs, these assumptions can now be tested.

The literature review showed that under the ECA regime approximately 50% of applications were finalised within 6 months from the application date and an additional 33% within a year (DEAT, 2006). The remainder was only finalised within a period of two years or more. In an effort to address this issue the 2006 EIA Regulations was the first to make provision for specified decision-making timeframes namely; 14 days for purely administrative actions, 45 days for review of minor reports and 60–105 days for review and decision-making on complex reports. These timeframes have evolved further during 2010 and 2014 visions of the EIA Regulations. Although literature on the efficiency performance post

2006 are not generally available anecdotal evidence suggest that these changes have provided an effective framework for compliance and enforcement around procedural efficiency, by government.

Figure 5-5 provides an overall summary of the activity component performance per sector, which suggest a particularly good performance across all KPIs. Out of 210 possible scores related to procedural efficiency the results show 149 conformances, 2 partial conformances, 12 non-conformances and 17NA (for KPI 2.3 not relevant to cases prior to the 2014 EIA Regulations) and 30 scores could not be determined. The generally good performance suggests no patterns across sectors. The EIA systems seems generally efficient in meeting the legal timeframes for the cases evaluated.

Figure 5-5: Performance results for activity component per sector (meeting timeframes)

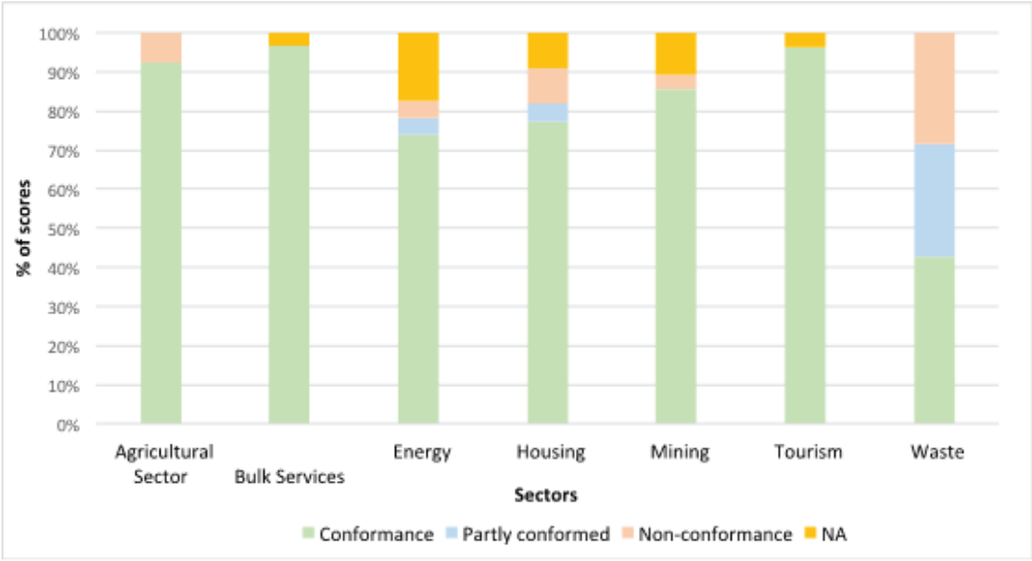
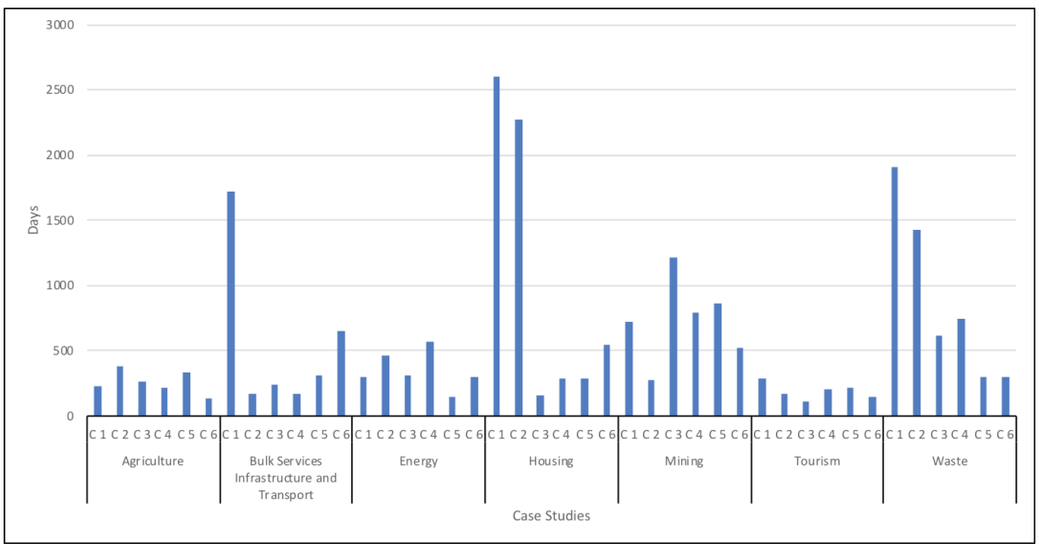


Figure 5-6 provides an overview of the total EIA timeframe measured from registration of the EIA to the issuing of the environmental authorisation for the 42 cases evaluated. It shows that the longest time was 2603 days and the shortest 115 days, with the average timeframe 568 days. The extreme cases could be considered exceptional instances with for example appeal processes and the resuscitation of a lapsing application. It is however evident that a number of cases performed well below the set legal timeframe which suggest that in some cases the process timeframe performs even better than what is legally required. The data shows that in most of the sectors and cases reviewed, the total time frames where shorter after the implementation of the 2014 regulations. It is surmised that this is due to the implementation of stricter time frames on consultants for drafting and submission of reports. In a majority of cases reviewed, legal time frames were complied with by the department.

Figure 5-6: Total EIA timeframe from registration to environmental authorization



In conclusion it needs to be stressed that the drive for procedural efficiency and/or 'streamlining' has also been shown to erode many of the important potential benefits of EIA such as transparency, public participation and consultation (Bond *et al,* 2014). Moreover, the quality of EIA could also suffer with less time for specialist studies to be conducted and less time for proper consideration of the outcomes of the assessment. Clearly a balance needs to be struck between providing a reasonable time for the EIA as well as avoiding unnecessary delays for applicants (DEA, 2014).

5.3 Output Component: Quality

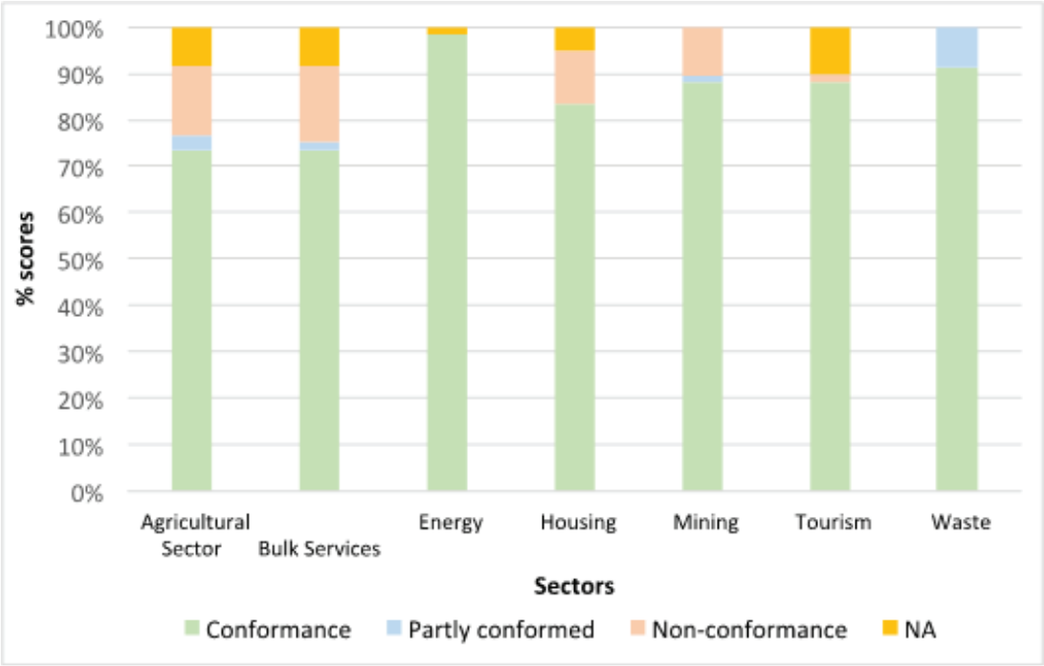
The output component represents the final goods or services that the intervention delivers (DMPE, 2011), which in this case relates to the EIA reports (i.e. Scoping, Basic Assessment, EIA, EMPr) used to inform authorisation decision making by the competent authority. Essentially the output component evaluation focus on the quality of report content, which relates to the assumption that an efficient process, as defined by the set timeframes, will produce good quality reports. The literature review shows that research on the quality of EIA has certainly been the most prominent area of EIA research in South African. In terms of reviewing the quality of EIA Reports, various review packages and guidelines have been developed, some date back to the 1990s (Lee and Colley, 1992; EC, 1994; Glasson, 1996). The Lee-Colley package is probably the most well-known and widely applied in developed and developing countries (Lee and Colley, 1992; Ibrahim, 1992; Mwalyosi and Hughes, 1998). Extensive progress has been made to adapt international report review packages such as the Lee Colley review package to the South African context (Sandham and Pretorius, 2007). These packages have been used to review EIA quality over time/temporal, for different provinces as well as for different sectors and themes. The extent and outcome of the report quality review research in South Africa is extensively covered in section 4.3 of the Literature Review Report (Bembani, 2017).

