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ENVIRONMENTAL COMPLIANCE TOOLS: SOME LESSONS LEARNT**

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HOW TO USE VOLUNTARY, SELF-REGULATORY AND ALTERNATIVE ENVIRONMENTAL COMPLIANCE TOOLS: SOME LESSONS LEARNT

JG Nel* and JA Wessels**

1 Introduction

This article explores the way "alternative" environmental enforcement tools may be used to complement and support classical command and control tools in order to improve the overall environmental enforcement effort. The objective is not to list and discuss the alternative enforcement tools available and used in South Africa, as this information is readily available in the literature.¹ The debate has shifted from what may be available to an enquiry into the demonstrated enforcement performance and effectiveness of these tools in an attempt to answer the question "*do they work and deliver?*". A second focus is to understand the framework conditions required to ensure performance and effectiveness to answer the question "*why does what work?*" A third issue that dominates the debate focuses on the policy challenges of environmental authorities across the world on the way in which to deal with two issues: (a) the official policy on the adoption and use of alternative enforcement tools; and (b) the most effective arrangements to ensure that such adopted tools do indeed contribute effectively and efficiently to the overall environmental enforcement effort.

In an attempt to stimulate debate on the fundamental questions posed regarding the adoption and use of alternative enforcement tools, four sub-themes and a case study are explored in this article. A generic typology of "new" or alternative enforcement tool categories is offered to set the scene. Secondly, the generally argued benefits

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1 See amongst others Hanks 1998 SAJELP 298–354; Hanks *Negotiated Environmental Agreements*; Fischer *Environmental Management Co-operative Agreements*; Croci *Environmental Voluntary Agreements*; ELNI *Environmental Agreements*; and Ten Brink *Voluntary Environmental Agreements*.

and disadvantages of both command and control approaches and alternative enforcement tools are listed. Thirdly, framework conditions for the successful adoption and use of some of the enforcement tools are offered. Fourthly, empirical and other evidence is then explored to determine whether one of the most celebrated voluntary enforcement tools, environmental management systems,² can actually drive sustained and consistent legal compliance and hence, environmental enforcement. Lastly, a South African case study is presented to illustrate the manner in which a combination of alternative enforcement tools has been successfully integrated with command and control tools to ensure consistent and sustained legal compliance once environmental authorisations have been issued.

2 A possible typology of voluntary and or alternative enforcement tools

The number and diversity of "alternative" or "new" environmental enforcement tools designed to overcome the challenges posed by an over-reliance on the classical command and control enforcement tools have grown rapidly in developed countries since the 1980s. Lately some developing countries have also started to experiment with alternative enforcement tools, as is evident in a range of framework environmental legislation.³

Gunningham⁴ argues that two distinct environmental enforcement phases may be identified in developed countries. The first, a command and control phase, began in the early 1970s with a proliferation of environmental legislation, performance standards and other command and control instruments. By the 1980s, the inability of command and control tools to change behaviour consistently and universally spawned a counter-movement arguing for large-scale deregulation in favour of market-based enforcement tools. Once again, other second-generation environmental enforcement tools were developed and experimented with, as it became apparent that the market too had failed to be the panacea for all the environmental enforcement ills.

2 Hereafter EMSs.

3 Nel and Du Plessis 2001 *SAJELP* 1–38.

4 Gunningham and Grabowsky *Smart Regulation* 7–12.

Creating a typology of alternative compliance tools is almost impossible, as the portfolio of available alternative environmental enforcement tools is complex, interlinked, hybridised and ever changing. All attempts to combine such a diverse portfolio of alternative enforcement tools into a comprehensive model with exclusive categories will of necessity be *ad hoc* and arbitrary.⁵

Environmental enforcement tools are classified for the purpose of this article into the following broad categories:⁶ classical command and control-based instruments;⁷ and three loosely defined categories of alternative enforcement tools, namely, market-based instruments,⁸ civil-based instruments,⁹ and agreement- or commitment-based instruments.¹⁰ The latter two may range from entirely voluntary commitments such as the adoption and use of voluntary tools such as ISO 14001-based EMSs, to voluntary agreements that may also have enforceable elements, that is, enforceable agreements and commitments such as environmental cooperation agreements provided for in terms of Chapter 8 of the *National Environmental Management Act*.¹¹ An enforceable commitment is another voluntary enforcement tool, where the regulated entity internalises the enforcement processes that were traditionally the domain of the regulator.

These voluntary enforcement tools may be directed by either very broad-based strategic principles that drive behaviour such as the United Nations Global Compact¹² and the Ceres Principles,¹³ amongst others, or the adoption and use of

5 Gunningham and Grabowsky *Smart Regulation* 38.

6 The objective of this article is to explore the performance potential, as well as the conditions required for performance of alternative enforcement tools. The objective is not to discuss the characteristics of the four enforcement tool categories, nor is the objective to list all the types or permutations of alternative enforcement tools available per category. See Nel and Du Plessis 2001 *SAJELP* 1–38 for lists of tools per enforcement category.

7 Command and control-based tools should cover the entire legal enforcement loop, ranging from policy to legislation, pollution or environmental degradation standards, and the full range of command and control instruments, as well as the political will and institutional capacity to drive enforcement and prosecution.

8 Fiscal or economic tools use market-based incentive-directed or disincentive-directed measures to direct the desired behaviour.

9 Civil-based instruments include all measures to empower, inform, educate and co-opt civil society to be involved in the enforcement process.

10 Nel and Le Roux "Municipalities as the regulator and regulated". See also Nel and Du Plessis 2001 *SAJELP*.

11 107 of 1998 – hereafter NEMA.

12 Hereafter UNGC. UNGC 2008 <http://bit.ly/BOPtK>. Launched in 2000, the UNGC is a policy and a practical framework for companies that are committed to sustainability and responsible business practices. As a leadership initiative endorsed by chief executives, UNGC seeks to align

generic requirements that are widely recognised.¹⁴ Often voluntary enforcement tools are not based on any guideline or requirement, as the regulated are free to design all the solutions and the level of performance themselves. Environmental management plans¹⁵ that are not verified are cases in point.

Adherence to these tools may also be entirely voluntary, that is, performance is never verified by anybody, while others may need to be regularly verified by independent and competent third parties. These verifiers may also again be either entirely independent, such as accredited certification bodies providing assurance of conformity, or even enforcement agencies themselves, public watchdog bodies¹⁶ or enforcement surrogates¹⁷ appointed by the regulated. Agreement- and commitment-based enforcement measures may also range from commitments by a single organisational unit¹⁸ to commitments made by or on behalf of business sectoral¹⁹ groups.

