DEFINING THE ROLE OF THE INDEPENDENT ENVIRONMENTAL CONTROL OFFICER (ECO) IN COMPLIANCE MONITORING AND ENFORCEMENT

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South African Journal of Environmental Law and Policy, volume 18 number 1

Abstract

Currently an entire unregulated industry of Environmental Control Officers (ECOs) is active at various construction sites across South Africa. While the expected role of ECOs is generally to ensure that environmental authorisation (EA) conditions are implemented and monitored, differing views on the role and independence of the industry still exist between practitioners. This paper presents quantitative and qualitative response results from a questionnaire survey of 50 South African environmental practitioners on the role and independence of the ECO industry with an emphasis on practitioner comments reproduced in their own words and 'voice'. The practitioners identified: compliance monitoring; implementation and enforcement; ensuring legal compliance; advising and/or consulting; communicating; reporting; and raisings awareness as the key roles of an ECO. It was also noted that competency and independence of an ECO should be consistently reflected in EA and EMP requirements to avoid confusion on these issues in practice. They also identified competence and the regulation thereof, as well as support from developers, government, and other role-players as core needs of the industry to successfully fulfil their roles. Furthermore, independence to all role-players was held in high regard and they had a cautionary message to avoid obsessing the independence issue to such an extent that it compromises the ability to fulfil their roles. In order to streamline future practices and to provide some consensus, this paper concludes with a proposed definition for the role of an independent ECO by drawing together the views presented by the practitioners.

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1 Introduction

One of the most significant challenges facing the South African Environmental Impact Assessment (hereafter EIA)[1] system is compliance monitoring[2] and enforcement[3] of Environmental Management Plan (hereafter EMP) and EA conditions[4] of the thousands[5] of

[1] Many notable works describe the elements of a generic EIA process, which includes: firstly a preliminary assessment phase that consists of screening and scoping; secondly a detailed assessment phase consisting of impact analyses, drafting mitigation and management plans as well as an environmental impact statement/report, the review of the report and a decision on the application; and finally an implementation and follow-up phase, which consists of post-decision management and implementation, monitoring and auditing of implementation and post decision analyses. More specific details of the South African EIA process can be found in s 24 (1)(a), (4)(a)(i) to (iv) and s (4)(b)(i) to (vii) of the National Environmental Management Act 107 of 1998 (hereafter the NEMA). See also the Environmental Impact Assessment Regulations in GN R543 *GG* 33306 of 18 June 2010 (hereafter the EIA regulations); J Glazewski (ed) *Environmental Law in South Africa* (2nd ed 2005) at 249; and PJ Aucamp *Environmental Impact Assessment: A Practical Guide for the Discerning Practitioner* (2009) at 6. For international literature see for example: the International Association for Impact Assessment and Institute for Environmental Assessment (IAIA) UK 1999 *Principles of Environmental Impact Assessment Best Practice* at http://www.iaia.org/publications/ (accessed 21 December 2011); J Arts *EIA Follow-up* (1998) at 26; N Lee and C George *Environmental Assessment in Developing and Transitional Countries* (2000) at 6; C Wood *Environmental Impact Assessment: A comparative Review* (2nd ed 2003) at 7; and A Morrison-Saunders and J Arts (eds) *Assessing Impact: Handbook of EIA and SEA Follow-up* (2004) at 2.

[2] According to the Department of Environmental Affairs (DEA) 'Environmental Impact Assessment and Management Strategy: Sub-Theme 4: Compliance and Enforcement' (prepared by SE Solutions Pty Ltd, Sean O'Beirne for Department of Environmental Affairs, Pretoria) (04 August 2011) at 10, 'the principle is that Compliance Monitoring identifies on an ongoing basis: activities that are in breach of the law and conditions of the EA; improperly authorised activities; and so forth'.

[3] The DEA (n2) at 12 describe the role of enforcement in the context of government as: 'enforcement serves to take the action required to maintain compliance through various means such as issuing warning letters; pre-compliance and compliance notices; and launching criminal investigations that may result in enforcement'. According to L Feris 'Compliance Notices - A New Tool in Environmental Enforcement' (2006) 9 *Potch Electronic Journal (PER)* 118 at 53, environmental enforcement remains a problem in South African law and may be attributed to the lack of capacity and insufficient resources within national and provincial government.

[4] Internationally and nationally it is a well established that compliance monitoring and implementation is one of the weakest areas of EIA activity. See amongst others C Wood (n1) at 255 and Economic Commission for Africa (ECA) *Review of the Application of Environmental Impact Assessment in Selected African Countries* (2005) at xiv and 46-47 at www.uneca.org (accessed 1 October 2011). The ECA found that in spite of many countries making implementation of the EMP or an appropriate permit a legal requirement, more often than not implementation and follow-up are neglected and grossly ineffective in most African countries. With regards to South Africa the DEA (n2) at 7 states that 'compliance and enforcement is inadequate' and set a goal of 'ensuring that compliance monitoring and enforcement procedures within the organisational structure of Integrated Environmental Management (IEM) are adequate and effective'.

[5] South African developers conduct more than a 1000 Environmental Impact Assessments (EIA) per year. For example N Rossouw and others, 'Country Reports - South Africa' in P Tarr (ed) *Environmental Impact Assessment in Southern Africa* (2003) report that since the promulgation of the EIA regulations in 1997 the six South African provinces investigated in the study received a total of 5367 applications in less than 5 years. Furthermore, this number is significantly escalated by the fact that environmental assessments are also conducted in terms of several other environmental Acts such as the National Water Act 36 of 1998, the National

approved EIA applications per year. There are many interrelated factors contributing to this challenge such as: the scale of the task and enforcement capacity (number of projects compared to number of resources); the scale of projects (including verification of EIA findings, authorisation fixation, ineffectual Monitoring Committees (hereafter MCs), lack of response to reported transgressions, and ambiguity of EMPs); quality and ambiguity of EAs; extension of function; bureaucratization; poor communication; and lack of authority and authority coordination.[6] However, the lack of effective environmental governance[7] may be highlighted as a critical contributor in developing countries such as South Africa.[8] In response to situations where government cannot govern effectively on a particular matter on its own, a government may impose certain governance duties onto civil society to assist in the particular governance effort. In terms of the NEMA[9] for example, a developer has to apply for an EA for listed activities and as part of the conditions, the competent authority may require the developer to appoint an ECO[10] with specific environmental responsibilities.[11] In

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Environmental Management: Waste Act 59 of 2008 (hereafter the NEMWA), the National Environmental Management: Air Quality Act 39 of 2004 (hereafter the NEMAQA), and the Mineral and Petroleum Resources Development Act 28 of 2002.

[6] See DEA (n2) 1-44.

[7] LJ Kotzé *et al* 'Strategies to Integrate Environmental Policy at the Operational Level: Towards an Integrated Framework for Environmental Authorisations' (2007) *South African Journal of Environmental Law and Policy* at 57, defines environmental governance as …the collection of legislative, executive and administrative functions, processes and instruments used by any organ of state [and the private sector] to ensure sustainable behaviour by all as far as governance of activities, products, services, processes and tools are concerned.

[8] A specific weakness of the South African EIA system mentioned by Wood is 'the problem of crippling under-funding and under-staffing of provincial and local authorities means that they must rely on the complaints of neighbours and the integrity of developers and their consultants for information about non-compliance. M Kidd and FP Retief 'Environmental Assessment', *in* HA Strydom and ND King (eds) *Environmental Management in South Africa* (2009) at 1030, argues that 'this still holds true today' and also mention that 'even where there are complaints, authorities are sometimes reluctant to take steps to address such problems due to the lack of capacity or other reasons that are less clear. The setting of conditions, therefore, presupposes the enforcement of such conditions and absence of monitoring seriously undermines the entire system.' Furthermore, F Craigie *et al* 'Environmental Compliance and Enforcement Institutions' in A Paterson and LJ Kotzé (eds) *Environmental Compliance and Enforcement in South Africa: Legal Perspectives* (2009) at 101 concludes the chapter by stating: 'Finally, a discussion of the institutions responsible for undertaking environmental compliance and enforcement functions would not be complete without reflecting on the serious challenge regarding resource challenge regarding resource and capacity constraints... there is a pressing need to increase the number and geographical spread of such officials.'