For this evaluation a total of 26 KPIs were designed to evaluate the outcome component for the 42 cases. A distinction is made between indicators dealing with completeness and indicators that deal with substance. The evaluation results in terms of completeness and substance is discussed in the following sections.

5.3.1 Completeness

Figure 5-7 shows the outcome of the report quality evaluation results in terms of completeness across sectors. The results show a particularly good overall performance. The NA scores refers to Basic Assessment applications which do not require a Plan of Study for Scoping (KPI 3.5). The overall good result means that no sector specific trends are observed. It can reasonably be concluded that in terms of covering the basic content of what is required, the EIA system 'ticks all the boxes'. The explicitly prescribed content requirements reflected in legislation, guidelines and report templates (i.e. Basic Assessment template) serves to facilitate completeness.

Figure 5-7: Performance results for completeness output component per sector



Although the completeness of the reports seems to be well addressed, the next section deals with the substance of the EIA reports, which is evidently more important when informing decision-making.

5.3.2 Substance

The analysis of substance considered performance across sectors as well as in relation to particular KPIs as reflected in Figure 5-8 and Figure 5-9, respectively. The results are varied with meaningful areas of good and weak performance across both sectors and KPIs. The substantive aspects performance overall produced 343 conformances, 118 partial conformances, 174 non-conformances and 28 NAs. Nine KPIs could not be scored based on the file content. The following main conclusions are made from the results:

- In the majority of cases the description of the activity was sufficient to identify listed activities (see KPI 3.11 with only 17Bs and 3Cs). However, examples were also found where at the time of application it was too early in the project design phase to provide a detailed project description, and/or the project design changed during the EIA process. Both these scenarios have implications for identifying the listed activities upfront with serious procedural and legal implications later on in the process. For example, mining cases where the project was only described as open cast mining or a project was only described as being the construction of on surface infrastructure for underground mining.
- The project description is critical in justifying the identification of key issues as basis for the assessment, generally understood as the scoping phase. Scoping is based on the premise that the assessment needs to focus only on the most important issues to optimize resources and avoid obfuscation. In this regard KPI 3.12, relating to sufficiency of information in the report, performed poorly with almost half the scores being either partial conformances or non-conformance (i.e. 23 conformances, 9 partial conformances and 10 non-conformances. The weakness in identifying key issues not only refers to instances where key issues were missed but also instances where unnecessary issues were included and specialists involved. For example, comprehensive heritage and archaeological assessments in questionable areas of heritage or archaeological significance. However, the evaluation does suggest consistency between the identification of key issues and the content of the plan of study for scoping (PSS) (KPI 3.15). The lack of a formal scoping phase in the BA process, combined with a BA report template, does not seem to assist with the identification of key issues and focussing the assessment.
- Need and desirability is based on the (sustainability) principles of Section 2 of NEMA - it requires the timing and location of the particular activity to be justified, as well as presenting a number of questions that require engagement with the sustainability principles of NEMA. This KPI, especially considering the importance thereof, was poorly addressed as almost half of the scores for KPIs 3.13. and 3.14 were either partial conformance or non-conformance. The lack of up to date policy guidance in some sectors exacerbates the difficulty in contextualising the appropriateness of development proposals (i.e. understanding the timing and need for development and to scope the key issues). Location considerations, as one of the need and desirability considerations, are slightly better considered in instances where IDPs, SDFs, SEAs and EMFs provide a spatial context. The renewable energy sector which has developed a strong strategic and policy context is an example where need and desirability has been well addressed. Other policy contexts where the policy context did exist were not always well considered. For example, the consideration of climate change and energy policy in coal mining applications. This suggests that short-term socio-economic factors are prominent with the assumption that development (even coal mining) in general is desirable.
- Results related to KPI 3.16, regarding consideration of alternatives, show that dealing with alternatives is a particular area of weakness, with more than half of the scores being partial conformances or non-conformances. Apart from the waste sector all other sectors seemed to have struggled with considering alternatives. There were instances where no alternatives were considered. Broadly speaking the lack of alternatives reflects a lack of mitigation thinking and failure to realize the value adding potential of alternative considerations. For example, the failure by applicants in several cases considered to adequately consider technology or location alternatives or statements around mining applications that there are no alternatives available. Admittedly the timing of EIA also influences the feasibility of certain alternatives, with in some cases much of the alternatives thinking having happened during the feasibility stage preceding the EIA. In one instance, alternatives thinking was found to have a substantial influence on the project, which ultimately resulted in an open cast mine being converted to an underground mine with great cost implications so as to minimise environmental impacts. It is recommended that the role of alternative also be debated it terms of its role in the application of the Impact Mitigation Hierarchy, especially the first step in the avoidance of impacts.

- Dealing with significance related to KPIs 3.17 and 3.18 is a particular weakness of the EIAs evaluated, with 30 conformances, 13 partial conformances and 36 non-conformances. The weaknesses are caused by inconsistencies in how significance is defined and measured, with specialists for example using widely different significance methods. The common use of quantitative scoring for subjective value judgements is methodologically flawed. For example, differing specialists on a single project, rating impacts on a sensitive wetland differently. Moreover, it is highly questionable that for all 42 cases not a single high significance rating was achieved after mitigation. In some instances, the significance findings of the specialists never made it into the EIA report and therefore inconsistencies exist. For example, statements by a specialist that the significant impact on a wetland is unavoidable, despite mitigation, not being included in the EIA report. Clearly guidance is needed on how to deal with significance in EIA. Cumulative effects are poorly dealt with as also reflected in the lack of cumulative considerations and thinking in significance ratings. None if any of the cases reviewed provided clear statements and showed an understanding of the cumulative impacts associated with the particular project.
- Dealing with mitigation is closely linked to significance. KPIs 3.19, 3.20 and 3.21 related to mitigation that performed particularly poorly with 41As, 25Bs and 58Cs. The main weaknesses related to the lack of application of the mitigation hierarchy, the jump between significance before and after mitigation as well as inconsistency between the mitigation measure recommended by specialist studies and the content of the final EIA report and EMPrs. Finally, the outcome that all impacts for the 42 cases were mitigated to a point of medium to low significance is questioned.
- The quality of EMPrs related to KPI 3.22 scored relatively well with 26 conformances, 8 partial conformances and 6 non-conformances. However, the generic nature of the content of the EMPs presents some cause for concern.
- The public participation aspects related to KPIs 3.23, 3.24 and 3.25 were particularly well addressed with 98 conformances, 13 partial conformances and 10 non-conformances. However, the adequacy of responses to issues raised was difficult to verify without also engaging with the public, which was not possible as part of this evaluation. However, based on the content of the project files and the reports we consider public comments well captured and addressed. The use of comments and response tables seemed to work particularly well in summarizing and communicating outcomes. Much could still be said about the adequacy of the responses contained in these tables, and if they qualify as being sufficient. For example, in numerous cases reviewed, consultants would make statements to the effect that IAP concerns around certain impacts were noted, and would be addressed through the implementation of the mitigation hierarchy as contained in the EMPr. As stated above the EMPrs are often generic and lacking sufficient details as to exactly how mitigation will be effected.
- Communication of results related in terms of KPI 3.26 scored mostly conformances, with only 9 partial conformances and 10 non-conformances. Although the overall performance seems relatively good there is still important room for improvement.

Figure 5-8: Performance results for substance output component per sector

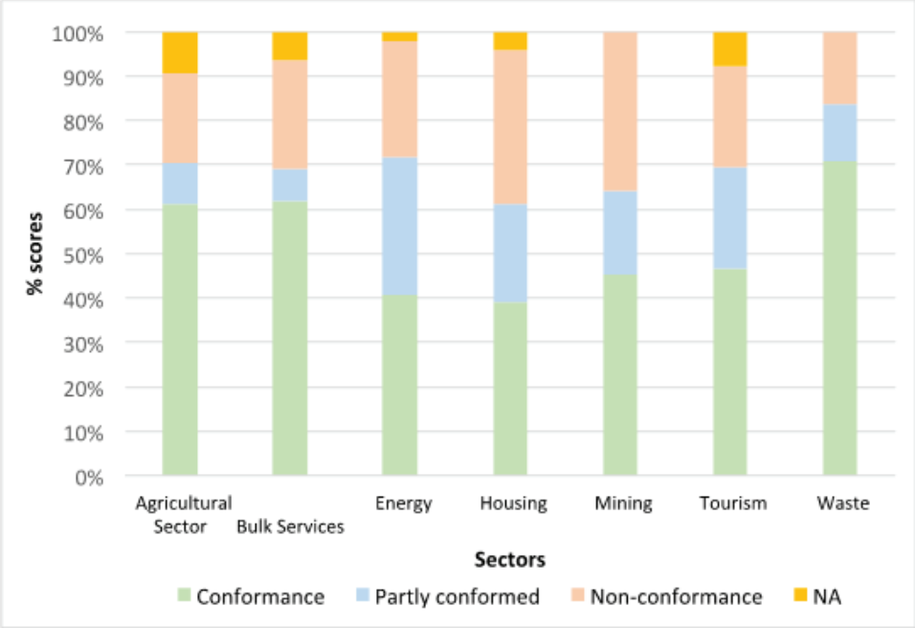
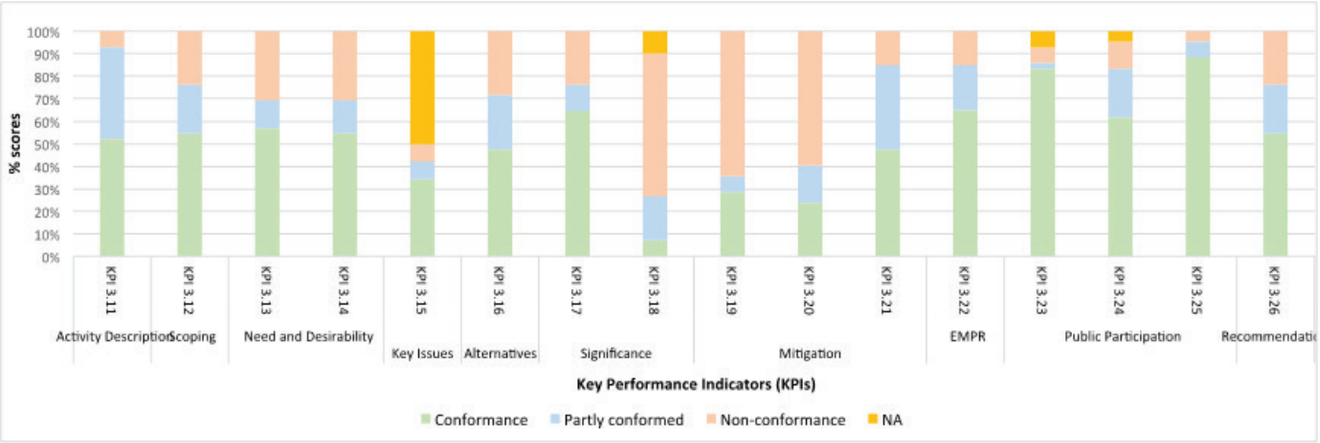