In reality, any of the tools loosely classified into any category may have characteristics of any one or any combination of any of the other categories as well, as alternative tools are increasingly hybridised. The adoption and use of many agreement- and civil-based environmental enforcement tools are also routinely specified as conditions of environmental authorisations. That some of these

business operations and strategies around the world with ten universally accepted principles in the areas of labour, human rights, the environment and anti-corruption.

- 13 Ceres 2007 <http://bit.ly/hXaiRR>. Founded in 1989, Ceres is a national network of investors, environmental organisations and other public interest groups working with companies and investors to address sustainability challenges. Ceres introduced the vision of integrating sustainability into capital markets for the health of the planet and its people, and achieved remarkable results in the past two decades such as the launch of the Global Reporting Initiative (hereafter GRI) and the Ceres Principles, a ten-point code of corporate environmental conduct to be publicly endorsed by companies as an environmental mission statement or ethic.
- 14 Such as ISO 14001-based requirements for EMSs.
- 15 Hereafter EMPs.
- 16 Watchdog bodies may be community based or non-governmental based organisations, or they may be statutorily appointed civil-based watchdog bodies such as environmental liaison bodies.
- 17 Environmental enforcement surrogates may, amongst others, include environmental liaison officers or environmental control officers.
- 18 A typical example of a voluntary commitment made by a single operating unit is the adoption and use of a voluntary enforcement tool such as a formalised EMS based on ISO 14001 and the informal adoption of an EMP. Environmental management systems may also be certified by an accredited body, they may be recognised by a second party, or they may be self-declared, without any second- or third-party verification.
- 19 Typical sectoral responses include, amongst others, the chemical sector's Responsible Care, the forestry sector's FSC and the banking sector's Equator Principles.

agreement- and civil-based tools are indeed specified as conditions of command and control-based tools does not make them less "agreement" or "civil" based.

Du Plessis and Nel refer to the legal mandate to adopt and use alternative environmental enforcement tools in South Africa,²⁰ and many of these hybridised alternative enforcement tools are increasingly being provided for in terms of permit or licence conditions. Command and control instruments such as authorisations increasingly adopt and use agreement- and commitment-based enforcement instruments or techniques to drive and direct the environmental enforcement effort.

3 Advantages and disadvantages of command and control and alternative enforcement tools

A fundamental characteristic of all the environmental enforcement categories and tools is that no one enforcement category or tool offers a one-size-fits-all solution to enforcement challenges. Every tool or category of tools has particular strengths and weaknesses characterised by very specific elements relating to enforcement performance. See Table 1 for a generic list of the strengths and weaknesses of the command and control category tools and Table 2 for the strengths and weaknesses of some alternative enforcement tools. As argued in the introduction to this article, the debate on alternative environmental enforcement tools tends to focus on finding empirical evidence to answer the question as to whether these tools do indeed contribute to the environmental enforcement effort. Reference is made later in this article to the research findings of important studies that aim to empirically establish whether alternative enforcement tools indeed contribute effectively to the environmental enforcement effort.

Table 1: Strengths and weaknesses of command and control tools

Weaknesses	Strengths
Not effective for delivering policy choices	Dependability
Not efficient in delivery at lowest cost	Clarity
Enforcement is not easy	Major driver of private-sector compliance

20 Du Plessis and Nel "Driving compliance".

Weaknesses	Strengths
Too information intensive	Compliance or non-compliance is readily detectable
Universal rules do not work	Works well for: <ul style="list-style-type: none"> • Single media issues • Control of point-source emissions • Waste management • Protection of endangered species
Absence of incentives	Fosters new technologies
Often results in adversarial legal combat	
May result in administrative complexities	
Proliferation of laws	
Insufficiently flexible to deal with dynamic situations	
Often media specific	
Difficult to deal with trans-media impact	
Difficult to deal with regional and global challenges	
Difficult to perform across all the cycle phases	
Depends on politicians to prosecute	

Table 2: Strengths and weaknesses of alternative tools

Strengths	Weaknesses
Improved flexibility	General mistrust of performance potential
Improved efficiency, fit for purpose	Not clearly understood
Fosters innovation	
More cost effective for the government	

4 Framework conditions to direct the selection and use of alternative enforcement tools

An important question that needs to be raised and answered is: how should the different environmental enforcement tools be structured and used to ensure both sustained and reliable environmental enforcement? A number of important insights may guide users in selecting, adopting and using environmental enforcement tools or portfolios of enforcement tools to drive the enforcement of environmental law.

The first insight is that no one tool or category of enforcement tools offers a comprehensive solution to environmental enforcement challenges. The learning point is that to ensure an effective and efficient environmental enforcement regime, a series of tools needs to be selected, adopted and used in order to harness the synergies offered by both their differential performance and their failure potentialities. The differential performance and failure argument is supported by the redundancy hypothesis posited by Taylor,²¹ who argued that where two or more elements or subsystems function independently of one another to achieve the same or similar objective, duplication and overlap significantly reduce the probability that both systems would fail at the same time and in the same area. Should one of the subsystems fail, the other may succeed.

The second insight is that there is no universal cocktail or broad portfolio of tools that guarantees successful environmental enforcement for all situations. The selection, adoption and use of the correct or optimum mix of enforcement tools to suit specific conditions and requirements are essential to ensure an efficient and effective enforcement regime. Knowledge of the potential performance and failure modes, as well as the strengths and weaknesses of all the types of environmental enforcement tools is imperative to design a portfolio that will be efficient and effective in offering an improved capability to drive sustained and reliable environmental enforcement.

A third insight is that the efficient and effective deployment of mixed portfolios of enforcement tools is also dependent on both the number and independence of the role-players involved. A relatively valid generalisation is that the greater the number of role-players involved and the greater the independence amongst them, the better the performance potential of the environmental enforcement effort will be. Taylor²² postulates that the insider–outsider hypothesis explains the dynamics that ensure successful interaction by stakeholder groups with different interests. Two important stakeholders that may be successfully engaged in the enforcement process are government officials and civil society. They may co-operate in a mutually beneficial way. Government insiders may have or may lack the political will and mandate to

21 Taylor *Making Bureaucracies Think*.

22 Taylor *Making Bureaucracies Think*.

act, and they may have or may lack the information or resources to do so, while civil society groups may or may not have a mandate to act, but they may have the information or resources and the willingness to act. A strengthened relationship amongst various interest groups is a powerful mechanism to drive compliance by addressing the weaknesses inherent in single or disjointed interests. The environmental enforcement effort may also be enhanced where more than one enforcement agency is involved, despite the inefficiencies of duplication and overlap.