[9] Section 24(1) states that '...the potential impact on the environment of listed activities must be considered, investigated, assessed and reported to the competent authority…'

[10] In response to the importance of follow-up, many countries in Africa (see ECA n(4) at 46-47) and the rest of the world (see Morrison-Saunders and Arts (n1) at 154-220) have legislated or put in place different procedures (apart from the ECO function) to guide the implementation of the EMP and/or conditions of the EA.

relation to contents and conditions of EAs; regulation 37 (1) of the EIA regulations) [12] states that 'an authorisation must specify- (d) the conditions subject to which the activity may be undertaken including conditions determining- (ii) requirements for the management, monitoring and reporting of the impacts of the activity on the environment throughout the life cycle of the activity as contained in the approved environmental management programme'. These EAs are the principle mechanism for compliance and enforcement in terms of implementing Chapter 5 of the NEMA.[13] The enforcement of these conditions once set, however, is frequently not carried out effectively.[14]

One of the international best practice principles of EIA is that the process should be credible meaning that it 'should be carried out with professionalism, rigor, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification'. [15] The role of the ECO fits the latter part of this principle especially. In other parts of the world, especially Hong Kong[16] and Canada,[17] provision is made for independent monitoring and auditing agencies to oversee follow-up of EIA decisions and mitigation implementation by

[11] Roles of an ECO may include (if considering some roles contained in EAs): oversee and monitor adherence to EMP conditions; implementation of the construction and EMP conditions; ensuring compliance with the relevant conditions contained in the EA; ensuring mitigation measures are complied with; and induction of all contractors on contents of the EMP and EA.

[12] Government Notice R548 in *Government Gazette* 33306 of 18 June 2009.

[13] Chapter 5 deals with IEM and s 24(c) requires that 'the holder and any person issued with an EA must manage all environmental impacts (i) in accordance with his or her approved environmental management programme, where appropriate;' and in terms of s 24(d) 'must monitor and audit compliance with the requirements of the environmental management programme'. See also DEA (n2) at 16 and 18.

[14] See Wood 'Pastiche or Postiche? Environmental Impact assessment in South Africa' (1999) *South African Geographical Journal* at 56 as quoted by Kidd and Retief (n8) at 1030; and DEA (n2) at 9, which state that 'officials from the Department continue to detect non-compliances with conditions of authorizations issued to para-statals such as the Central Energy Fund, Transnet, Armscor, Aventura Resorts, Denel, Eskom, Johannesburg Water, Portnet, Necsa, Safcol, PetroSA, and Transtel (and others)'. The DEA also mentions that 'the Department is beginning to identify institutions and persons that continue to contravene environmental legislation…' and that in terms of verification of EIA findings the DWA (n2) at 18 states that 'the EIA process did not effectively identify all impacts associated with proposed activities. This was particularly true of the construction and commissioning phases of the projects…'

[15] See IAIA (n1) at 1-4.

[16] In Hong Kong, the proponent is required to appoint an Independent Environmental Checker (IEC) who audits the overall Environmental Monitoring and Audit program required under the EIA Ordinance to be put in place by the Environmental Team appointed by the proponent. The IEC must have at least seven years of professional experience and be independent of the proponent and Environmental Team. See E Au and S Hui 'Learning by doing: EIA follow-up in Hong Kong', in Morrison-Saunders and J Arts (n1) at 197-223.

[17] For major EIA projects in Canada, an Independent Environmental Monitoring Agency (as in the case of the Ekati Diamond Mine) is established to report on the activities of both the proponent and government with respect to project implementation and environmental management. See W Ross 'The independent environmental watchdog: a Canadian experiment in EIA follow-up', in Morrison-Saunders and Arts (n1) at 178-196.

persons employed to operate independently of the developer (even though they are required to pay for these services). In Canadian practice, independence is also required from government too. In Western Australian practice, it is the EIA regulator responsible for designing and administering the EIA process (including follow-up) as well as providing publicly disclosed advice and recommendations to the Minister for Environment on each project assessed prior to the approval decision being made (by the Minister) that is established as being statutorily independent of government. This means that the Minister is not able to direct their activities.[18] The ongoing review of EIAM in South Africa reiterates the importance of having 'an independent third party with no vested interest in the outcome of a particular activity [as being] the best way of implemented an effective compliance and enforcement regime.'[19]

One of the findings to emerge from the research conducted for this paper is that, despite the ECO industry being active in South Africa for almost twenty years,[20] there are still significantly differing views between practitioners on the role and the independence of an ECO.[21] The resultant implications of these differing views may include: substantial variation across EA conditions between individual authorisations; appointment of inexperienced or inappropriately qualified persons to carry out the ECO functions; lack of trust in the effectiveness of these compliance monitoring and implementation functions; poor communication and reporting channels between the developer, the relevant authorities and Interested and Affected Parties (I&APs) and the ECO; poor enforcement support from

[18] Section 8 of the Environmental Protection Act 1986 (Western Australia) establishes the statutory independence of the Environmental Protection Authority (EPA) stating that: 'neither (a) the Authority; nor (b) the Chairman [of the EPA], shall be subject to the direction of the [Environment] Minister'. This feature of EIA in Western Australia is a particular strength noted in an international comparative evaluation of a dozen or so EIA systems around the world. See C Wood 'Lessons from Comparative Practice' (1999) 20, *Built Environment* at 332-344. A full account of the EPA's approach to follow-up in Western Australia can be found in A Morrison-Saunders, B Jenkins and J Bailey 'EIA follow-up and adaptive management', in Morrison-Saunders and Arts (n1) at 154-177.

[19] DEA (n2) at 16 and 25.

[20] Barker as quoted by Wood (n1) at 255, noted in 1996 already that monitoring conditions were implemented in approvals under the voluntary IEM procedure of the 1992 IEM guidelines of South Africa. These conditions often included amongst others; requirements for an environmental management plan to be implemented and independently audited, for an on-site environmental control officer to be appointed during construction and for subcontractors to be penalised if environmental safeguards were violated. However, these guideline requirements of post-decision monitoring were not included in the first era of mandatory EIA regulations of 1997. Hill, as quoted by Wood (n1) at 255, felt that 'the lack of regulations on EIA follow-up constitutes a retrograde step for environmental management in South Africa'.

[21] These roles may range from independent compliance monitoring, auditing and reporting to hands-on post decision implementation and enforcement. See roles identified (n11) above.

government; and poor implementation of the EMP and EA conditions; all of which ultimately contribute to failure in compliance monitoring and enforcement on a construction site.[22]

The confusion surrounding the role of an ECO may be fuelled by the fact that the ECO concept, although widely used the past 20 years, has not been explicitly and formally defined in South African legislation and where it was attempted the definitions do not reflect practitioner sentiment and reality. For example, the Department of Water Affairs and Forestry (DWAF) identifies in their Environmental Best Practice Specifications for Construction various role players in monitoring and auditing including an Environmental Officer (EO); an ECO; and an Independent Environmental Control Officer (IECO), each with various functions and roles during construction.[23] The primary role of an ECO as viewed by DWAF is to "act as quality controller regarding all environmental concerns' and suggests that the ECO in this respect should: conduct periodic site inspections; attend regular site meetings; pre-empt problems and suggest mitigation, verify monitoring reports submitted by the EO and be available to advise on incidental issues that arise. DWAF also state that an ECO should conduct compliance audits. However, auditing forms only a part of a much wider compliance monitoring and enforcement programme on a construction site and should not be conducted by an ECO in situations where the ECO is responsible for implementation as this compromises independence.[24] In this situation an independent "external auditor"

[22] Also refer to factors contributing to failure in compliance monitoring and enforcement as listed by DEA (n2) 1-44.

[23] The Department of Water Affairs and Forestry (DWAF) aims to define roles for efficient implementation of Performance Specifications, effective Monitoring and Auditing for construction or implementation of a project in their Environmental Best Practice Specifications for Construction. DWAF identifies various role players in monitoring and auditing including: the land owner/custodian of the land; the developer / implementing agent, environmental consultant; project manager; design engineer; environmental planner; contractor; site engineer; environmental officer; environmental control officer; independent environmental control officer; operator of water supply and/or infrastructure; and environmental manager. An interesting statement by DWAF is that the contractor and EO are answerable to the ECO, thus implying that the ECO has a position of authority. On competence DWAF recommend that the role of an ECO be fulfilled by any person (department or professional service provider), well versed in environmental studies and construction processes. See Department of Water Affairs and Forestry (DWAF) *Integrated Environmental Management Series – Environmental Best Practice Specifications: Construction* (3rd ed 2005) at 48-51.