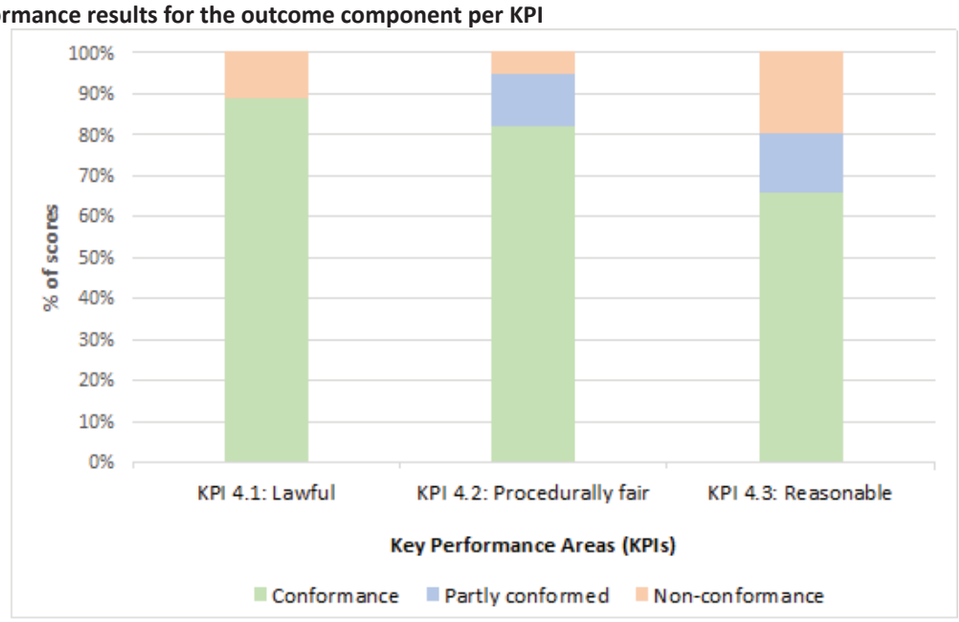
Figure 5-9: Performance results for substance output component per KPI



5.4 Outcome Component: Effectiveness

The outcome of the EIA process is a decision in the form of and environmental authorization which needs to be lawful, procedurally fair and reasonable. The constitutional right contained in section 33, which requires all that all administrative action be lawful, reasonable and procedurally fair, underpins this requirement. The aforementioned right is further given effect to by the Promotion of Administrative Justice Act (PAJA), Act No. 3 of 2000. The requirements relating to administrative justice within the EIA context was addressed in the literature review (Bembani, 2017). In essence when a decision is taken around an application, that decision must be supported by the evidence before it. It must be rationally based on the facts presented and the consequence of that decision must be proportional to the intended outcome. It can compellingly be argued that a decision-maker who does not attribute an appropriate weight to the considerations under his or her scrutiny will have acted unreasonably and the decision may then be taken on review. Very little empirical research exists on the effectiveness of EIA in influencing decisions as highlighted in the literature review report (Bembani, 2017). In order to evaluate the outcome component for this evaluation three KPIs were designed and applied to the 42 cases. The results from the case evaluation are presented in Figure 5-10.

Figure 5-10: Performance results for the outcome component per KPI



The main findings from the outcome component evaluation are the following:

- The outcomes were generally lawful in terms of KPI 4.1 with the correct listed activities authorised for the majority of cases. The exceptions were cases where certain listed activities were missed, or the activities applied for in the application form did not correspond with the activities specified in the authorisation.
- The outcome of the EIA process could be considered procedurally fair in terms of KPI 4.2 with only 4 partial conformances and 3 non-conformances. This evaluation result aligns well with the good overall activity component results. Therefore, the procedural requirements are prescribed in law is well complied with.
- The reasonableness (i.e. rational and proportional) of the decision was measured against KPI 4.3, which asked if the content of the EIA report was reflected in the content of the environmental authorisation. Mixed results were obtained with a meaningful number of non- and partial conformance (7Cs and 5Bs). The instances of conformance might also be somewhat misleading because in some cases weak substance was translated into the authorisation, which would still suggest a weak outcome, albeit rational.

5.5 Impact Component

The impact component represents the results of achieving certain outcomes (DMPE, 2011). In this case the impact of the EIA system should be measured against the extent to which effect is given to the progressive realisation of the environmental right contained in Section 24 of the Constitution, as well as the extent to which it achieves the objectives towards delivering more sustainable outcomes reflected in the Section 2 principles of NEMA. The main causal assumption (between the outcome and impact components) is that lawful, procedurally fair and reasonable decisions underpinned by NEMA Section 2 principles, will lead to the realization of Section 24 and lead to more sustainable outcomes.

The impact component was evaluated through interview questions administered orally, face to face and in writing with 80 representatives of different stakeholder groups as described in section 2.2.2 above. The interviews with different stakeholder groups recognises the pluralistic (diverse) nature of perceptions of effectiveness in EIA, with the understanding that different groups have different expectations and therefore different views on effectiveness. The following sections present the interview data analysis results against the following three interview questions which aimed to address the six KPIs designed in relation to Section 24 of the Constitution:

- What are the main potential impacts /contributions of EIA?
- What are the main realized impacts or contributions of EIA?
- What can be done to bridge the gap between potential and realized impacts?

5.5.1 Main Potential Impacts or Contributions of EIA

The 80 interviewees (20 in each of the four stakeholder groups) cited 166 potential impacts in response to the first interview question. These potential impacts were then clustered into fifteen (15) broad impact themes. Where an impact group had a frequency of less than 10% (viz. where the total number of interviewees that supported that impact were less than 8) such impact themes were discarded as outliers leaving seven themes. The relative weights of the different themes are shown as percentages in Figure 5-11 and which stakeholder groups raised which theme in Figure 5-12. A description of each theme, also in relation to Figure 5-11 and Figure 5-12, is presented in the following sections.

The following are the seven (7) impact themes raised (see Figure 5-11):

Key impact theme 1 – promotion of sustainability in decision-making:

This was the most commonly raised theme with 33% of interview responses (see Figure 5-11). Moreover, the responses were equally representative of different stakeholder groups, which suggest some level of agreement (see Figure 5-12). It is especially noteworthy that this tenet of EIA was recognised by applicants too, the majority of whom saw the EIA process as a necessary requirement. For example, one applicant indicated that 'I believe that the average developer wants to leave the environment better off' while another described EIA as 'a very important tool'. Still another argued that 'EIA demonstrates applicant commitment that environmental, social and health impacts and risks have been reduced to a level that is as low as is reasonably practicable'. It was also evident, however, that there is a range of different understandings and discourses of what sustainability means. Therefore, although there is general agreement

that EIA serves to promote sustainability, there is also a need to define what is meant by the term. The use of terms such as sustainable development, ecologically sustainable development (as reflected in Section 4), sustainable services, economic sustainability, etc. in combination with or as synonymous with sustainability were reflected in the interview outcomes.

Key impact theme 2 - promotion of wellbeing through a safer environment:
This theme includes views that see EIA as a safeguard for environmental protection, which ultimately promotes human wellbeing. The EIA system is seen as an important mechanism to regulate the relationship between human activities and the environment thereby ensuring a safer environment. This theme was the second most common with 25% of the total interview responses (see Figure 5-11) and again was generally supported by all four stakeholder groups (see Figure 5-12).