The fourth insight is that cognisance should be taken of complex process sequences in selecting, adopting and using enforcement tools. Three process sequences offer significant challenges to effective and sustained enforcement processes: the project cycle²³ (see Figure 1; from Nel and Kotzé);²⁴ the product cycle;²⁵ and the plan, do, check and act²⁶ phases of the Deming Management Cycle.

23 Nel and Kotzé "Environmental management".

24 Nel and Kotzé "Environmental management".

25 The product cycle normally includes raw material sourcing, transportation, primary, secondary and other manufacturing processes, packaging, storage, procurement, use and integrated waste management.

26 Hereafter PDCA.

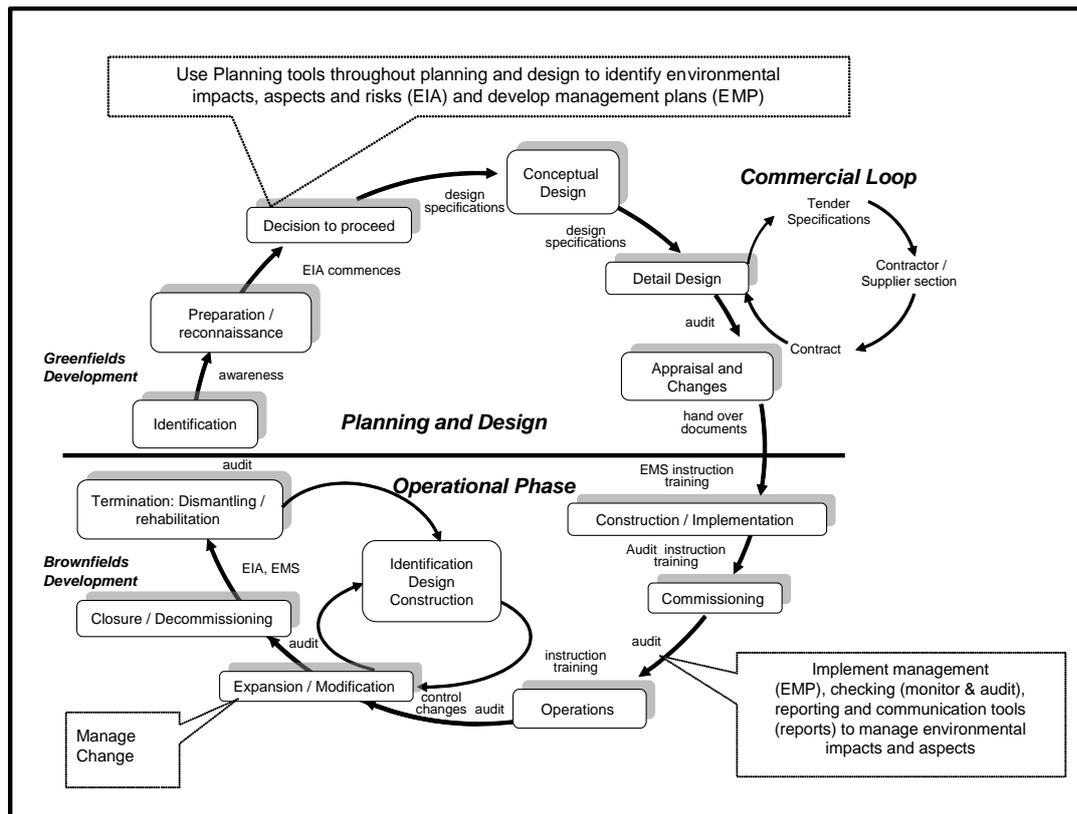


Figure 1: The project life cycle and multiple tools

Environmental enforcement through complex chains of project and product phases demands the selection, adoption and use of very specific portfolios of environmental enforcement tools that are able to perform under specific circumstances. No one single environmental enforcement tool, including command and control tools, is both versatile and sufficiently robust to ensure sustained environmental enforcement.

A fifth insight is that enforcement tools should be selected to cover the PDCA phases of the Deming Management Cycle,²⁷ as no one tool performs equally well across the entire PDCA management cycle. In order to enhance the classical PDCA model, two elements are added: criteria and standards, as well as reporting and communication tools (see Table 3, from Du Plessis and Nel).²⁸

27 Du Plessis and Nel "Driving compliance".
 28 Nel and Du Plessis 2001 SAJELP.

Table 3: The PDCA cycle and environmental governing tools

Analytical and planning tools	Criteria and standards	Management or doing tools	Checking and acting tools	Report and communication tools
Environmental social sustainability and cultural impact assessment	Legislation and national standards (eg, South African National Standards ²⁹ standards and guidelines, best available technique standards) ³⁰	EMSs	Environmental and social monitoring and measuring	Environmental and social reporting Triple bottom line reporting
Strategic environmental assessment	ISO 14001 ³¹ standard and other guidelines	Emergency plans	Inspection, analysis and records	Environmental and social communication
Risk assessment	SA 8000 ³²	Administrative tools (ie, standard operating procedures)	Environmental and social auditing	Statutory reporting
Life cycle assessment	AA 1000 ³³ accountability	EMP	Improvement management	Public participation
Disaster planning	Sectoral environmental performance standards	Disaster management plan	EMP performance monitoring	
	Triple bottom line GRI ³⁴ requirements		Continual improvement tools	

29 Hereafter SANS. A good example is the SANS air quality standard SANS 1929:2005 ambient air quality – limits for common pollutants.

30 Hereafter BAT. At the time of writing this article, BAT standards were being developed for identified sectors in terms of the *National Environmental Management: Air Quality Act 29 of 2004*.