[24] Audit is defined as 'systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. Independence: being the basis for the impartiality of the audit and objectivity of the audit conclusions; is viewed by the International Organization for Standardization (ISO) as one of the principles of auditing and state that 'auditors should be independent of the activity being audited and also be free from bias and conflict of interest.' See South African National Standards (SANS) *SANS 19011: 2003 / ISO 19011: 2002 – Guidelines for quality and/or environmental management systems auditing* (2003) at 1-4. Furthermore, the ISO notes that in terms of an independent audit 'in many cases, particularly smaller organisations, independence can be demonstrated by the

should perform the auditing function and DWAF compares an IECO to an external auditor. Again the latter comparison in terminology that adds to the confusion as an auditor is an individual skilled and competent with auditing principles and practice whereas an IECO may not necessarily be. Moreover, in terms of compliance monitoring,[25] the competent authority may require a person in question (a person that contravened or failed to comply with a condition of an environmental authorisation), to appoint an independent person approved by the authority to perform an environmental audit. Does this mean an IECO or an external auditor? Ultimately the situation regarding the abovementioned is unclear.

Furthermore, the NEMA, defines an environmental assessment practitioner (hereafter EAP), when used in Chapter 5 as 'the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments introduced through regulations.' This might be interpreted to imply that an EAP is deemed to be an ECO, if the ECO is responsible for the management, implementation and/or coordination of an EMP. However, the EAP definition do not include ECOs having the role of monitoring compliance to EA and EMP conditions, as monitoring is not included in the ambit of the definition. The EIA regulations also define independent in relation to an EAP and include in this description 'a person compiling a specialist report or undertaking a specialised process…' The latter may include compliance monitoring as a specialised process and thus imply that an ECO may be deemed to be an EAP.[26] However, this argument is contradicted by the Certificate Board for Environmental Assessment Practitioners for South Africa (hereafter CBEAPSA) which states that: 'an EAP is someone who, co-ordinates, manages, and integrated various components of environmental assessment throughout the planning process. CBEAPSA also adds that the term does not apply to specialists in particular fields who may be involved in, or asked to give input to, particular stages of an environmental assessment from the perspective of his/her field of expertise. [27]

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freedom from responsibility for the activity being audited.' See South African National Standards *SANS 14001: 2005 / ISO 14001:2004 Environmental Management Systems – Requirements with guidance for us.* (2nd ed 2005) at 3.

[25] Regulation 69 of Government Notice R548 (n12).

[26] According to GN R 543 a *"specialised process"* means a process to obtain information which-

(a) is not readily available without undertaking the process; and

(b) is necessary for informing an assessment or evaluation of the impacts of an activity, and

includes risk assessment and cost benefit analysis.

[27] Certification Board for Environmental Assessment Practitioners of South Africa (CBEAPSA). 2012. Information Booklet at 7. Available at www.eapsa.co.za/downloads.html (accessed 05 June 2012).

The DEA also argues that relatively less compliance and enforcement authority activity are made by government during project implementation and operations and that the later compliance and enforcement function will be ultimately driven by Specific Environmental Management Acts (hereafter SEMAs) such as the NEMAQA and the NEMWA.[28] Designation of control officers in SEMAs are, therefore, provided for with the tasks of: working towards the development and introduction of cleaner technologies; identifying measures in respect of waste minimisation; taking all reasonable measures to ensure compliance; and promptly reporting on non-compliances to licence conditions. For example an 'Emission Control Officer'[29] should be designated by a licence holder in terms of s 48(1) of the NEMAQA, if required by an air quality officer.[30] A similar SEMA compliance officer function is the 'Waste Management Control Officer', which should be designated by a holder of a waste management licence in terms of s 58(1) of the NEMWA, if required by a waste management officer.[31] Although some roles and competencies are alluded to, both the 'Emission and Waste Control Officer' concepts have also not been defined by this particular SEMAs or any other policy. These SEMA designated control officers also raise questions such as: may an ECO designated under NEMA also act as a SEMA control officer during construction phase of a project?; is a SEMA designated control officer competent to act as an ECO?; and what are the overlapping responsibilities and timeframes of these different control

[28] See DEA (n2) at 17-18.

[29] H Von Blottnitz, C Fedorsky and W Bray in *in* HA Strydom and ND King (eds) *Environmental Management in South Africa* (2009) at 579, notes that in terms of s 48(2)(a) to (c) of the NEMAQA, the emission control officer must have the requisite competence to work toward the development and introduction of cleaner production technologies and practices and should take reasonable steps to ensure compliance by the holder with the licence conditions and requirements, and promptly report on non-compliance to the licensing authority. See also section 48 of the NEMAQA for roles

[30] In terms of section 1(1) of the NEMAQA an air quality officer means an officer appointed (by government) in terms of section 14 as an air quality officer. This is an appointee in the DEA responsible for co-ordinating matters pertaining to waste management in the national government.

[31] In terms of s 1 of the NEMWA, the waste management officer means 'a waste management officer designated in terms of section 10'. This is also an appointee in the DEA responsible for co-ordinating matters pertaining to waste management in the national government. Section 58 of the Act requires that a waste control officer must-

(a) Work toward the development and introduction of clean production technologies and practices to achieve waste minimisation;
(b) Identify and submit potential measures in respect of waste minimisation, including the reduction, recovery, re-use and recycling of waste to the waste management licence holder and the licencing authority;
(c) Take all reasonable steps to ensure compliance by the holder of the waste management licence with the licence conditions and requirements and the provisions of this Act; and
(d) Promptly report any non-compliance with any licence conditions or requirements or provisions of this Act to the licensing authority through the most effective means reasonably available.

officers? These unresolved issues regarding terminologies are likely to add to the confusion regarding the expected roles of the NEMA designated ECOs.

In light of the previous discussions on the independence and role of an ECO, this paper reports on an initial attempt to define; by way of evaluating environmental practitioner perspectives in a survey, what the role is of an ECO in the compliance monitoring and enforcement effort during the construction phase of a project is or ideally should be. This paper also reveals practitioner perspectives on key roles, core need for and needs of the industry before concluding with reflections on these issues. The lessons distilled from the survey may serve to aid legislators, legal practitioners, decision-makers, EAPs, developers, ECOs, I&APs and other role-players in understanding the role of the ECO and in being able to work towards more effective implementation of EAs in South Africa into the future.

2 Study context and methodology

The principle author, as an employee of the Centre for Environmental Management (CEM), [32] was sub-contracted as an ECO for a period of five years from September 2006 until August 2011 for a large-scale mall development project in Potchefstroom. During this period the project as well as the ECO function was used as a best-practice environmental enforcement case example[33] and practical exercise application for various environmental courses[34] hosted by the CEM. In these courses heated debates and discussions were entertained between practitioners and presenters with regards to post-decision environmental compliance monitoring, implementation, and enforcement of EMP and EA conditions and at the heart of

[32] The core activities of the CEM are to build capacity and facilitate change by amongst others: developing and conducting flexible and appropriate training programmes in environmental and occupational health and safety management and related fields. See Centre for Environmental Management (CEM), *2011 Yearbook* (Potchefstroom 2011).

[33] According to JG Nel and JA Wessels How to use Voluntary, Self-regulatory and Alternative Environmental Compliance Tools: Some Lessons Learned' (2010) 13 *PER* 189 at 65, the MooiRivier Mall development aimed to integrate a seamless portfolio of environmental enforcement tools designed to deliver sustained, reliable and demonstrated legal compliance throughout the life cycle of the project.

[34] Courses that used and are still using the MooiRivier Mall development as a case example and practical exercise includes: Introduction to Environmental Management – An Overview of Principles, Tools and Issues (CEM-01.1); Environmental Impact Assessment: A Practical Approach (CEM-05.1); Introduction to Integrated Waste Management for Environmental Managers (CEM-06.2.1); Water Quality Monitoring: Principles, Approaches and Techniques (CEM-06.4.3) and the newly developed Post-decision Environmental Monitoring and Enforcement: An Introduction to the Role and Responsibilities of an Environmental Control Officer (CEM-05.1.5). See CEM (n32).

the discussions were the role and independence of an ECO. As a result of the latter and various requests for training by organisations on the particular subject, the CEM started developing a five day course in 2007.[35] During 12-16 September 2011 at the North-West University in Potchefstroom, the course with the theme 'Post-decision Environmental Monitoring and Enforcement: An Introduction to the Role and responsibilities of an Environmental Control Officer (CEM-05.1.5)' (hereafter 'the course') was successfully presented to 29 students from various organisations by 11 presenters from the CEM and other leading role-players[36] in the ECO industry.[37]

We identified this rare and historical gathering of 40 environmental practitioners interested in and involved with the ECO industry as a unique opportunity to gather data for an interpretive-empirical research evaluation[38] of current perceptions on the role and independence of the ECO function. Our primary means of data collection was by way of a survey questionnaire of all parties involved (presenters and participants) in the course.[39]

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[35] As a result of the factors mentioned above, the principle author developed a keen interest in the ECO topic and enrolled for a PhD at the Department of Geography and Environmental Management, North-West University in 2011 and is currently conducting an in-depth investigation of the role and independence of ECOs.