Key impact theme 3 - promotes public participation:
This theme was supported by different stakeholder groups and delivered the third most responses (see Figure 5-11 and Figure 5-12). Public participation is considered a very important component of all EIA systems internationally, and justifiably even more so within South Africa's constitutional democracy after 1994. For one respondent the link to decision-making was also highlighted as that EIA 'ensures knowledge and understanding to allow for public input to again ensure informed decision making'. It is often mentioned that EIA is sometimes the only mechanism that provides a voice to communities about decisions and developments that affect them. One respondent raised concerns regarding the lack of "meaningful engagement" of interested and affected parties in rural communities, citing "jobs and economic opportunities" as being the key aspects that are presented during public participation processes, rather than substantive environmental issues and how the proposed development will impact on those. Unsurprisingly the NGO respondents rated the promotion of public participation as a key outcome of the EIA process with 9 out of the 20 respondents citing that outcome. This impact theme was the third most prominent with 14% of the impacts raised by all stakeholder groups (see Figure 5-11).

Key impact theme 4 – establishment of an environmental assessment profession:
It is evident that the EIA system has produced a new profession with numerous contributions in the public and private sector such as new skills, new knowledge and research, new academic programmes, a registration authority, and so forth. The various contributions related to this impact theme were mainly raised by the EAPs followed by competent authority and applicant stakeholder groupings (see Figure 5-12) with many NGOs not seeing this as an important EIA outcome. As will be seen in the following section applicants raised many concerns with this impact category about capacity and capability amongst the CAs. Interestingly, the NGOs stakeholder group called for the independence of EAPs and an end to a practice where applicants and EAPs sign non-disclosure agreements, thereby "prohibiting EAP from disclosing information on EIA undertaken". This comment necessitated the follow-up call to reform the EIA legislation to address this practice.

Key impact theme 5 - minimization and mitigation of environmental impacts:
This theme covers contributions around impact minimisation and mitigation. Since EIA is a regulatory instrument it provides the potential to regulate potential environmental impacts through purposefully designed mitigation measures. Interestingly only two of the four groups highlighted impact mitigation as an important EIA impact, namely the competent authorities and the NGOs. The perspective presented was one of the EIA mechanism bringing about reduced impacts for the benefit of the environment and society. Both the CAs and NGOs stakeholder groups indicated the need for proper application of the mitigation hierarchy as required by NEMA and the EIA regulations. It was highlighted that "EAPs, specialists and competent authorities must accept that EIA requires, in the first instance, anticipated impacts be avoided or prevented …". Applicants highlighted the importance of impact mitigation as an outcome of EIA but within the context of managing risks for their projects. As such readers are referred to Key impact 7 to see where applicants cited the value of EIA in reducing and mitigating impacts. This impact theme was the fourth most prominent with 8% of the impacts raised (see Figure 5-11 and Figure 5-12).

The following two impact themes each represent 4.5% of the total impacts raised (see Figure 5-11). They are also each raised by a single stakeholder group:

Key impact theme 6 - increase environmental awareness:
The EAP stakeholder group raised the potential impact of the EIA system of general environmental awareness (see Figure 5-12). The impact theme includes 5% of all the responses (see Figure 5-11) and relates to theme 3 around public

participation. It is possibly understandable that the impact is raised by EAPs since they are mostly involved with this aspect of EIA through their interactions with IAPs during EIA processes. Achieving environmental awareness through the EIA process is also rated highly by the NGOs who often express an expectation that PP must be both broader (include more participants) and deeper (higher levels of engagement and discussion) to ensure that people who are potentially affected by a development are made aware of the development and its consequences for such people. NGO's also often require a public meeting rather than an open house format for stakeholder engagement arguing that all participants should be exposed to all the questions and comments so as to broaden the awareness of such participants.

Key impact theme 7 – assists in risk management through identification and management of significant environmental impacts:

The applicant stakeholder group raised this potential impact of the EIA and highlighted some of the benefits being the ability of the system to identify environmental risks early in the project life cycle, which assists in reducing environmental and financial risks and also presents an opportunity to build a relationship with members of the public who might otherwise oppose the project. Again as described earlier this is an important differentiator between applicants and the other stakeholder groups. Whereas the other stakeholder groups see EIA as a mechanism for protecting the environment almost from applicants, applicants see the EIA as a process that through the identification and characterisation of impacts are able to pre-emptively manage risks to their projects thereby giving their projects the greatest possible opportunity of succeeding. As one respondent expressed it 'EIAs should improve environmental awareness of the developer and proactively identify pollution concerns so that these concerns can be addressed before construction of a site'.

Figure 5-11: Relative weight of different key impact themes as identified (n=166)

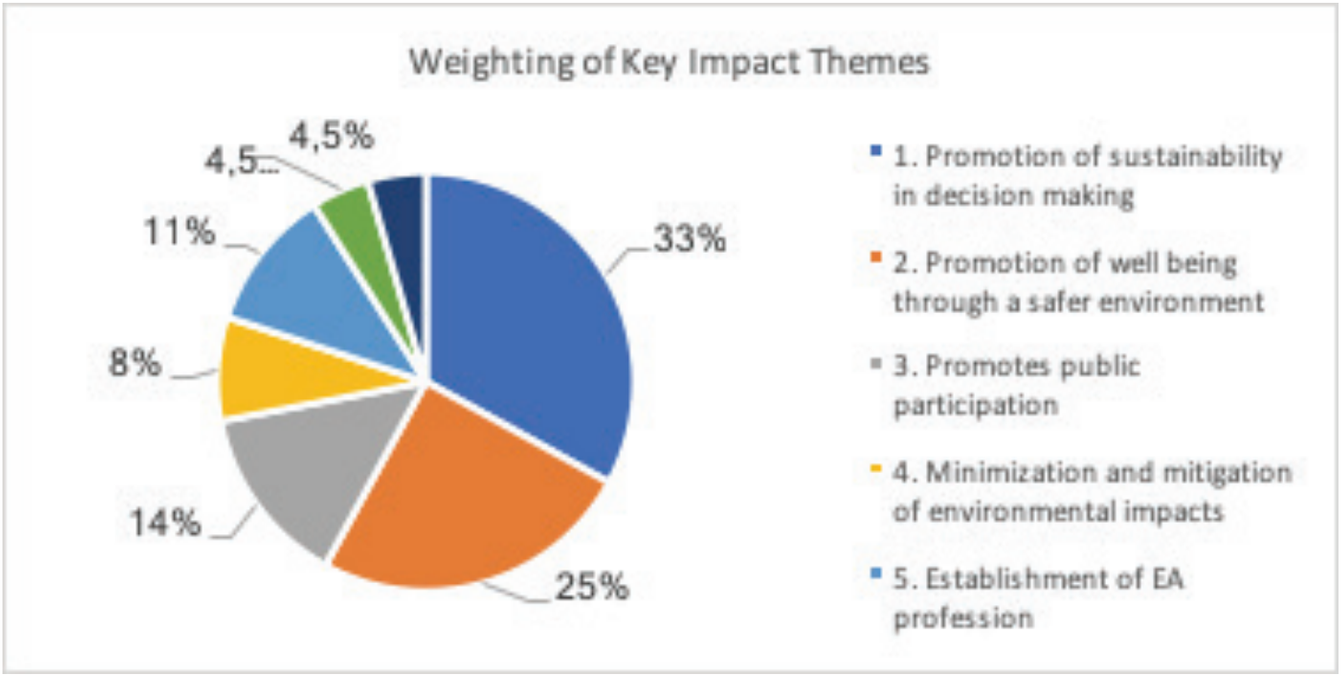
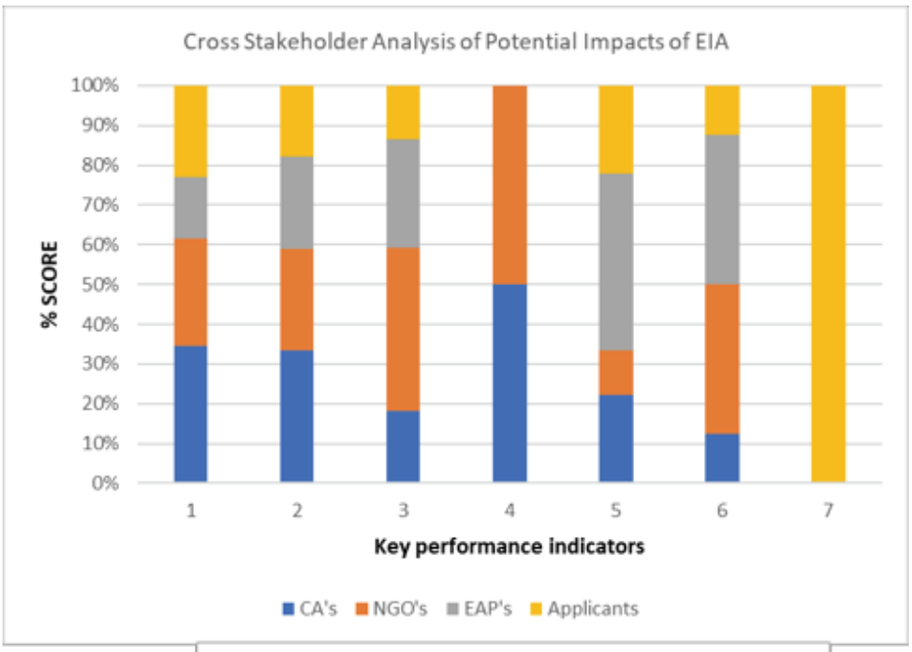


Figure 5-12: Cross stakeholder analysis of the potential impact of EIA.