31 ISO 2004 <http://bit.ly/h17w8o>.

32 SAI 2007 <http://bit.ly/fEytTx>.

33 AccountAbility 2008 <http://bit.ly/hrzO2w>.

34 GRI sa <http://bit.ly/fyYPku>.

The sixth insight is that a combination of enforcement tools selected from the four generic groups of tools, that is, command and control tools, market-based tools, agreement- or commitment-based tools, as well as civil-based tools, offers improved environmental enforcement capability when compared with the adoption and use of a single, stand-alone, environmental enforcement tool.³⁵

The seventh insight is that the South African environmental governance and hence enforcement dispensation is fragmented horizontally amongst the three spheres of government and vertically amongst the environmental medium specific line functions operating within the three spheres of government.³⁶ The enforcement effort is therefore also fragmented mostly along environmental media lines, while significant duplication and overlap of both the governing and enforcement efforts are commonplace. It was argued earlier in this section that the duplication and overlapping of enforcement mandates may, in some instances, indeed be desirable from a sustained enforcement delivery perspective. The concern is a fragmented landscape of environmental enforcement where enforcement has been stepped up by some agencies, while others either do nothing or only pay lip-service to their mandates to enforce the legislation over which they have jurisdiction. The efficient and effective environmental enforcement landscape in South Africa is therefore biased to specific mandates, environmental media and even business sectors.

The eighth insight is that command and control tools remain the principal driver of compliance by organisations. It is therefore imperative that all portfolios of compliance-based tools be based on a sound command and control regime. Alternative enforcement tools used as stand-alone instruments generally fail to deliver on enforcement and compliance expectations in the absence of a sound command and control base. At present, it is also too early to demonstrate convincingly that recent experiments³⁷ with incentive-based, trade-off programmes

35 See Gunningham and Grabowsky *Smart Regulation*.

36 Nel and Du Plessis 2004 *SAPL* 181–190. See also Kotzé *et al* 2007 *SAJELP* 57–81 and Kotzé *Legal Framework*.

37 Du Plessis and Nel "Driving compliance". See references to some trade-off initiatives. The general notion is that regulated entities are offered relaxations and or waivers of command and control requirements should they adopt and sustainably conform to agreed requirements.

between command and control tools and voluntary tools do indeed deliver more efficient and effective environmental enforcement.

The performance of the celebrated voluntary enforcement tools, namely, the independently certified EMSs, which are based on the ISO 14001 standard, is explored in the following section with the view to illustrating the concerns associated with an over-reliance on a single instrument to drive environmental compliance.

5 Performance of environmental management systems as a voluntary enforcement tool

The case of EMS is used to explore its ability as a largely stand-alone,³⁸ voluntary environmental enforcement tool that may deliver legal compliance on a sustainable basis consistently and reliably. Worldwide, there are two programmes for EMSs. The first is the ISO 14001:2004-based EMS standard,³⁹ and the second is the EU's Eco-Management and Audit Scheme.⁴⁰ The former is a globally adopted standard, while the latter is limited to the EU, where organisations have a choice between ISO 14001-based and EMAS-based EMSs.

It is important to note that the ISO 14001:2004-based EMS standard certifies organisations and not sites or parts of organisations that do not have their own functions and administrations.⁴¹ ISO 14001:2004 does not, however, explicitly require demonstrated legal compliance as a prerequisite for certification. ISO 14001:2004 requires top management to make a public commitment to comply with legal requirements at least. The general interpretation of this requirement is that the organisation's top management commits itself to legal compliance and as an enforced "own commitment" to compliance, verification of compliance should

38 Based on research in Australia and the USA, Gunningham and Grabowsky *Smart Regulation* conclude that a stand-alone voluntary tool should not be used as a "stand-alone" compliance tool.

39 The first revision of the international consensus standard was published in 1996, the second revision in 2004, while a third revision is expected between 2008 and 2012.

40 IEMA 2010 <http://bit.ly/f3UFKh> – hereafter EMAS.

41 The general implication is that organisations seeking certification to ISO 14001:2004 may not leave legally non-compliant facilities or actions, such as an unlicensed waste site or water-treatment works, outside the scope of its EMS.

arguably be part of any internal and external audit programme. Failure to ensure and demonstrate compliance with applicable legal requirements therefore constitutes a significant system failure.

The standard also requires that the organisation identify and provide all staff with access to applicable environmental laws. The standard tasks the organisation to determine the manner in which these applicable legal requirements apply to its operations; that is, the organisation must establish and document the applicable legal requirements and the implications of these for its operations. These explicit requirements regarding environmental law are followed by a much weaker requirement that the organisation shall consider⁴² only these legal requirements when establishing its objectives, targets, and the management plan in particular and the EMS in general. The general interpretation of these requirements is that the organisation shall make voluntary arrangements that may be tempered by financial, operational and or business requirements, to become compliant where non-compliance is evident and to maintain a state of self-enforced compliance voluntarily by means of management-system requirements such as objectives, targets and management plans. Implementation of these legal compliance commitments is to be achieved by means of operational-control arrangements, where legal requirements should be used to define operational criteria for specific operations.

Consistent conformity to these arrangements is to be verified by means of a plethora of ISO 14001:2004 checking arrangements such as monitoring and measurement, and verification of compliance with applicable legal requirements, non-conformity and corrective and preventive action, as well as internal and external third-party audits.

These inherent weaknesses of ISO 14001:2004-based management systems are exacerbated by the fact that organisations are not forced to publicly report their state of legal compliance, while a generally accepted perspective is that certification

42 Use of the word "consider" in standards generally indicates some degree of discretion available to an organisation. The duty to "consider" does not imply that the organisation shall demonstrate anything in addition to its having "considered".

auditors need only to verify that an organisation conforms to the procedural requirements of the standards and not the actual state of legal compliance *per se*. At the time of writing, the actual competence of EMS auditors to be able to confirm that all of the procedural legal requirements are satisfactorily planned, implemented, maintained and verified by the audited is a hotly debated concern.