[36] The key organisations involved in the development and delivery of the course were: Trans-Caledon Tunnel Authority (TCTA); NCC Environmental Services (Pty) Ltd.; Department of Geography and Environmental Management of the North-West University; SE Solutions (Pty) Ltd and Ecoleges.

[37] Although the course is probably the most comprehensive ECO training to be conducted in South Africa to date, we acknowledge that other training courses are currently provided by training service providers such as the one day 'Environmental Control Officer (ECO) & Contractor Training for Environmental Management Plan (EMP) Implementation' by Future Works. Details are available at www.futureworks.co.za (accessed 31 September 2011).

[38] WL Neuman *Social Research Methods, Qualitative and Quantitative Approaches* (2000) at 72, states that 'interpretive research tries to capture reality as it is, namely as seen and experienced by the respondents' and also mentions that 'for the interpretive researcher, social reality is based on people's definitions of it'. Furthermore, M David and CD Sutton *Social Research – the Basics* (2004) at 361, defines empirical research as 'the collection of data (by various means), rather than drawing conclusions only from the manipulation of theoretical propositions'.

[39] Surveys as commonly used to great effect within the EIA research field to understand how practice unfolds in a legal or policy context. See for example; A Morrison-Saunders and J Baily 'Practitioner Perspectives on the Role of Science in Environmental Impact Assessment (2003) 31(6) *Environmental Management* at 683-695; S Waldeck, A Morrison-Saunders & D Annandale. 'Professional Practice: Effectiveness of non-legal EIA guidance from perspective of consultants in Western Australia' (2003) 21(3) *Impact Assessment and Project Appraisal* 251-256; A Morrison-Saunders and B Sadler 'The art and science of impact assessment: results of a survey of IAIA members' (2010) 28(1) *Impact Assessment and Project Appraisal* 77-82; and V Sok *et al* 'Addressing Climate Change through Environmental Impact Assessment: International Perspectives form a Survey of IAIA Members' (Unpublished) Scheduled for publication in *Impact Assessment and Project Appraisal* 29(4) in December 2011.

2.1 Survey design

The survey questionnaire was distributed to the practitioners at the commencement of the course[40] as well as the presenters, and other identified role-players in the industry during the course to probe participants' understanding of and perspectives on the ECO industry.

For the purpose of this paper, two aspects of the original questionnaire[41] are presented; these address the role of the industry and independence of the industry. The parts of the questionnaire used in the survey relevant to these fundamentally important issues for the industry are reproduced in Box 1. They are divided into three components namely; demographic data, open or qualitative questions, and closed or qualitative questions.

Box 1. Survey questions concerning the role and independence of an ECO

Note: the numbering below do not indicate the original sequence of the survey questions.

Demographic data

1. *Approximately how much of your working time do you spend directly on ECO-related activities? (Choose 1 only)*
   None / Up to 25% / Between 25 and 50% / Between 50 and 75% / Between 75 and 100% / 100%
2. *How many years have you worked in the ECO industry? (Choose 1 only)*
   None / Up to 5 years / 5 to 10 years / 10 to 15 years / more than 15 years
3. *What best describes your role in the ECO industry? (Choose 1 only)*
   Academic research / Competent authority / Consultant (EAP) / Developer (Proponent) / Non-governmental Organisation (NGO) / ECO

Open/Qualitative Questions

4. *List up to five key roles of an ECO.*
5. *In one sentence explain what you consider to be the core need for the ECO industry?*
6. *Explain the importance of independence of an ECO.*

Closed/Quantitative Questions

[In the following closed or quantitative structured questions, respondents were asked to rate each of the statements below according to the supplied response scale (strongly agree, agree, partly agree, partly disagree, disagree, strongly disagree, unable to judge). They were also asked to respond on the basis of; 7 their own opinion what should be; and 8 their own experience of ECO practices].

7. *In your opinion an ECO should be independent of?*
   a) Developer.
   b) Competent authority.
   c) Environmental Assessment Practitioner (EAP).
   d) Interested and Affected Parties (I&APs).
8. *In your experience of ECO practice an ECO is independent of?*

[40] The idea of the survey was to obtain the perspectives of the course participants before being influenced by opinions, theories and ideas from the presenters and the training materials.

[41] The original questionnaire developed for the survey contained eight components: general perspectives on ingredients for effective post-decision monitoring and enforcement; the need for ECOs; the role of the industry; independence of the industry; the role of ECOs in influencing behaviour; future directions of the industry; demographic data and any further comments. A large volume of data was generated on these topics, in excess of what can be presented and analysed in this paper.

a) Developer.
b) Competent authority.
c) Environmental Assessment Practitioner (EAP).
d) Interested and Affected Parties (I&APs).

Component one pertains to the demographic characteristics of survey participants (Questions 1-3) concerning percentage working time, experience and role as an ECO.

The second component consists of a series of open or free choice questions (Questions 4-6) which yielded content rich qualitative data derived from written responses. While a diverse range of views were presented, common themes emerged. Rather than simply summarise and generalise these themes, a selection of un-edited comments of practitioners relevant to each theme is presented so as to capture the 'voice' of survey participants.

The third component consists of closed or defined choice questions (Questions 7-8), which yielded a quantitative data set derived from seven point rating Likert response scales[42] relevant to independence of the ECO industry. A continuum of 'Strongly Agree' to 'Strongly Disagree' and an option of 'Unable to Judge' were used. This data is content-simple but structured and readily analysed to extrapolate frequency and distribution of practitioner views on the particular matter.[43]

Through surveying practitioners in the field, the intention was to understand how the current legal provisions in South Africa have been interpreted and applied in practice. This provides an opportunity to reflect back on the utility of the current legal framework and what might need amendment in the future; a topic addressed at the end of the paper.

[42] Quantitative data was obtained in the questionnaire through the deployment of closed ended questions in the form of a Likert scale (rating scales are sometimes referred to as Likert scales), constructed in order to provide information on the practitioner's opinions and attitudes on the topic of 'independence'. See David and Sutton (n38) at 167; as well as PD Leedy and JE Ormond *Practical Research – Planning and Design* (9th ed 2010) at 189. The scale was constructed through the assignment of two statements (see 7 and 8) on 'ECO independence to role-players' (or scale items) followed by the same set of responses for each item indicating varying degrees of agreement with or disagreement with the statement. The responses entailed a seven-point Likert scale, with the end point of the scale a non attitude choice, termed 'Unable to Judge'. By offering a non-attitude choice, it was possible to identify those without positions, therefore, addressing the difficulty of aggregation of ratings in the middle range between 'Partly Agree and Partly Disagree'. See David and Sutton (n36) at 167.

[43] Non-numerical data derived from the seven-point Likert scales enabled the strength of opinion of the practitioners on the topic of 'independence to role-players' to be determined. See T Greenfield *Research Methods – Guidance for Postgraduates* (1996) at 54 and 182.