The following are impact themes that could not be assessed further as fewer than 10% of the respondents thought they were important, namely:

- EIA has resulted in the abuse of public processes with trivial issues resulting in frivolous appeals and legal actions;
- Over-regulation has resulted in negative business and environmental prospects, especially for small enterprises that have had to deal with the EIA processes the costs of which outweighed their projects development;
- EIA allows for resources to be used appropriately and efficiently based on improvement of the environmental design of the projects;
- EIA contributes towards increased awareness of, and compliance with environmental standards that are designed to avoid or reduce social and environmental degradation;
- There has been an increased accountability towards environmental duties and responsibilities of government and non-government stakeholders through the introduction of internal appeal procedures, compliance monitoring and enforcement provisions and legal review mechanisms;
- Too much focus on process at the exclusion of important requirements like scientific rigour, opportunities and so forth; and
- Assists in ensuring full life cycle cost accounting.

5.5.2 Main Realised Impacts or Contributions of EIA

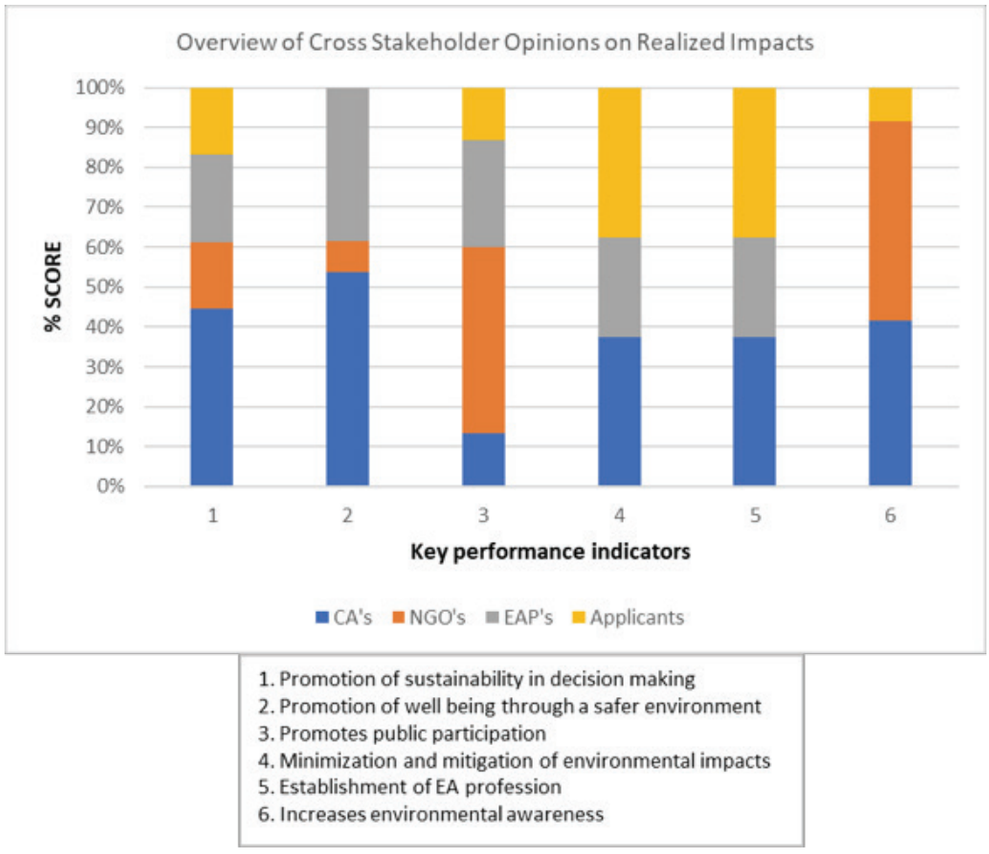
Interviewees were also asked to identify those impacts that they perceive to have been realised as a result of EIA. It needs to be stressed that the evaluation requested respondents to raise their views and did not ask if they disagreed with certain views put to them. This is important because the outcome of the analysis suggest emphasis on certain issues rather than disagreement with certain issues. We conclude as follows:

- All potential impact themes were achieved to some extent, but views differed between stakeholder groups as to the extent to which certain impacts were achieved - see Figure 5-13. The outcome of the stakeholder analysis shows that:
  - o Both the competent authorities (CA) and EAPs considered six of the seven impact themes to have been achieved

to some extent by EIA. One respondent indicated that there was a "progressive realisation of sustainable development goals", implying that sustainability has not yet been achieved, but there are significant milestones towards its achievement or realization. None of the groups indicated that EIA was fulfilling the role of effective risk management, not even the applicant group who identified the expectation in the first place. Assisting in risk management was not explicitly raised as an impact by the CA, although it might be that the support for public participation in general implicitly covers this impact.

- NGOs supported four of the seven impact themes namely promotion of sustainability in decision making, promotion of a safer environment, public participation and raised awareness. These themes align well with the general focus of NGO groups which is on giving a voice to IAPs and ensuring a safer environment. Therefore, this should be seen as a positive outcome from an NGO perspective.
- Strangely, EAPs supported five of the seven impact themes and most strongly the promotion of sustainability and a safer environment, however, in terms of the realized impacts, they supported six themes. This shows that the perceived potential impacts were not necessarily directly translated into realized, and new impacts were noted for the realization component. The establishment of a profession and mitigation of impacts were not explicitly highlighted by the EAPs. It is however evident that although not explicitly mentioned EAPs benefit directly from the establishment of a profession and all the impacts that result.

Figure 5-13: Overview of Cross Stakeholder Opinions on Realized Impacts.



For the evaluation of the impact component six KPIs were designed in relation to Section 24 of the Constitution – see Appendix C. The seven identified key impact themes align well with the six impact KPIs as shown in Table 5-1, which shows that five of the six KPIs are being achieved to some extent. The only KPI not addressed is KPI 5.4 related to the promotion of conservation. It seems from the analysis that the EIA system is not explicitly considered by those interviewed as a tool for conservation. This maybe reflects the focus of EIA as more of a tool towards facilitating and/or promoting just socio-economic development than pure conservation outcomes.

Table 5-1: Impact component KPIs versus realised impact themes

Key Performance Indicators		Related achieved key impact themes
5.1	To what extent did the EIA realize an environment that is not harmful to health and well-being?	2
5.2	To what extent did the EIA achieve protection of the environment over the immediate and long term?	2
5.3	To what extent did the EIA succeed in preventing pollution and ecological degradation?	4,5
5.4	To what extent did the EIA promote conservation?	-
5.5	To what extent did the EIA secure ecologically sustainable development?	1
5.6	To what extent did the EIA promote justified economic and social development?	2, 3, 4, 5,6, 7

5.5.3 Bridging the Gap Between Potential and Realised Impacts

The final question put to the interviewees was what was needed to bridge the gap between the potential and realized impacts of EIA. The results are summarised in Figure 5-14. It can be seen from the figure that all four groups supported the principle of increased compliance and enforcement although the NGO group are seen to have highlighted that requirement to the least extent, less even than the applicants. This observation may stem from the fact that the NGO's focussed more directly on EIA as a mechanism whereas the other groups saw beyond the EIA process. It seems highly unlikely that NGO's would not fully support the principle of greater compliance and enforcement in general but perhaps do not see that function necessarily bettering the impact of EIA.

Again all four groups saw merit in making provision for exemptions or following alternative processes for small-scale developments although this was least supported by the NGOs. It is interesting to note that the principle was strongly supported by the CA group probably reflecting the fact that smaller scale applications constitute a significant part of their workload and the CAs view that their time would be better spent focussing on larger scale developments with potentially higher risks to the environment. The larger support for the principle from the applicants group is again not surprising as that group strongly highlighted the need for greater efficiency from the EIA process. One respondent from that group offered that EIA 'should adopt a risk-based approach and not have to deal comprehensively with all issues' while another highlighted the need for realism and pragmatism. The applicant group also suggested 'with EIA, the focus should be on developing generic regulatory and administrative criteria to determine significance. Based on an initial significance evaluation, authorities then determine whether a project should be subjected to EIA'. The NGO group indicated the need for a more robust screening and scoping phases of the EIA in support with the 'new screening tool" that was developed by DEA. They also appear to call for law reform to deal specifically with "proper screening and scoping".

In respect of developing (and adopting) and implementing other IEM tools, all four groups express agreement with the principle although the applicant group least supported it. The lack of support appears to stem from what the applicant group highlighted as a range of planning mechanisms that already exist but that are not used to make EIA more efficient. For example, one respondent offered that 'NEMA is still a silo of legislation and doesn't speak practically with SPLUMA and LUPO - municipal planning (IDP, SDFs, etc.). Still one of many silos. DEA can only deal with its silo (understand that), but to get the economy going, get the silos to talk to each other. That is where the frustration lies, overlaps between regulations, policies and legislation and lack of certainty of CA'. In similar vein additional IEM processes may be perceived as simply 'additional hoops that need to be jumped through' rather than necessarily making the environmental assessment process more effective and efficient as articulated by another respondent from the applicant group who said 'fight harder for the environment - but at the same time, fight back against red tape, unnecessary nonsense, bureaucracy and not a slave to paper and tick-box exercises'.