Anecdotal evidence from around the globe appears to suggest that confidence is waning in the ability of voluntary EMSs in general and ISO 14001:2004-based EMSs in particular to consistently drive and ensure legal compliance. Evidence from various research papers current at the time of writing this article appears to suggest further that the ability of an EMS to deliver legal compliance and hence to serve effectively as a reliable voluntary enforcement tool is still under debate. Case research on the effectiveness of EMSs has produced mixed results, with some researchers reporting successes and others reporting failures. Specifically, two international reports and one local communication in the media have shaken confidence in the ability of EMSs to deliver and third-party certification audits to provide assurance of legal compliance. The ENDS Reports⁴³ of 2002 and 2006 reported significant dissatisfaction in the UK with the performance of both EMSs and EMS auditors to deliver on the initial promises and expectations regarding the potential of an EMS to deliver sustained legal compliance reliably. The following research findings based on the perceptions of 600 environmental professionals from various sectors were made in the 2006 survey:

- (a) Respondents believe that EMSs generally contribute to improvements in environmental performance that would otherwise not have been achieved.
- (b) Regarding the impact of EMSs on legal compliance:
 - (i) Three quarters of the respondents felt that an EMS increases the frequency and scope of checks that organisations make to check legal compliance.
 - (ii) Almost all respondents believed that EMSs improve the understanding of an organisation's legal status.
 - (iii) Only one third of the respondents believed that corrective action⁴⁴ routinely follows detected legal non-compliance.
 - (iv) Only a quarter of the respondents reported that certification bodies requested documented evidence that demonstrates that organisations

43 ENDS 2002 <http://bit.ly/eK2x71> 3–44 and ENDS 2006 <http://bit.ly/eZFYI9> 30–33.

44 Failure to institute corrective action once an instance of non-compliance has been identified is deemed to be a significant system failure.

- reviewed compliance with all applicable legal requirements when the EMS was initiated.
- (v) Only a quarter of the respondents reported that certification bodies confirmed that organisations regularly and comprehensively reassess their compliance status as is required by ISO 14001:2004.
 - (vi) Only a third of the respondents reported that certification bodies did indeed confirm on-site evidence of legal compliance. This response is lower than that of the 2002 survey, in which half of the respondents confirmed on-site evaluation of legal compliance.
- (c) Fifty-nine per cent of the respondents reported that confidence in United Kingdom Accreditation Service-accredited certification to ISO 14001:2004 and EMAS has not improved since the initial ENDS survey conducted in 2002

The lessons learnt from the two UK-based ENDS surveys in 2002 and 2006 are that both ISO 14001:2004 and EMAS have failed to convincingly drive and ensure sustained legal compliance on a voluntary basis.

In order to conduct empirical research on the ability of an EMS to improve both environmental performance and legal compliance of organisations, an ambitious three-year REMAS⁴⁵ study was launched in 2003 to quantify statistically the link between EMS as a voluntary compliance tool and improved environmental performance, and hence legal compliance. The following research findings were made:

- (a) Organisations with progressively robust EMSs demonstrate better site-based environmental management.
- (b) Those organisations with a nationally accredited EMS certificate demonstrate better site-based environmental management than those whose certificates are not accredited.
- (c) Those organisations certified to EMAS demonstrate better site-based environmental management than those certified to ISO 14001:2004, as EMAS has stricter requirements regarding legal compliance than ISO 14001:2004.
- (d) Evidence was also found to confirm that organisations with better site management plans demonstrate better environmental performance when compared with those with weaker site environmental management.
- (e) However, the REMAS study for various reasons did not succeed in demonstrating that better site environmental management and hence better environmental performance results in improved legal compliance.

What shocked the South African EMS community in 2007 was the findings reported in the media of gross and continued legal non-compliance by some organisations

45 REMAS is an ambitious study launched in Europe to investigate the relationship between EMS and environmental management performance and legal compliance.

certified to ISO 14001:2004, as reported by the Environmental Management Inspectorate (popularly known as the Green Scorpions) established in terms of Sections 31(A–Q) of the NEMA. The Business Report⁴⁶ reported on 5 October 2007 that:

The state's environmental management inspectorate has named three companies as serious transgressors of environmental laws and permits, all three of which are ISO 14001 certified ... The department of environmental affairs and tourism [sic], which houses the Green Scorpions, said it was "taken aback" at the levels of non-compliance ... The department has raised its concerns about ISO 14001 with the SA National Accreditation System (Sanas). Sanas certifies the country's 32 accreditation agencies.

At the time of writing, the website of the South African National Accreditation System⁴⁷ recorded only five of the reported thirty-two EMS certification bodies as indeed being accredited by SANAS.⁴⁸ The implication is that the other certification bodies are either not accredited at all or may be accredited by foreign accreditation bodies that do not have jurisdiction in South Africa.⁴⁹ In South Africa, ISO 14001:2004 has clearly failed to provide the assurance that certified organisations do indeed comply with applicable legal requirements consistently.

Perhaps the clearest indication of sentiments regarding the inability of an ISO 14001:2004-based EMS to deliver legal compliance comes from the European Co-operation for Accreditation⁵⁰ statement that:

The control of legal compliance by the organisation is an important component of the EMS assessment and remains the responsibility of the organisation ... It should be stressed that certification body auditors are not

46 Salgado 2007 <http://bit.ly/gwupQW>.

47 Hereafter SANAS.

48 SANAS 2004 <http://bit.ly/i6GJhW>.

49 SANAS 2008 <http://bit.ly/9jespk> states that:

The South African National Accreditation System (SANAS) is recognised by the South African Government as the single National Accreditation Body that gives formal recognition that Laboratories, Certification Bodies, Inspection Bodies, Proficiency Testing Scheme Providers and Good Laboratory Practice (GLP) test facilities are competent to carry out specific tasks.

50 European Co-operation for Accreditation 2007 <http://bit.ly/foOG2U>.

inspectors of the environmental regulator. They should not provide "statements" or "declarations" of legal compliance.

There is, however, no simple and quick solution to remedy the failure of ISO 14001:2004 to function as an effective and efficient voluntary compliance tool. The factors that may require redress could include the following:

- (a) The requirements of ISO 14001:2004 need to be strengthened to explicitly require demonstrated legal compliance as a prerequisite for certification, should international consensus be reached to strengthen the legal compliance requirements of both the ISO 14001 standard and the rules that govern certification.
- (b) National accreditation bodies need to require that certification bodies actively confirm sustained legal compliance during certification and surveillance audits and that demonstration of sustained legal compliance be a critical requirement to achieve certification or to retain certification, instead of the current focus of certification bodies on verifying conformity to procedural requirements of the standard.
- (c) Certification auditors should demonstrate that they are indeed competent⁵¹ to judge whether all applicable legal requirements have been met and whether the organisation is indeed compliant.
- (d) Legislation needs to be adopted to require that all bodies offering EMS-certification services in South Africa be accredited by SANAS, regardless of international accreditation and the multi-lateral agreements that may exist between countries.
- (e) Legislation must be adopted requiring that only Southern African Auditor and Training Certification Association-certified⁵² EMS auditors be used to conduct certification audits.
- (f) The SAATCA must ensure that a SANAS-accredited certification scheme for EMS auditors in line with the IPC's competence-based requirements is operational and able to rigorously examine and certify competent EMS auditors.