3 Survey results and key findings

The response rate in the survey was relatively high due to the 'captive' audience at the course and the survey was returned by 30 of the 40 practitioners involved in the course.[44] Additionally, the survey was also posted online to two additional practitioners and 20 completed surveys were returned due to one of the practitioners[45] distributing the survey to colleagues involved with the ECO industry.[46]

3.1 Demographic data

The 50 participants for the three demographic questions (Questions 1 to 3 in Box 1) revealed the following characteristics:

- A large proportion of the respondents (84%) of the respondents spent some time directly on ECO activities, with some 20% spending more than 75% of their working time on these.
- The survey was completed by relatively inexperienced ECO practitioners; with most (66%) having less than 5 years experience and a further 20% either indicating no response to the experience question or having no ECO experience. Only 8% of the respondents indicated having '5 to 10 years' experience and only 6% of the practitioners responded to have '10 to 15 years' experience. No respondent practitioners had more than 15 years experience in the ECO industry. Given that EIA practices have been in place in South Africa for over 40 years (since early 1970s),

[44] It was acknowledged at the commencement of this research, that it was not possible to collect data from the entirety of the population of environmental practitioners involved in the ECO industry. As verified with Glaudin Kruger (IAIA Secretariat) on 25 October 2011, a variable total of 1076 environmental practitioners are members of International Association of Impact Assessment - South African Affiliate and are involved in some way in the EIA industry. Unfortunately there is currently no data or databases available that indicate how many practitioners are directly involved in the ECO industry (unlike the National Environmental Agency of Singapore's list of 1747 active registered ECOs).
Available at http://app2.nea.gov.sg/data/cmsresource/20110706896769665932.pdf (accessed 26 October 2011).
As a result purposive sampling (also termed theoretical sampling) was chosen to select sample units, which in this case were the course participants. According to David and Sutton (n36) at 152 'purposive sampling is a form of sampling technique available to social researchers to select sample units according to their knowledge and opinion to be ones appropriate to the topic area'.

[45] Managing Director of NCC Environmental Services (Pty) Ltd.

[46] The data generated by these practitioners is relevant for the research topic as the experience of the practitioners make them appropriate respondents to the research topic. See David and Sutton (n38) at 152. Furthermore, additional surveys were returned, which will be used in further research on the ECO topic.

these results underscore points made previously, that implementation and follow-up aspects of EAs have in large part been neglected and also the emerging nature of the ECO industry.

- With respect to role in the ECO industry, most respondents were ‘Practicing ECOs’ (46%), followed by ‘Consultants / EAPs’ (18%), ‘Developer / Proponent’ (16%), ‘Competent authority’ (14%), and lastly ‘Academic’ (2%) with 4% having no response to the question.

3.2 The role of environmental control officers

This section of the paper illustrates the key roles of the industry and the core need for the industry, before concluding with the needs of the industry as identified by the participating practitioners.

3.2.1 Key roles of the ECO industry

Regarding the roles within the ECO industry (Question 4 in Box 1) the practitioners were asked to list five key roles in order of priority with 1 as the highest priority. A total of 226 statements were made on the roles that an ECO may have. The key roles listed by the practitioners are clustered into categories and are listed below in order of highest to lowest number of times recorded:

Table 1: Key roles of the ECO industry in descending order of number of times recorded

Rating	Category	No. of times recorded
1	Compliance monitoring	48
2	Implementation and enforcement	34
3	Advising and/or consulting	27
4	Ensuring legal compliance	26
5	Reporting	21
6	Communicating and/or liaising	17
7	Raising awareness and/or educating	13
8	Auditing	12

Rating	Category	No. of times recorded
9	Environmental protection and sustainable development	7
9	Risk assessment and identification of environmental issues	7
10	Independence	5
11	Conflict management	2
11	Document control	2
12	Influencing behaviour	1
12	Acting as a team player	1
12	Providing assurance	1
12	Driver for continual improvement	1
12	Acting on behalf of government	1

Compliance monitoring, which includes: the monitoring of activities; monitoring of enforcement actions; legal compliance monitoring; and inspections, were listed as the number one priority 18 (8%) times and was considered to be the top two ECO tasks a total of 30 (13%) times. Furthermore, being identified 48 times, monitoring contributes to a total of 21% of the total listed roles that an ECO may have.

The clustering of the category 'implementation and enforcement' (which was mentioned 34 times and is thus being considered the second highest priority role of ECOs) provided to be a challenge as the practitioners listed various roles that deals with implementation and enforcement. For example, the following words or phrases were provided: enforcement; management; implementation of law; developing method statements; approving method statements; regulating; controlling; and preventing impacts, emergencies and incidents. Interestingly, in contrast and in addition to our responses, the DEA[47] view enforcement as the actions required to maintain compliance. Therefore one may add 'ensuring compliance' to the category of implementation and enforcement. If this is done, it will mean that 60 (27%) of the responding practitioners viewed implementation and enforcement (including ensuring legal compliance) as the primary role of an ECO.

A role mentioned by 27 (12%) practitioners was the 'advisory function' of an ECO. Practitioners were of the opinion that an ECO role is to add value in a project by facilitating and assisting role-players in the interpretation of EA and EMP conditions, as well as other legal requirements. Additional noteworthy roles identified in this category is consulting with and providing guidance for contractors to minimise environmental impacts.

[47] DEA (n2) at 12.

The role of ‘reporting’ on issues such as: legal compliance; incidents; and non-compliances; were mentioned by 21 (9%) practitioners and was followed closely by ‘communicating and/or liaising’ identified 17 (8%) times. In the latter category practitioners viewed an ECO as playing an important role in mediating differences and facilitating better relationships between role players such as government and developers. It must be noted that the line of and/or method of reporting and communicating is a key component of the ECO function and should be designed correctly by the developer, environmental implementation agent or any other person/s of authority to enhance the reporting and communication ‘voice’ of an ECO on a project.

The practitioners also listed ‘raising awareness and/or educating’ 13 (6%) times and stated that an ECO should promote issues such as environmental protection and sustainability (also refer to rating number 8 where ‘promoting environmental protection and sustainable development were listed 7 times). Some practitioners also stated that, ‘where practicable ECOs should train contractors’.

Only 12 (5%) of the practitioners viewed auditing as a role to be fulfilled by an ECO. This may be attributed to practitioner’s views that independence or ‘freedom’ from responsibility for the specific activity being audited cannot be guaranteed in practice. Additional to the latter is that ECOs may not necessarily be competent to conduct audits and a final factor to take cognisance of in considering the results is that many practitioners do not accurately distinguish between inspections and audits.

Finally, at the bottom of the ratings were: environmental protection and sustainable development 7 (3%); risk assessment and identification of environmental issues 7 (3%); independence 3 (1%); conflict management 2 (less than 1%); and document control 2 (also less than 1%) followed by: influencing behaviour: acting as a team player; providing assurance; driver for continual improvement; and acting on behalf of government identified once respectively.

3.2.2 The core need for the ECO industry

Sections 3.2.2 and 3.2.3 built on the roles identified in Table 1 and reflect on the written interpretation of the open Questions 5 in component 2 of the survey regarding the core need for the ECO industry. The qualitative responses are grouped according to the specific theme

related to the questions posed in the survey. The general analyses of main findings are presented on a question-by-question basis followed by a presentation of key statements in the original words of the practitioners. The latter is done to convey the essence and passion of the practitioners. As a large volume of responses were received, this section will only focus on selected usable and unambiguous responses.[48]

Question 5 of the survey was interpreted by the practitioners as having one of two meanings; firstly: 'what the ECO industry is needed for' (this was the original intent of the survey question); and secondly 'what is needed for the ECO industry'. Although the question was interpreted differently by the practitioners both categories are valid for the study and will be reflected on as separate themes in this section and in section 3.2.3 respectively.

The results of the category: 'what the ECO industry is needed for' indicates that 13 (26%) of the practitioners regarded compliance monitoring of EMP and EA conditions as a core need for the industry, while 8 (16%) respondents regarded ensuring legal compliance and 5 (10%) enforcing conditions on a site as a core need for the ECO industry. Thus, more than 50% of the responding practitioners were of the opinion that the ECO function directly corresponds to the need for legal compliance monitoring and enforcement on a site. This correlates strongly with the results of Question 4 as presented in Table 1. Apart from ensuring and enforcing legal compliance 7 (14%) respondents also regarded protection and conservation of the environment as core needs for ECOs (also see rating 8 in Table 1). Furthermore, 6 (12%) of the practitioners deemed communication and reporting as central to the ECO function, (see ratings 4 & 5), while 6 (12%) were of the opinion that advising (other words used were; guidance, facilitate, make aware and coaching) developers on environmental issues is a core need for the industry (the advisory function was rated 3rd in Table 1). In essence the results of Questions 4 and 5 correlate closely and reiterate the importance of these roles and the industry in general.

Some of the statements made by the respondents on these topics are listed in Boxes (2 and 3), which are followed by a brief interpretation of what they may mean.

Box 2: Perspectives on the need for the ECO industry

'ECOs need in essence to monitor and report on the implementation of EA and EMP requirements to facilitate the carrying forward of the intentions or requirements set out in the EMP and EA by creating a consequence to ignoring these requirements.'