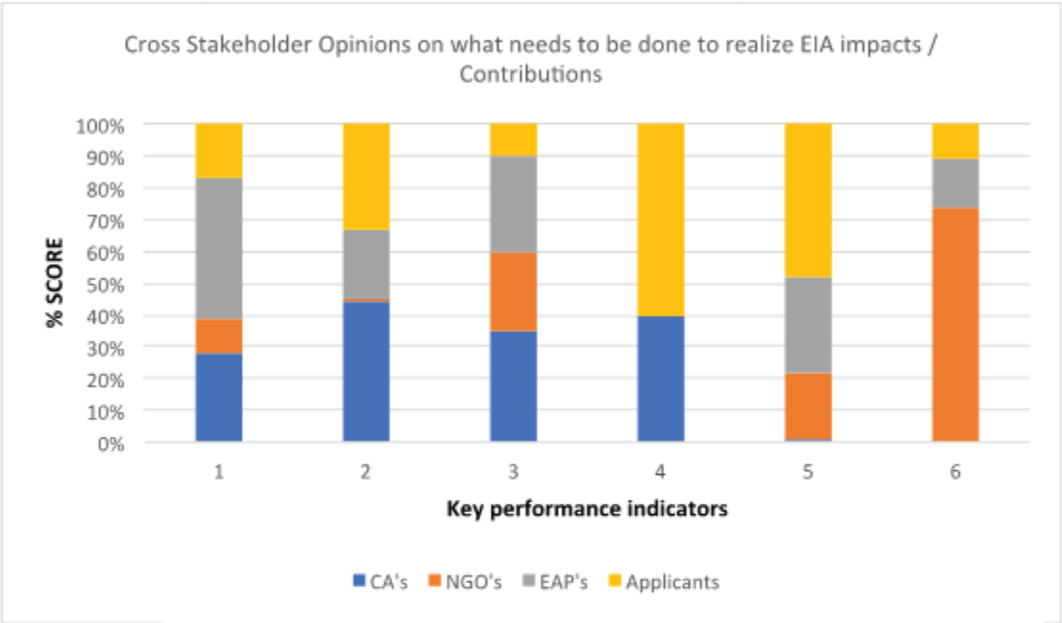
In respect of timeframes neither EAPs nor NGOs highlighted extending the timeframes as important for realising the potential impacts of EIA but there was support for the principle from the CA group. The support from the applicant group was not to extend the time frames but rather to reduce them further still. That requirement must be seen within the context of all the planning approvals that are required before a development can be implemented. As one respondent observed 'Look at projects these days, take minimum 3 years, from the time you identify the site to the day you get contractors on site - nothing less than 3 years - we could reduce it to 1 year. All interdependent, environment

on humans, and communities on environment - where do we strike the balance? We should move away from being stringent in terms of process - look at what is on the ground and grant approval as soon as possible'.

In respect of building capacity, it is somewhat ironic that the CA groups did not highlight this as a requirement. The applicant group expressed considerable frustration in respect of this issue with comments directed at especially the DMR ('Travel from CT to Gauteng - see them (MPRDA - environmental focus). Make appointments. Cannot reach them. They make commitment to meetings, but when you arrive the lights are out as they didn't pay their bills, everyone went home - not there. Happen in last 3 years at least 5 times. Applicants just fork out a whole lot of money for very little meaningful return') and DWS ('DWS is a disaster. No capacity, not trained or have experience') but with a number of views highlighting the need to build capacity across the board e.g. 'Heritage Western Cape - so pedantic so nobody wants to work with them. Instead of making better heritage conservationists out of all of us, they fight about everything, for example, they stopped a project due to old coin, then discovered it was not so important, but the delay to the project was a huge cost for the developer. Triple bottom line goes for a loop. Because of the bureaucratic approach' and 'DEA&DP and NEMA were the problem child, no longer the case. Now conservation, heritage, municipal planning, infrastructure provision and lack of decision making at these levels are the problem. NEMA and DEA&DP are now efficient, yet, land-use applications take much longer. NEMA legislation and regulations cleaned up and well done, but battle is not won in terms of facilitating development and building up the economy'.

Finally, but importantly there is strong support from especially the NGO group that independence of EAPs should be assured through hiring and payment by independent body and some support from both the EAP and applicant groupings but no support from the CA group. The principle of independent appointment of EAPs has been debated widely and there is no doubt that there are important logistical and technical constraints to implementing such a system but it is still possible. It is argued here, however, that 'improving' independence will not necessarily translate into better quality reports in the same way that a lack of independence does not necessarily translate into a poor quality report and this expectation would need to be carefully considered.

Figure 5-14: Cross stakeholder opinions on what needs to be done to realise EIA impacts.



1. Increased enforcement and compliance
2. Make exemptions provision
3. Develop and implement other IEM tools
4. Extend the timelines for the EIA process
5. Build capacity of different stakeholders
6. Ensure independence of the EAPs

6. KEY EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This section provides a summary of the key evaluation questions and how they relate to the evaluation components, main conclusions and recommendations. In order to assist the reader in making these links a table format is used and included as Table 6-1.

Table 6-1: Summary of conclusions and recommendations related to the evaluation components and key evaluation questions

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
DESIGN (See Assumption 1 on Figure 3-1 and section 3.1)	What are the objectives of EIA in South Africa?	• EIA System is prescribed and vested in law. • Realisation of the environmental right described in Section 24 of the Constitution of the Republic of South Africa. • Promotion of the Section 2 principles of NEMA. • Achievement of sustainable development as defined in NEMA and relevant case law. • Ensure the realisation of section 33 of the Constitution which requires just administrative action	• No recommendations. However, there are various recommendations listed below which might require law reform which will change the design component towards improving the overall system performance.
INPUT: SKILLS AND COST (See Assumptions 2-3 on Figure 3-1 and section 3.1)	How is EIA expected to achieve its objectives?	• EIA recognises the validity of quantitative and qualitative data, thereby accommodating more subjective elements of impact predictions, values and views as well as objective evidence. EIA is understood to be both an 'art' and a 'science. • The state is mandated to authorise and regulate activities, after considering the potential consequences or impacts of these activities on the environment. • Legislation provides clear procedural and content requirements as basis for decision making, which requires decisions to be procedurally fair, lawful and reasonable (rational and proportional). • The decision making mandate is vested with provincial and national spheres of government where administrative capacity is provided. • The implementation of the EIA system is reliant on sufficient inputs around skills and competencies as well as time and money.	• No recommendations. See recommendations described below related to key evaluation questions on skills and competencies as well as cost.
	Is there sufficient skills and competencies to implement the EIA System?	• The consultant qualifications seem to meet NQF level 8 standards. However, the fields of study vary widely, with seemingly no standardised EIA training. Therefore, it is difficult to gauge the extent of skills and competencies related to different programmes. Although the experience of consultants was not always verifiable, many had more than five years' experience. • The specialist skills and competencies can be clearly divided between those specialist fields with focussed qualification and registration authorities such as the ecologist, archaeologists, heritage specialists, engineers, etc. and those who don't such as SIA, VIA, noise impact assessment, etc. The line of distinction seems to be between the so-called hard and soft sciences. The lack of specific training and registration options for certain fields of specialisation continue to present a particular challenge to the credibility of the EIA outcomes.	• There is a need to verify the incorporation of the developed unit standards for environmental assessment practitioners across different university programmes. This action should aim to address the need for standardised training for EAPs across different programmes. We suspect that this function will typically reside with EAPASA. • Ideally certain fields of specialisation commonly used in EIA, should be working towards formal qualification standards and registration bodies to strengthen the credibility of the EIA outcomes. In particular, SIA and VIA. • Provision needs to be made to confirm the designation of the individual EAP/consultant throughout the process. This is to ensure that responsibility and accountability can be assigned.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
		• Officials seem to be qualified in relevant fields of study with reasonable experience beyond two years. However, from the cases evaluated there seems to be a particular need for officials to extend their qualification to NQF level 8.	• There seems to be a specific need for further post graduate studying opportunities for government officials, in view of the fact that many don't comply with NQF level 8. Interaction between tertiary education bodies and environmental authorities might be required.
	What has been the economic impact of the EIA process on identified sectors? (See KPI 1.1)	• There is no existing literature on the full economic impact of EIA on specific sectors in South Africa. • Determining the economic impact of EIA is exceedingly difficult from a conceptual and methodological perspective. • Research based on 148 cases suggests that the average direct cost of EIA in South Africa is particularly low compared to international EIA systems. • As a percentage of total project costs (international benchmark being 1% of total project cost), EIA in South Africa compares with the higher spectrum of international practice. This suggests that a large number of EIAs are being conducted for relatively small scale projects, which might be placing a notable cost burden on small and medium enterprises. • Certain sectors are more affected than others. The EIA requirements for big projects in the mining, energy, bulk services and housing sector for example, with potential significant impacts, do not seem to present a major cost burden to the sector and support the assumption that the benefits of EIA outweigh the costs. • It seems evident that a meaningful economic burden result for certain projects in the agriculture and waste sectors such as small scale waste management and small scale agricultural developments. In these cases, the cost benefit of EIA is questionable. However, this economic burden could be addressed should the EIA regulatory requirements be applied in a more discretionary manner, taking into account for example project size, location and environmental impact during the application and screening phase. There should be a mechanism in law to allow for discretion around the need for and extent of EIA related to such small projects.	• To amend the current screening mechanism for small to medium size activities in order to reduce the EIA regulatory cost burden. However, the environmental impact is not only a function of project size, for example the high potential impact of feedlots and waste management facilities. Therefore, we recommend a referral system which requires interpretation and discretion by government on the need for and extent of EIA required on a case by case basis for lesser impact activities (typically listed in the current listing Notice 1). This approach is common internationally and reflects the options for exemption and/or exit after scoping under the previous ECA regime. The current initiatives around EMF and delisting as well as Listing Notice 3 could also contribute.
ACTIVITIES (See Assumptions 4-14 on Figure 3-1 and section 3.1)	To what extent has the EIA process been efficiently implemented?	• Measured purely against meeting the legal timeframes as prescribed under different EIA legal regimes, a high level of efficiency has been achieved. The procedural amendments introduced through the 2014 EIA Regulations seemed to have consistently produce EIA processes of around 300 days. • The EIA system therefore presents a high degree of procedural certainty in terms of timeframes. This result is significant from an indirect cost perspective because it suggests that developers can have a high degree of certainty in terms of the EIA timeframes, which could then be built into project planning to avoid delays and related construction cost inflation.	• It is worth highlighting that under the ECA EIA regime 50% of applications were completed within six months and around 30% received Section 28A exemption. Therefore, the ECA regime produced arguably the best efficiency results measured purely against number of days from registration to decision. The mechanisms under ECA that made this possible was exemption provisions (during screening) and early exit options (after scoping). The latter however, was supported by allowing a degree of government discretion and overall more procedural flexibility. To further improve efficiency, it is recommended that early exit options be considered, for example during the screening and scoping phases of the EIA process.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
			• The total number of EIA consultants in South Africa is not known and impossible to determine through traditional surveys. However, the registration database to be developed by EAPASA over the next few years should provide a clearer picture of the number of EAPs in the private and public sector. Once the numbers are known, it should be possible to develop a capacity formula for government that sets an optimum standard in terms of the number of EIAs assigned per official, to guide capacity decisions related to the profession in future.
OUTPUT (See Assumption 15 on Figure 3-1 and section 3.1)	What is the quality of EIA reports and processes?	• The evaluation shows that in terms of 'completeness' the cases performed well. The detailed legislative requirements and prescribed report templates no doubt assisted in producing completeness. • The report quality in terms of 'substance' performed poorly in relation to dealing with aspects such as alternatives, significance and mitigation. • Explanations on why the quality of EIA reports were weak in terms of 'substance' remain somewhat speculative, although certain causal arguments could be made. For example, causal questions could be asked: o To what extent the drive for procedural efficiency is eroding the substance quality of EIA reports? o How is it that consultants with seemingly appropriate training and experience produce weak substance reports? o Why do government officials with seemingly appropriate qualifications and experience approve weak substantive reports? o How is it possible that across 42 EIAs (in seven sectors including mining, bulk services infrastructure, energy, etc.) not a single case found a high significant impact after mitigation? Can all impacts therefore be mitigated to low and medium significance?	• It is evident that clarification around the concept of significance is needed to improve the quality of EIA report substance. In particular, a common understanding is needed in terms of different methodological approaches to significance. It is therefore recommended that clarification and guidance be provided from a legal and methodological perspective. Improving EIA quality in terms of significance will indirectly also positively address a number of other weaknesses such as need and desirability, alternatives and mitigation.
OUTCOME (See Assumption 16 on Figure 3-1 and section 3.1)	To what extent has EIA influenced decision making?	• The evaluation results show that overall, with some minor exceptions the environmental authorisations were lawful in that the activities approved correlated with the activities applied for. • The good performance in terms of procedural efficiency and compliance suggest that the decisions were generally procedurally fair, based on the legislative standards. The compliance in terms of public participation requirements also supports this conclusion.	• The recommendation to improve the outcomes of the EIA system (i.e. the decision making) relates to the improvement of the substantive quality of the EIA report described above.