The current version of ISO 14001:2004 is due for revision between 2008 and 2012. However, early indications do not suggest any departure from the current weak requirements regarding the capability of EMSs to serve as effective voluntary environmental enforcement tools driving sustained legal compliance. For the interim then, the adoption and use of EMSs as effective and reliable enforcement tools continue to rely on the carefully selected range of different alternative environmental

51 The current qualifications-based set of criteria used by auditor certification bodies to certify EMS auditors is being reviewed and revised in line with the International Personnel Certification Association's (hereafter IPC) new competence-based requirements. See IPC 2009 <http://bit.ly/gbCMp8> and the requirements of the SAATCA 2009 <http://bit.ly/eLYNBB>.

52 Hereafter SAATCA.

compliance-based tools that are embedded in a sound command and control framework that promises prosecution, should the voluntary-based tools fail to deliver sustained compliance.

6 Use of multiple compliance tools: The Moirivier Mall case study

This case study illustrates the manner in which and extent to which voluntary, command and control-based, and civil-based compliance enforcement tools were integrated into a seamless portfolio of enforcement tools designed to deliver sustained, reliable and demonstrable legal compliance throughout the life cycle of the project.

The fact that the adoption and use of these alternative enforcement tools are indeed mandated by command and control-based authorisations issued in terms of national legislation is immaterial, as they fundamentally retain an agreement- and civil-based character. One of the insights offered in this article is that a command and control basis for the adoption and use of such tools is indeed desirable.

6.1 *The mall development and site characteristics*

A retail facility of approximately 48 500m² was built in the city of Potchefstroom, South Africa, on an environmentally controversial property. Although the preferred and selected development site is characterised by numerous financial and social positives⁵³ it also posed significant environmental constraints and challenges to the development. Firstly, the site is located within the Mooi River open space system of the city. Secondly, the mall is situated within the 1:50 and 1:100 flood lines of the

53 Prinsloo "Urban studies market research report" 1–4. Previously, there was no feasible one-stop shopping destination for the Potchefstroom shopper, a fact that resulted in an outflow of disposable income to surrounding cities such as Johannesburg. It was argued by key stakeholders that with better retail facilities, such as the Moirivier Mall development, more of the disposable income would be retained in Potchefstroom itself, which would ultimately lead to a better economic and social climate in Potchefstroom.

river.⁵⁴ Thirdly, a 60 m wide section of the mall spans the river to link the eastern and western banks.⁵⁵

Apart from the potential hydrology and flooding impacts of the specific development, malls are also associated with other known impacts caused by facilities, activities, products and services during the design, construction and operational phases. In general, all phases of the project life cycle of shopping malls generate large quantities of waste and consume large volumes of water and electricity, as well as other natural resources. Finally, storm-water management and potential contaminated water entering the river pose severe threats to the river's ecological functionality. Innovative and comprehensive environmental enforcement instruments are therefore required throughout the project life cycle of large-scale infrastructural developments such as these to ensure sustainable protection of the environment, especially for developments located in highly sensitive areas such as the Mooi River flood-plain.

6.2 *Planning instruments: Mandatory environmental authorisations and processes as command and control instruments*

During the planning phase of a large-scale development, numerous authorisations, including environmental authorisations, need to be obtained in order to legally develop and operate. The Mooirivier Mall development was identified at the initiation phase of the project as an activity that may have significant detrimental effects on the environment in terms of Section 21 of the *Environment Conservation Act*.⁵⁶ A mandatory environmental impact assessment⁵⁷ process was therefore followed to obtain the required record of decision⁵⁸ from the North-West Province's Department

54 Holm Jordaan Group "Urban design" 35–44.

55 Wessels and Mkhari "Environmental management training" 4–6.

56 73 of 1989.

57 Hereafter EIA.

58 Hereafter ROD.

of Agriculture, Conservation and Environment,⁵⁹ which is the competent provincial authority.⁶⁰

Other mandatory environmental authorisations required include a water-use licence authorisation,⁶¹ a heritage impact assessment exemption,⁶² an exotic species exemption authorisation,⁶³ a rezoning permit and a site development plan.⁶⁴ These environmental authorisations had to be obtained from different competent authorities from different spheres of government. This fragmentation collectively provides for a broader spectrum of environmental enforcement strategies, approaches and tools than what may be offered by a single government function. This is illustrated by the differences in the requirements stipulated in the ROD and WULA specifications, respectively. The ROD specified broad water and effluent management principles and tended to focus more on waste and biodiversity management, whereas the WULA focused much more on detailed site-specific water and effluent management conditions. However, collectively the ROD and WULA covered a wider range of environmental conditions to be enforced by different spheres and line functions of government, as the DWAF is a national department and the NWDACE is a provincial department. The same argument may be made for the heritage exemption, which focused on heritage protection and the rezoning authorisation, as well as the SDP issued by the local government, which in turn focused on strategic environmental planning considerations. This supports the redundancy hypothesis posted by Taylor⁶⁵ and referred to in Section 4.

A critical command and control element to be considered in all of the required authorisations is that the terms and conditions of the consent decisions of the competent authorities must be complied with during all stages of the project. The

59 Hereafter NWDACE.

60 The specific activity was listed in GN R1182, published in terms of S 21 of the ECA as activity S 2(c): "The change of land use from agricultural or zoned undetermined use to any other land use".

61 Hereafter WULA. The WULA was obtained from the Department of Water Affairs and Forestry (a South African National Department responsible for managing water at the time of writing the article) – hereafter DWAF.

62 Obtained from the South African Heritage Resources Agency.

63 Obtained from the Department of Agriculture.

64 Hereafter SDP. The rezoning permit and the SDP were obtained from the local authority.

65 Taylor *Making Bureaucracies Think*.

next section explains the EIA process and the critical link between EIA and EIA follow-up.