[48] See also qualitative statements at the end of section 3.3 of the paper.

'Aim at protecting the environment and monitor the project activities in terms of compliance with project management plan and other legislation.'

'To ensure project compliance to National legislation, project EAs, EIA etc.'

'Ensuring compliance conditions of ROD and monitoring non-compliance.'

'Enforcement and ensure sustainable development.'

'To enforce the conditions of the authorisation and EMP that was issued to the applicant and accepted by government.'

'Ensuring environmental compliance through an independent party,..'

'Independent post-decision monitoring and enforcement.'

'An ECO is not a policeman'

The monitoring and reporting function according the practitioners is a form of warning system to inform the developers to the consequences of not complying with conditions. The industry also focus (or aim) on protecting the environment by monitoring activities of projects of not only the project specific EA or EMP requirements but also other relevant environmental legislation. Enforcement, ensuring compliance and sustainable development is also raised numerously by the participants. The last perspective of an ECO should not be a 'policemen' is interesting because a policing function may be negatively perceived by developers and contractors on a site, whereas more effective outcomes might be achieved if an ECO is seen to be working in collaboration with these workers.

It is also necessary to compare the abovementioned perspectives as well as the roles identified and rated in Table 1 to the principle environmental aims enshrined in s 24 of the Constitution of the Republic of South Africa Act, 1996 (the Constitution) and section 4 of NEMA before concluding this section of the paper. The Constitution, states that: 'everyone has the right- (a) to an environment that is not harmful to his or her 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.' In essence, effective monitoring (see rating 1), implementation and enforcement (refer to rating 2) as well as ensuring legal compliance (rating 3) should give effect to the constitutional principles of preventing pollution, ecological degradation and securing

ecological development during the construction phase of a project (also see rating 8 that deals with environmental protection and sustainable development).

If the NEMA is considered, section 4(a)(viii) of NEMA states that: 'that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.'. Anticipation and prevention of impacts can only be done through proper environmental assessments such as EIAs during pre-construction and, thereafter, during construction and operation on a continuous basis through on-site risk assessments and identification of impacts (refer to rating 8). The identification of impacts and associated non-compliances during construction and operation can only be achieved through effective and efficient continuous monitoring programmes implemented by people (such as an ECO) that frequently visit a site (see 1). In terms of rating 3, 5 and 6 (advising, liaison and raising awareness) section 4(f) of NEMA states that 'The participation of all interested and affected parties in environmental governance must be promoted,...' and section 4(h) requires that 'Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means. All of these legal requirements relevant to the roles of an ECO are given a mandate by section 4(e) which requires that 'Responsibility for the environmental health and safety consequences of a ....project,....or activity exists throughout its life cycle' which includes the construction phase.

Finally and as stated previously, EAs and related conditions issued under section 24 of the NEMA (see also regulation 37(1) of GN R543 as discussed above) are the principle mechanism for compliance and enforcement and hence the implementation of Chapter 5 of NEMA. Legal compliance monitoring (rating 1) and ensuring legal compliance (rating 3) by implementation and enforcement (rating 2) as primary roles of an ECO should thus, in practice, be giving effect to Chapter 5 of the NEMA.

In summary, the perspectives of the practitioners do reflect the intended implementation of the legal provisions contained in the Constitution and the NEMA through the ECO industry. The current legal framework would also appear to be useful in relation to providing legal support for the ECO industry and thus not in need of amendment. However, the EIA regulations specifically may need amendment to adopt specific ECO roles and thus reflect best practice such as the Emissions and Waste Control Officer duties and competency

requirements in the applicable SEMAs. Lastly, it is essential that the legal intentions and the method of implementation thereof through an external enforcement or control function such as an ECO should be consistently reflected in EA conditions (being the principle mechanism for compliance and enforcement during construction phase) to avoid confusion on the issue of independence and roles.

3.2.3 Needs of the ECO industry

In the context of how to fulfil their roles efficiently and effectively the practitioners identified needs of the industry. With regards to this category 15 (30%) of the 50 practitioners had concerns with the competency (experience and training) of the industry and some of the noteworthy perspectives are reflected in Box 3 below:

Box 3: Perspectives on competency

'A very good understanding of natural systems and ecology is key together with a very practical hands on approach.'

'Passionate, educated people who put the environment first and are guided by sustainable development.'

'ECO that is knowledgeable not only in the environmental aspects of a particular activity, but to be informed and experienced with the engineering, and construction requirements for the said activities.'

'Knowledge is required so that ECOs are able to assist with compliance and identify non-compliance.'

'ECOs became the competent environmental assurance practitioners who need to be well versed in a multitude of disciplines relating to environmental management.'

The clear picture that emerges from the comments in Box 3 is that respondents support an educated industry that is versed in environmental matters relating to sustainable development, ecology, legislation and construction and/or engineering requirements with a degree of experience in these subjects.

Closely related to competency were the issue of registration and regulation of the industry by a body (or related criteria and standards) to ensure competent practitioners are performing the ECO function. A total of 5 (10%) of the practitioners had a response on regulating the industry and some of these perspectives are recorded in Box 4 below:

Box 4: Perspectives on the need for regulation of the industry

'A system of registration to control the quality and learning of the ECO industry, with particular focus on the specific skill set required by ECOs.'

'Registration of ECOs and regulation of the ECO function: i.e. most companies are doing ECO function and some of the ECOs don't have any experience about what an ECO must do on a site.'

'Screening of potential ECOs based on their skills, qualifications and core competencies. A set standard is required to maintain and/or create effective environmental monitoring & enforcement in South Africa.'

'At this point in time there is a need for the industry to be formally regulated, with clearly defined roles and responsibilities to effectively monitor compliance on behalf of the competent authority, and criteria prescribing professional experience requirements.'

'A board which ensures the independence and relative competency of an ECO would have a great advantage to the ECO industry.'

'I think the core need for the ECO industry is to have an accredited body to ensure that they are recognised and adhere to high level of ethics and integrity and professionalism.'

A strong support for the regulation and registration of the industry is seen in the comments reproduced in Box 4. This could be interpreted as people or organisations that invested in the quality and skills of their ECO product and that may want to protect their market share of the industry. On the other hand they may also be altruistic comments made by concerned practitioners based on their experience in the field. Interesting notions to also highlight is the call for a system for screening with related criteria and/or standards that clarifies roles and responsibilities.

Apart from the core needs of competency, regulation, and independence of the industry (discussed in the next section 3.3), practitioners also identified ethics, integrity, honesty and professionalism, support from developers and government as well as clearly defined roles and responsibilities as being core needs of the industry.

3.3 Independence of environmental control officers

As stated in the introductory section of the paper, there are significantly differing views on the independence of an ECO as independence may be context specific to some agree and may mean different things to different stakeholders depending on circumstances. However, a goal of this research was to seek some consensus on why independence is important and from whom independence are required. In light of the latter, this section firstly outlines the profile derived from the perspectives of the practitioners on the two defined or closed-choice

statements of the survey pertaining to the issue of independence of the ECO industry from different role-players (see Questions 7–8 in Box 1). The second part of the section is a written interpretation of the open question (Question 6) pertaining to the importance of independence of an ECO. In relation to the question of whom an ECO should be independent of (see Question 7), the practitioners generally held independence of ECOs to all role players (as specified in the questionnaire) in high regard as the response to the question attest (see Figure 1-1).