EVALUATION COMPONENTS	KEY EVALUATION QUESTIONS	CONCLUSIONS	RECOMMENDATIONS
		• The content and environmental authorisations did reflect the content and recommendations from the EIA report and therefore a level of reasonableness (which includes rationality and proportionality) was achieved. However, many EIA reports produced weak substance on which to base decisions, which puts into question the quality of decisions made from a substantive perspective. So the question is: o Can we make good decisions based on substantively deficient EIA report quality? o Are lawful, procedurally fair and reasonable decisions enough to make an impact?	
IMPACT (See Assumptions 17-19 on Figure 3-1 and section 3.1)	To what extent has the EIA process been effective in achieving its objectives, towards sustainable development?	• The interview results show that the perceived impact of the EIA system do speak directly to important NEMA Section 2 principles as well as the content of Section 24 of the Constitution. The only aspect of Section 24 not explicitly achieved to some extent seems to be the promotion of conservation outcomes. • The overall outcome of the system evaluation supports the international understanding (discourse) that EIA systems produce incremental gains contributing towards sustainability (see Pope et al 2017). In the case of South Africa, the incremental gains refer to the progressive realization of NEMA Section 2 principles and Section 24 of the Constitution. • It is not possible to measure the impact of the EIA system towards specific goals or objectives because the objectives of EIA defined in NEMA and Section 24 of the Constitution has not been quantified (if this is even possible?).	• The system evaluation suggests that as it stands, the impact of the EIA system cannot be measured and/or evaluated until such time as well defined and measurable objectives are developed. This is due to the lack of quantifiable and well defined targets and objectives for the EIA system as a whole.

7. APPENDICES

7.1 Appendix A: References

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7.2 Appendix B: Logical framework for implementation evaluation of the South African EIA System

Narrative Summary	Key Performance Indicators (KPIs)	Means of verification	Assumptions
Impact (the results of achieving specific outcomes)			
Progressive realisation of the Environmental Right contained in Section 24 of the Constitution	The following indicators are indicative of the extent to which the Environmental Right contained in Section 24 of the Constitution is progressively being realised. (see Figure 2, KPI 'F (6)')	Interviews with key stakeholders	Informed decisions regulating future activities, that are lawful, reasonable and procedurally fair as well as underpinned by NEMA Section 2 principles, will lead to progressive realization of the Section 24 environmental right. (see Figure 2, Assumptions 1 and 19)
	To what extent does the EIA system realize an environment that is not harmful to health and well-being?	Interviews with key stakeholders	
	To what extent does the EIA system achieve protection of the environment over the immediate and long term?	Interviews with key stakeholders	
	To what extent does the EIA system succeed in preventing pollution and ecological degradation?	Interviews with key stakeholders	
	To what extent did the EIA promote conservation?	Interviews with key stakeholders	
	To what extent did the EIA secure ecologically sustainable development?	Interviews with key stakeholders	
	To what extent did the EIA promote justified economic and social development?	Interviews with key stakeholders	
Outcomes - intermediate (the results / what we wish to achieve over time)			**Assumptions for intermediate outcomes to lead to Impacts**
Giving effect to the NEMA Section 2 Principles	The KPIs included under the impact component above are also indicative of the extent to which the intermediate outcomes are realised and therefore no separate indicators are developed. (see Figure 2, KPI 'F (6)')	Not applicable	Decisions are underpinned by the NEMA Section 2 principles. (see Figure 2, Assumption 17)
Outcomes - immediate (the results / what we wish to achieve immediately)			**Assumptions for immediate outcomes to lead to Impacts**
Informed Decisions regulating future activities based on the EIA report recommendations, that are lawful, procedurally fair and reasonable (i.e. rational and proportional)	The following indicators are indicative of the extent to which decisions were lawful, reasonable and procedurally fair. (see Figure2, KPI 'E(3)')	Documentation evaluation	Decisions are lawful, reasonable and procedurally fair. (see Figure 2, Assumption 18)

Narrative Summary	Key Performance Indicators (KPIs)	Means of verification	Assumptions
	To what extent did the application authorise the correct listed activities? (lawful)	Verify listed activities in the application with what is authorised	
	To what extent did the process comply with minimum legal procedural requirements? (procedurally fair)	Verifying procedural compliance based on documentation review	
	To what extent was the decision described in the environmental authorisation consistent with and based on the content of the EIA reports? (reasonable / rational / proportional)	Verifying consistency between EIA reports and decisions.	
Outputs (the main products towards achieving the outcome)			**Assumptions for outputs to lead to outcomes**
Good quality Reports containing sufficient information to inform proposal design and make informed decisions on proposed activities that may detrimentally impact on the environment.	The following indicators are indicative of the completeness of the EIA report content (but does not talk to substantive quality). (see Figure2, KPI 'D (26)')	Documentation evaluation	Good quality reports will lead to informed decisions. (see Figure 2, Assumption 16)
	Was a description of the proposed activity provided?	Documentation evaluation	
	Was need and desirability described?	Documentation evaluation	
	Were key issues identified?	Documentation evaluation	
	Have alternatives been considered?	Documentation evaluation	
	Was a plan of study included?	Documentation evaluation	
	Was significance determined?	Documentation evaluation	
	Was significance dealt with before and after mitigation?	Documentation evaluation	
	Was public participation conducted?	Documentation evaluation	
	Was an EMPr submitted which describes mitigation measures?	Documentation evaluation	
	Was an impact summary statement provided?	Documentation evaluation	
	The following indicators are indicative of the substance quality of the EIA report content.	Documentation evaluation	
	Was the description of the activity provided sufficient to inform the identification of listed activities?	Documentation evaluation	
	Was the information provided sufficient to justify the identification of key issues (scoping)?	Documentation evaluation	