6.2.1 *Closing the loop: Environmental impact assessment and follow-up*

Environmental impact assessment is a planning instrument designed for taking account of the potential environmental consequences of a proposed action during the planning, design,⁶⁶ decision-making and implementation stages of that listed action. In addition to the project life cycle, PDCA and product cycle loops,⁶⁷ the decision-making governing cycle should also be considered in selecting enforcement instruments. The decision-making governing cycle entails collecting information to make an informed decision, making the decision, and enforcing post-decision conditions and requirements of that decision. Key to the governance cycle is the post-decision enforcement stage of assessment instruments such as EIA.⁶⁸ Historically, the EIA follow-up process has received little attention from governing agents and it is argued that this fatal flaw may be a significant contributor to failures of the South African enforcement process. A critical lesson learnt in the case study was to design and plan for the adoption and use of post-decision enforcement instruments in the pre-decision stage of the EIA process. Another lesson learnt is that it is essential to ensure the successful handover of environmental authorities, duties and responsibilities by role-players of the pre-decision stage to relevant role-players of the post-decision stage of the project in order to ensure continuity concerning governance, design, site preparation, construction, and so forth.

The following section of the case study briefly explains the role of EMPs as enforcement instruments.

66 The planning and design phase is also termed the pre-decision stage of an EIA process.

67 See also the argument made in S 4 of the article.

68 Better known as EIA follow-up, as part of the EIA process.

6.3 *Implementation, checking and reporting instruments and the role of the environmental management plan*

Once the mandatory environmental authorisations have been issued by the relevant authorities the EMP may be regarded as the single most important implementation instrument for ensuring post-decision environmental enforcement. The EMP is recognised by the Department of Environmental Affairs and Tourism⁶⁹ as the instrument of choice to demonstrate that impacts are indeed monitored and managed and that developers made suitable provision for mitigation of environmental impacts. In essence, the EMP is the canvas for integrating various environmental management instruments such as setting objectives and targets, clarifying roles and responsibilities, establishing environmental authority on a site and setting relevant time-scales throughout the project life cycle. The EMP is also the critical link amongst the predicted impacts, the specified mitigation measures and the operational activities of the project.

Like environmental authorisations, the EMP may be classified as a command and control instrument, as EMPs are required by law for listed activities. Environmental management plans then become legally enforceable by the relevant authorities. However, the EMP may be used as the vehicle to identify, introduce and formalise the adoption and use of various voluntary or self-regulatory compliance-based instruments on a construction site. Some of the voluntary self-regulatory instruments formalised by the EMP of the Mooirivier Mall development include:

- (a) specified site-specific principles⁷⁰ that needed to be adhered to;
- (b) method statements;⁷¹
- (c) mandatory employee training;⁷²

69 The Department of Minerals and Energy also requires that an EMP be drafted and implemented as a prerequisite for a mining permit and that an environmental management programme be developed and implemented as a prerequisite for a mining right.

70 The EMP includes critical site-specific principles that must be adhered to throughout the project life cycle. A lesson learnt during the project is that the legal requirements are often not sufficiently flexible to deal with dynamic site-specific situations. However, the principles are clear and the objectives could not easily be challenged by violators.

71 A method statement is a letter of intent specifying the details of the activities of the planned works to be undertaken (including the manner in which and the location of the works). It also specifies the estimated time-frame for the activity and must be signed off by the person undertaking the task, as well as the relevant approving authority.

- (d) numerous monitoring instruments, including regulatory and mandatory inspections, audits and physical, as well as biophysical monitoring studies;⁷³
- (e) numerous reporting and communication instruments, including site visits, site notice boards, site meetings, complaints registers and compliance certificates;
- (f) enforcement by outsiders⁷⁴ and establishment of an environmental monitoring committee;⁷⁵ and
- (g) violation⁷⁶ response instruments,⁷⁷ such as non-compliance letters, fines⁷⁸ and the suspension of works.⁷⁹

6.4 Lessons learnt from the case study

Some of the lessons learnt from the case study provide support for the insights distilled in the previous sections of this article.⁸⁰ The first lesson is that there is no one tool or category of enforcement tools that will result in a near perfect enforcement solution for a large-scale development site such as the Mooirivier Mall, as each project is different and involves different site conditions.

72 Ideally, the entire workforce – including top management – should undergo an environmental awareness training course to understand the manner in which they may play a role in achieving the objectives specified in the EMP.

73 Monitoring in EIA refers to repetitive measurement undertaken primarily to address uncertainty in environmental impact predictions. Each specific project must select its own portfolio of monitoring and measurement instruments.

74 Non-governmental groups and/or civil society may have the will and resources and could, therefore, become involved in enforcement by detecting non-compliance, negotiating with violators, commenting on government enforcement actions and, where the law allows, taking legal action against a violator for non-compliance or against government for not enforcing the requirements.

75 Monitoring committees are excellent voluntary agreement instruments and serve as a vital communication platform for post-decision enforcement role-players.

76 There are numerous reasons that society in general does not comply with legal requirements. The United States Environmental Protection Agency (hereafter US EPA) 1992 <http://bit.ly/dYEjb8> 1–16 lists economics, social/moral, personal, management and technical elements as the main barriers to compliance and factors encouraging non-compliance. An interesting debate raised by the US EPA is that in any regulatory situation some people will comply voluntarily, some will not comply, and some will comply only if they see that others receive a sanction by not complying. This change in behaviour to avoid sanction is called *deterrence*.

77 Various types of formal and informal violation responses exist, including formal mechanisms such as civil or criminal proceedings and informal mechanisms such as telephone calls, inspections, warning letters and notices of violations, fines and suspension of work.

78 A fine is a typical example of a market-based disincentive instrument that gives authority to an elected person to issue a monetary penalty to violators. The designated environmental management authority in a development should be able to impose fines on any violators for any contraventions of the EMP.

79 Non-compliance with the conditions of the EMP constitutes a breach of contract, as the EMP is a contractual condition to be adhered to on the Mooirivier Mall development site. The EMP states that the project engineer has the power to remove from site any person who is in contravention of the EMP and, if necessary, the project engineer can suspend part or all of the works, as required.

80 Refer to S 4, which discusses the framework conditions to direct the selection and use of alternative enforcement tools.

The second lesson, as discussed in Section 6.3, is that an innovative cocktail of site-specific environmental enforcement tools must be selected in order to ensure independent subsystem duplication and overlap.

The third lesson is that these instruments should be supported by a mandatory command and control instrument such as the EMP for ensuring legal deterrence. On a construction site, as elsewhere, command and control instruments and hence the fear of prosecution remain the principal enforcement drivers.⁸¹

The fourth lesson is that the greater the number of role-players involved in enforcement, the greater the likelihood of a successful enforcement effort is. However, the role-players, including the different line functions and spheres of government and civil society, must be offered a unified communication platform, such as a monitoring committee, in order to ensure maximum enforcement potential.