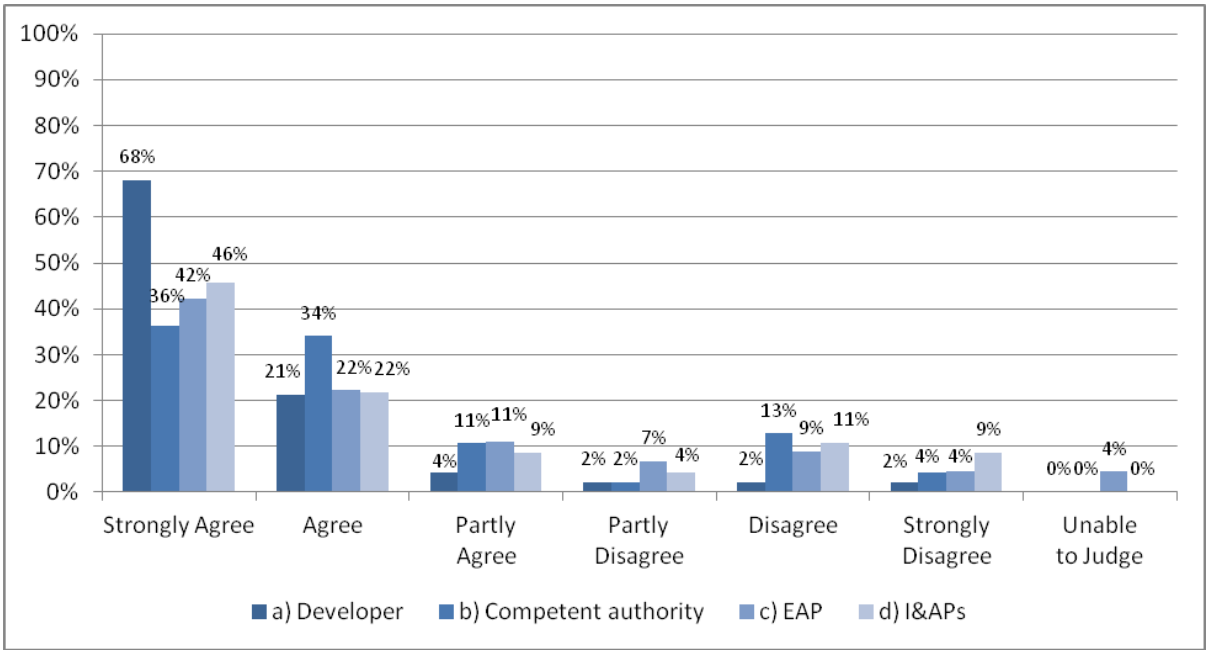

Figure 1-1 In your opinion an ECO should be independent of?

Of the responding practitioners 44 (93%) were in agreement that ECOs should be independent of developers (68% where in strong agreement, 21% agreed and 4% partly agreed), whereas only 3 (6%) disagreed (2% partly disagreed, 2% disagreed and 2% strongly disagreed). Furthermore (see Questions 7b-d), 38 (81%) of the respondents where in agreement that an ECO should be independent of the competent authority; 34 (75%) with relation to independence to EAPs; and lastly, 35 (77%) responded that ECOs should be independent of I&APs. These results reflect the international positions (e.g. Hong Kong and Canada) outlined previously.

In contrast, practitioners had a stark view regarding to whom an ECO should be independent of and what the situation is with regards to independence in their own experience. If the rich and strong content on the issue of the importance of independence (see Question 6 and written responses reproduced in Box 5) as well as the rating of independence as a key role

(see rating 9 in Table 1) are considered, then it is obvious that independence of the ECO function is a serious concern that needs urgent attention and clarification from government and developers. Reasons for the urgent attention and clarification of the independence of ECOs may include: to uncover and define a singular truth to the concept (if there is indeed one); to alleviate conflicts of interests between role-players due to different interpretations of the concept; to eliminate paralyzing uncertainty that may hamper effective compliance monitoring and enforcement; to streamline assessment and audit procedures; and to reinforce credibility of independent compliance monitoring and enforcement processes. In light of the abovementioned reasons, independence of ECOs should therefore be, as far as reasonably possible, uniformly applied in EA and EMP requirements, service agreements and project governance structures.

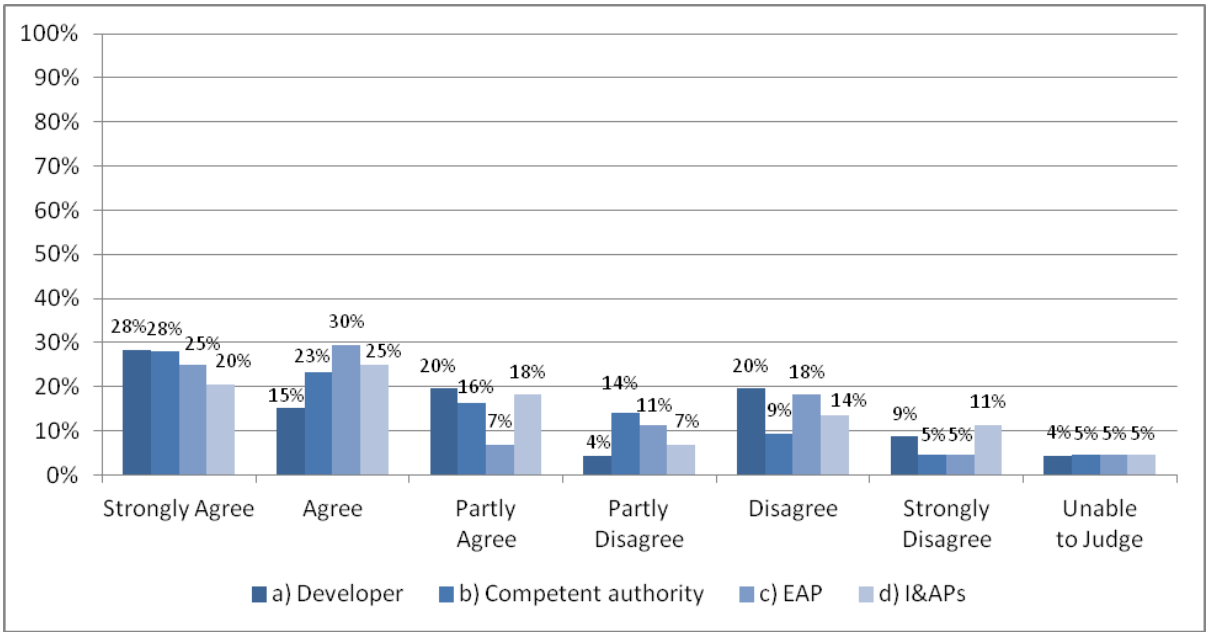

Figure 1-2 In your experience an ECO is independent of?

Only 13 (28%) of the respondents in Figure 1-2 strongly agreed and 29 (63%) respondents in total were in agreement that ECOs are indeed independent of developers (see Question 8a). Furthermore: 29 (67%) where of the opinion that ECOs are independent of the competent authorities; 27 (62%) of EAPs; and 28 (63%) of I&APs.

In terms of the written interpretation of the open question in component 2 of the survey 8 (16%) of the practitioners identified independence as a core need (refer to Questions 5 of Box 1), which underscores the strong support for independence to all role-players (see Figure 1-1). Very rich content was received from the practitioners but due to availability of space only

some of the more noteworthy perspectives on independence that simply could not be ignored are reproduced in Box 5.

Box 5: Perspectives on the importance of independence

'An independent person/body monitoring the project while still being able to have clear communication with the legislator/Government departments as well as the developer to eliminate any potential grey areas/loop holes.'

'Independence gives the ECO more authority. Independence does not have to adhere to budget constraints and independence ensures that all shortfalls and non-compliances are reported.'

'As an ECO, I have been asked by the developer to omit certain comments from my reports. After coaching the developer as to what the role of the ECO actually is, they agreed that the reports should not be biased.'

'Without independence, the inherent and fundamental principles, aims, functions and purposes of section 24 of the Constitution and all subsidiary legislation, notices, lists, best practice guidelines etc. become compromised.

'The environmental industry as a whole is often brought to question by various I&APs with respect of the independence of EAPs in general. In order to improve the perception of the general public and to ensure the integrity of the industry, independence must be maintained.'

'Complete independence; in other words not to be influenced by the client who pays your salary and maybe a system where the government pay or have a fund where the client pay into the fund.'

'In my experience, if there are no requirements for independence, developers may appoint their own internal ECOs. However, independence of the developer and competent authority is critical to ensure objective and fair representation of conditions on a site.'

'As an independent compliance monitoring agent it is essential that the ECO serve the environment and not any particular party – it is my opinion that they should be independent of all project participants and role players so that they can give a totally unbiased record of fact. BUT the obsession of environmental consultants with independence makes them less than effective in the control of environmental risks and impacts'.

'The benefits of an EAP performing ECO work include intimate familiarity and improved continuity of EA and EMP requirements. In this case, independence can be managed by delegating ECO work to a senior consultant that did not participate in the Basic Assessment or EIA.'

'Preventing corruption, intimidation and/or bias of the ECO. The risk though, is that the ECO then needs to be pretty damn competent to act as such for the interest of their role and not wield their 'power' incompetently with no one being able to hold them accountable for their actions.'