Narrative Summary	Key Performance Indicators (KPIs)	Means of verification	Assumptions
	Was the timing of the development justified in relation to need and desirability?	Documentation evaluation	
	Was the location of the development justified in relation to need and desirability?	Documentation evaluation	
	Did the plan of study incorporate the key issues as identified during scoping?	Documentation evaluation	
	Were reasonable alternatives presented and assessed?	Documentation evaluation	
	Was significance determined according to a justified methodology, which includes the method and its application?	Documentation evaluation	
	Was the determination of significance consistently applied across specialist disciplines?	Documentation evaluation	
	Was justification provided for different proposed mitigation measures against the mitigation hierarchy?	Documentation evaluation	
	Has the significance rating after mitigation been justified?	Documentation evaluation	
	Were the proposed mitigation measures as described in the impact assessment incorporated into the EMPr?	Documentation evaluation	
	Were roles and responsibilities assigned meaningfully in relation to management actions in the EMPr?	Documentation evaluation	
	Was there any supplementary information submitted to the authorities that was not in the public domain?	Documentation evaluation	
	Were all comments from IAPs adequately responded to in the impact assessment process and reports (not relegated to comments and response reports)?	Documentation evaluation	
	Were all key IAPs consulted in the impact assessment process?	Documentation evaluation	
	Were the key recommendations from the impact assessment justified and clearly summarised in a non-technical fashion?	Documentation evaluation	
Activities (to achieve the outputs)			**Assumptions for activities to lead to outputs**
EIA process as prescribed in the EIA Regulations	The following indicators are indicative of the efficiency of the EIA process measures against the prescribed timeframes. (see Figure 2, KPI 'C (6)')	Documentation evaluation	An efficient process, as defined by the set timeframes, will produce good quality reports. (see Figure 2, Assumptions 4 to 15)
	Did the competent authority acknowledge and accept the application within the prescribed timeframe?	Documentation evaluation	
	Were the regulatory timeframes met for public participation?	Documentation evaluation	
	Did the consultants submit their reports within the prescribed timeframes (only 2014 Regulations applicable)?	Documentation evaluation	

Narrative Summary	Key Performance Indicators (KPIs)	Means of verification	Assumptions
	Did the competent authority acknowledge the final report submissions within the prescribed timeframe?	Documentation evaluation	
	Did the competent authority make and communicate their decision within the prescribed timeframe?	Documentation evaluation	
	Was the appeals process conducted according to the prescribed timeframes?	Documentation evaluation	
Inputs that contribute to the delivery of the activities and output component			Assumptions for inputs in order to support activities
Time and money for implementation of the EIA process provided by the applicant for conducting the EIA and government with administration	The following indicator is indicative of the cost-benefit of the EIA. (see Figure 2, KPI 'B(1)')	Documentation review and personal communication	The benefits of doing EIA outweigh the costs. (See Figure 2, Assumption 3)
	Did the direct EIA costs fall below the international benchmark of 1% of total project cost?	Documentation review and personal communication	
Skills and competencies that underpin the EIA process (A)	The following indicators are indicative of the skills and competencies that underpin the EIA. (see Figure 2, KPI 'A (8)')	Documentation review and personal communication	Sufficient skills and competencies exist to implement the EIA system. (see Figure2, Assumption 2)
	To what extent do the skills and competencies of the consultants conform with NQF level 8?	Documentation review	
	To what extent do the skills and competencies of the consultants conform with relevant fields of study?	Documentation review	
	To what extent do the skills and competencies of the consultants reflect relevant experience?	Documentation review	
	To what extent do the skills and competencies of the specialists conform with relevant specialist registrations?	Documentation review	
	To what extent do the skills and competencies of the specialists conform with relevant fields of study?	Documentation review	
	To what extent do the skills and competencies of the officials conform with NQF level 8?	Communication with department	
	To what extent do the skills and competencies of the officials conform with relevant fields of study?	Communication with department	
	To what extent do the skills and competencies of the officials reflect relevant experience?	Communication with department	

7.3 Appendix C: Evaluation Instruments – Documentation and Interview evaluation sheet

DOCUMENTATION EVALUATION SHEET					
EIA Project:			Evaluation Date:		
	Evaluators:				
Checklist Ref.	Documentation evaluated:				
	Person/s interviewed (if applicable):				
A = Conformance	**B** = Partly conformed	**C** = Non-conformance	**NR** = not evaluated	**NA** = not applicable to the scope	**?** = Status could not be established during the evaluation
KPIs	Question		Value	Comments	
INPUTS COMPONENT					
KPI 1.1	Did the direct EIA costs fall below the international benchmark of 1% of total project cost?				
KPI 1.2	To what extent do the skills and competencies of the consultants conform with NQF level 8?				
KPI 1.3	To what extent do the skills and competencies of the consultants conform with relevant fields of study?				
KPI 1.4	To what extent do the skills and competencies of the consultants reflect relevant experience?				
KPI 1.5	To what extent do the skills and competencies of the specialists conform with relevant specialist registrations?				
KPI 1.6	To what extent do the skills and competencies of the specialists conform with relevant fields of study?				
KPI 1.7	To what extent do the skills and competencies of the officials conform with NQF level 8?				
KPI 1.8	To what extent do the skills and competencies of the officials conform with relevant fields of study?				
KPI 1.9	To what extent do the skills and competencies of the official reflect relevant experience?				
ACTIVITY COMPONENT					
KPI 2.1	Did the competent authority acknowledge and accept the application within the prescribed timeframe?				

KPI 2.2	Were the regulatory timeframes met for public participation?		
KPI 2.3	Did the consultants submit their reports within the prescribed timeframes (only 2014 Regulations applicable)?		
KPI 2.4	Did the competent authority acknowledge the final report submissions within the prescribed timeframe?		
KPI 2.5	Did the competent authority make and communicate their decision within the prescribed timeframe?		
KPI 2.6	Was the appeals process conducted according to the prescribed timeframes?		
OUTPUT COMPONENT			
	The following indicators are indicative of the completeness of the EIA report content (but does not talk to substantive quality).		
KPI 3.1	Was a description of the proposed activity provided?		
KPI 3.2	Was need and desirability described?		
KPI 3.3	Were key issues identified?		
KPI 3.4	Have alternatives been considered?		
KPI 3.5	Was a plan of study included?		
KPI 3.6	Was significance determined?		
KPI 3.7	Was significance dealt with before and after mitigation?		
KPI 3.8	Was public participation conducted?		
KPI 3.9	Was an EMPr submitted which describes mitigation measures?		
KPI 3.10	Was an impact summary statement provided?		
	The following indicators are indicative of the substance quality of the EIA report content.		
KPI 3.11	Was the description of the activity provided sufficient to inform the identification of listed activities?		
KPI 3.12	Was the information provided sufficient to justify the identification of key issues (scoping)?		

KPI 3.13	Was the timing of the development justified in relation to need and desirability?		
KPI 3.14	Was the location of the development justified in relation to need and desirability?		
KPI 3.15	Did the plan of study incorporate the key issues as identified during scoping?		
KPI 3.16	Were reasonable alternatives presented and assessed?		
KPI 3.17	Was significance determined according to a justified methodology, which includes the method and its application?		
KPI 3.18	Was the determination of significance consistently applied across specialist disciplines?		
KPI 3.19	Was justification provided for different proposed mitigation measures against the mitigation hierarchy?		
KPI 3.20	Has the significance rating after mitigation been justified?		
KPI 3.21	Were the proposed mitigation measures as described in the impact assessment incorporated into the EMPr?		
KPI 3.22	Were roles and responsibilities assigned meaningfully in relation to management actions in the EMPr?		
KPI 3.23	Was there any supplementary information submitted to the authorities that was not in the public domain?		
KPI 3.24	Were all comments from IAPs adequately responded to in the impact assessment process and reports (not relegated to comments and response reports)?		
KPI 3.25	Were all key IAPs consulted in the impact assessment process?		
KPI 3.26	Were the key recommendations from the impact assessment justified and clearly summarised in a non-technical fashion?		
OUTCOME COMPONENT (IMMEDIATE)			
KPI 4.1	To what extent did the application authorise the correct listed activities?		
KPI 4.2	To what extent did the process comply with minimum legal procedural requirements?		
KPI 4.3	To what extent was the decision described in the environmental authorisation consistent with and based on the content of the EIA reports?		

INTERVIEW DESIGN SHEET					
Interview Date:					
Interviewer(s):					
Checklist Ref.	Person interviewed:				
GENERAL INTERVIEW QUESTIONS					
Question 1	In your opinion, what are the main potential impacts/contributions of EIA?				
Question 2	In your opinion, what are the main realized impacts/contributions of EIA?				
Question 3	In your opinion, what can be done to bridge the gap between potential and realised impacts/contributions?				
A = Conformance	**B** = partly conformed	**C** = Non-conformance	NR = not evaluated	**NA** = not applicable to the scope	**?** = Status could not be established during the evaluation
KPIs	Question			Value	Comment
IMPACT COMPONENT					
KPI 5.1	To what extent did the EIA realize an environment that is not harmful to health and well-being?				
KPI 5.2	To what extent did the EIA achieve protection of the environment over the immediate and long term?				
KPI 5.3	To what extent did the EIA succeed in preventing pollution and ecological degradation?				
KPI 5.4	To what extent did the EIA promote conservation?				
KPI 5.5	To what extent did the EIA secure ecologically sustainable development?				
KPI 5.6	To what extent did the EIA promote justified economic and social development?				

Appendix D: Meta Data Matrix

planning, monitoring and evaluation

Department:
Planning, Monitoring and Evaluation
REPUBLIC OF SOUTH AFRICA

CONTACT

The Presidency
Department of Planning, Monitoring and Evaluation
Private Bag X944
Pretoria, 0001, South Africa
Tel: +27 12 312 0155
Fax: +27 86 686 4455