'I think that sports analogy works best for describing the role of an ECO as a referee of a game, and in the world of compliance monitoring, you can't be the player and the referee. Without that independence, we get into potential bias that always throws doubt into any outcome. Keep the following in mind: the authorities should be seen as the governing body (such as FIFA or SARU) who set the framework, guidelines and laws, the EAP who defined the playing field and how that playing field looks for proponents (where the goals are), the developer and I&APs as opposing teams (each fighting for an outcome in their favour) and the ECO as the referee who

ensures everyone adheres to the rules to ensure that the outcome is fair, accurate and achieves the goals set by the EAP.'

Interesting to note from the comments reproduced in Box 5 is that the ECO function is not viewed as an independent person only, but may also be an independent body. These bodies referred to may be manifested in the form of independent MCs[49] consisting of a board of members of different categories of people[50] with the principal functions of monitoring and regulatory control after the necessary authorisations have been issued.[51] The role of MCs are in many aspects similar to those identified by the practitioners for ECOs, however, the role of an appointed ECO in his/her personal capacity in these MCs is a further point of debate that currently needs clarification as both literature and the practitioners surveyed are silent on this particular topic. It must be noted that MCs may have a very important function to fulfil in particularly supporting the ECO function and clarifying the issue of payment and corruption raised by many practitioners; if for example, payment of a MC is made by multiple investors (government, developers and NGOs) such as in the Canadian Ekati Mine case study. It may also serve as a monitoring body to monitor the activities of a range of ECOs on different projects in a region or a multi-project development situation such as in the Hong Kong

[49] WA Ross 'The Independent Environmental Watchdog: A Canadian Experiment in EIA Follow-up' in Morrison-Saunders and Arts (n1) at 178-190 describes the role of the Independent Environmental Monitoring Agency at Ekati Mine in Canada. Ross mentions that an Environmental Agreement, among other things established the Agency as a watchdog for environmental management for both the mine operator (also the proponent: BHP Billiton Diamands Inc. (BHPB)) and the regulators (consisting of various agencies of the Government of Canada and the Government of the Northwest Territories). The tasks of the Agency included: reviewing and commenting on monitoring and management plans and the results of these activities; monitoring and encouraging the integration of traditional knowledge into management plans; participating in the regulatory process; bringing concerns of the aboriginal peoples and public to mine operators and to government; keeping aboriginal peoples and the public informed; and writing an annual report that require response from BHP and governments.

[50] According to Ross (n47) at 189, the Agency Board members and the members consisted of: a retired senior politician; a retired fisheries consultant with; university professor specialising in different areas; environmental consultants with impact assessment experience; and the vice president of the North Slave Metis alliance. It should be noted that these members were sponsored by the various role players. In relation to South Africa, R Midgley 'Environmental Monitoring Committees' (2005) 12 *The South African Journal of Environmental Law and Policy* 37 at 46-47, identifies two broad categories of members: firstly, compulsory members which consist of permit holders (developers or site operators) and relevant government departments (regulators); and secondly, voluntary members which consist of members appointed or elected to represent the local. Neither Ross or Midgley mentions an ECO or Independent Checker as being part of the monitoring committee.

[51] Midgley (n50) at 41.

scenario. [52] It should be noted that MCs may also have inherent flaws as well.[53] Apart from individual ECOs and MCs, it is also possible to have a team of ECOs fulfilling the compliance monitoring and enforcement function.[54] An advantage of a MC and a team of ECOs over individual ECOs working alone is that they are more likely to generate a relatively balanced and considered view on compliance. Another advantage may be that the diversification may contribute to independence.

Another important issue that needs highlighting is the perspective on the ECO not serving any party or role-player other than the environment itself (thus independence from all) through ensuring compliance to environmental conditions. This independent focus helps with: strengthening public perception and integrity of the environmental industry in general; gives more authority to ECOs; ensure that non-compliances are reported truthfully; disconnects ECOs of budget constraints and also possible corruption and intimidation realities. On the other hand, although in support of independence, some practitioners were also of the opinion that there are benefits such as; continuity and familiarity if an EAP fulfils the role of the ECO for a particular project. However, care should be applied for this practice in order to ensure independence in some way. For example, if the same organisation that acted as an EAP in the EIA application is awarded the ECO function for the same development project, a different individual should be fulfilling the ECO function than the one that acted as the EAP. Finally, the interesting participant analogy of an ECO being a "referee" in the environmental compliance game may be a more appropriate description of the independent enforcement role than that of "policemen" as described earlier in the paper.

[52] It is interesting to consider the Hong Kong model where multiple projects in a single locality are being followed-up; in the example given by Au and Hui (2004) (n16) the Civil Engineering Department (i.e. a government agency) established an Environmental Project Office to oversee the activities of the Independent Environmental Checker for each project in a multi-project development situation in order to better account for the management of cumulative impacts.

[53] In terms of flaws the DEA (n2) at 20 mentions that although MCs (or EMC) were established on several of the projects reviewed, in one of the projects the MC was limited to include only local, provincial and national authority representation as previous experiences with MC that included both general public and authorities resulted in frequent 'in-fighting'. Other problems raised by the DEA include: poor and irregular attendance; unclear mandates on the part of the authorities; failure to review documentation; failure to take definitive action in response to transgressions of the conditions of the EA and EMP.

[54] A team of ECOs (consisting of a Lead ECO, two ECOs and a Waste Control Officer) for example, where at the time of writing this article, fulfilling the compliance monitoring and enforcement role at the Medupi Power Station project (near Lephalale, South Africa).

4 Conclusion

This research set out to understand the perspectives of ECO professionals about their own industry with particular regard to the matters of role and independence. The participating practitioners identified: compliance monitoring; implementation and enforcement; ensuring legal compliance; advising and/or consulting; communicating; reporting; and raisings awareness as the key roles of an ECO. This correlates strongly with and gives effect to the intent of the legal provisions and principles contained in s 24 of the Constitution, s 4 of the NEMA and the EIA regulations that principally aims to prevent pollution and ecological degradation as well as securing sustainable development through the management, monitoring and reporting of environmental impacts. The current legal framework also supports the need of an industry that fulfils the abovementioned tasks during the life cycle of a project. Unfortunately current EIA legislation (apart from some site specific Environmental Authorisations) do not reflect ECO roles and responsibilities in contrast to Emissions and Waste Control Officer requirements in the NEMWA and NEMAQA. However, self-regulating mechanisms such as norms, standards or codes may be a more feasible and appropriate option than amending existing legislation. Furthermore, it is vital that the role of and the independence of an ECO should be consistently reflected in EA and EMP requirements to avoid confusion on these issues in practice.

To be effective in fulfilling their expected roles, the practitioners identified competency and the regulation of the ECO industry as core needs of the industry. Furthermore, the issue of support from the developer, government, I&APs and possible MCs to an ECO surfaced several times and practitioners viewed this as being vital in ensuring the success of compliance monitoring and enforcement. It is thus clear that without competence and the regulation thereof, as well as proper support, ECOs will not be able to fulfil their roles efficiently and effectively. It must be highlighted, that although the perception may be that an ECO should ensure legal compliance on a site an independent ECO in reality has little or no authority on a development site unless authority and responsibility for the management, implementation and coordination of EA and EMP requirements are specifically given through the authorisation, EMP or contractual or other rules of engagement. A key learning point is that without clear rules of engagement the role of an independent ECO can be reduced to a perfunctory role.

The practitioners also held independence of the ECO to all role-players in high regard and viewed independence as a critical ingredient in the success of the ECO function and ultimately the successful implementation of environmental legal requirements on a construction site. However, caution should be practiced by practitioners not to obsess with independence to such an extent that this compromises the ability of an ECO to fulfil their roles.

Drawing together the material presented in this paper a proposed definition for the role of an independent ECO might be: 'An Environmental Control[55] Officer is an independent, competent person or body in a position to influence people's behaviour during the construction phase of a project; with selected environmental monitoring instruments; in order to assure and at times to ensure, record and communicate compliance to applicable environmental conditions and performance specifications'.

[55] According to C Soanes, FG Fowler and HW Fowler *Pocket Oxford English Dictionary* (9th ed 2002) at 178, control is defined as '(1) the power to influence people's behavior or the course of events. (2) the restriction of something: *crime control. (3)* a means of limiting or regulating something: *exchange controls.* (4) a person or a thing used as a standard of comparison for checking the results of a survey or experiment. Origin: Old French *contreroller* 'keep a copy of a roll of accounts'. Officer is defined as '(1) a person holding a position of authority in the armed services. (2) a person holding a position of authority in an organisation or government'. See Soanes, Fowler and Fowler (n55) at 583.