The final lesson learnt from the case study is that cognisance must be taken of the complexities of the four process sequences (project life cycle, product life cycle, PDCA management cycle and the governing decision-making cycle) when selecting a site-specific portfolio of environmental enforcement instruments to be used.⁸² For example, the enforcement tools used⁸³ in the Mooirivier Mall case study covered the governance decision-making life cycle, project life cycle and the PDCA management cycle.

7 Conclusion

It is argued and demonstrated by means of the lessons learnt both from the Mooirivier Mall case study and the distillation of generic imperatives to define framework conditions for the successful adoption and use of alternative enforcement tools that an ensemble of environmental enforcement instruments should be carefully and innovatively selected, adopted and used to ensure and drive successful

81 Also see the discussion in S 6.3.

82 This lesson jointly encapsulates the fourth, fifth and sixth insights discussed in S 4.

83 See also Ss 6.2 and 6.3 of the article.

environmental enforcement. These instruments should be selected from the four classes of enforcement tools, taking into account the complexities of the four process sequences. Furthermore, evidence suggests that a stand-alone instrument, such as an EMS in general and an ISO 14001:2004-based EMS in particular, does not ensure sustained environmental compliance. It was also argued that the deployment of mixed portfolios of enforcement tools is dependent on both the number and independence of the role-players involved and that the duplication and overlap of enforcement mandates may indeed be desirable from the perspective of sustained enforcement delivery. The case study discussed highlighted that command and control tools remain the principal drivers of compliance by organisations and that a sound command and control basis remains a fundamental imperative for the protection of the environment.

Bibliography

Croci Environmental Voluntary Agreements

Croci E (ed) *The Handbook of Environmental Voluntary Agreements: Design, Implementation and Evaluation Issues* (Springer New York 2005)

Du Plessis and Nel "Driving compliance"

Du Plessis W and Nel JG "Driving compliance to and enforcement of South African legislation by means of a hybrid of 'new' environmental governance instruments" (Unpublished paper presented at the Fourth Colloquium and Collegium of the IUCN Academy of Environmental Law, Pace Law School 18 Oct 2006 New York)

ELNI Environmental Agreements

ELNI (ed) *Environmental Agreements: The Role and Effect of Environmental Agreements in Environmental Policies* (Cameron May London 1998)

Fischer Environmental Management Co-operative Agreements

Fischer D *Environmental Management Co-operative Agreements: A Contribution to Pollution Prevention in South Africa?* (MSc thesis UJ 2005)

Gunningham and Grabowsky Smart Regulation

Gunningham N and Grabowsky P *Smart Regulation: Designing Environmental Policy* (Clarendon Oxford 1998)

Hanks 1998 *SAJELP*

Hanks J "Achieving industrial sustainable development in South Africa: What role for 'self regulatory' and 'co-regulatory' instruments?" 1998 *SAJELP* 298–354

Hanks Negotiated Environmental Agreements

Hanks J *A Role for Negotiated Environmental Agreements in Developing Countries?* (MSc thesis Lund University 2000)

Holm Jordaan Group "Urban design"

Holm Jordaan Group "Urban design framework for the Mooi River System in

Potchefstroom – Final draft" (Unpublished working document drafted for the Mooirivier Mall development Oct 2006) 35–44

Kotzé Legal Framework

Kotzé LJ *A Legal Framework for Integrated Environmental Governance in South Africa and the North-West Province* (Wolf Legal Publishers Nijmegen 2006)

Kotzé et al 2007 SAJELP

Kotzé LJ *et al* "Strategies to integrate environmental policy at the operational level: Towards an integrated framework for environmental authorisations" 2007 *SAJELP* 57–81

Nel and Du Plessis 2001 SAJELP

Nel JG and Du Plessis W "An evaluation of NEMA: Based on a generic framework for environmental framework legislation" 2001 *SAJELP* 1–38

Nel and Du Plessis 2004 SAPL

Nel JG and Du Plessis W "Unpacking integrated environmental management: A step closer to effective co-operative governance?" 2004 *SAPL* 181–190

Nel and Kotzé "Environmental management"

Nel JG and Kotzé LJ "Environmental management: An introduction" in Strydom HA and King ND (eds) *Fuggle and Rabie's Environmental Management in South Africa* 2nd ed (Juta Cape Town 2009) 1–33

Nel and Le Roux "Municipalities as the regulator and regulated"

Nel JG and Le Roux E "Municipalities as the regulator and regulated: Some thoughts on the complexity of sustainability challenges" (Unpublished paper presented at the International Association of Impact Assessment of South Africa Conference 29–31 Aug 2005 Thaba'Nchu) 347–354

Prinsloo "Urban studies market research report"

Prinsloo D "Urban studies market research report: Mooirivier Mall

Potchefstroom" (Unpublished working document drafted for the Mooirivier Mall development Aug 2005) 1–4

Taylor *Making Bureaucracies Think*

Taylor S *Making Bureaucracies Think: The Environmental Impact Statement Strategy of Administrative Reform* (Stanford University Press California 1984)

Ten Brink *Voluntary Environmental Agreements*

Ten Brink P (ed) *Voluntary Environmental Agreements: Process, Practice and Future Use* (Greenleaf Sheffield 2002)

Wessels and Mkhari "Environmental management training"

Wessels JA and Mkhari B "Environmental management training: A civil based instrument to ensure environmental protection and legal compliance – The Mooirivier Mall case study" (Unpublished paper presented at the Fourth World Environmental Education Congress: Learning in a Changing World 2–6 Jul 2007 Durban) 4–6

Register of legislation

Environment Conservation Act 73 of 1989

National Environmental Management Act 107 of 1998

National Environmental Management: Air Quality Act 39 of 2004

Register of Internet sources

AccountAbility 2008 <http://bit.ly/hrzO2w>

AccountAbility 2008 AA1000 assurance standard <http://bit.ly/hrzO2w> [date of use 14 Feb 2011]

Ceres 2007 <http://bit.ly/hXaiRR>

Ceres 2007 Ceres principles <http://bit.ly/hXaiRR> [date of use 11 Feb 2011]

ENDS 2002 <http://bit.ly/eK2x71>

ENDS 2002 Compliance study delivers blow to ISO14001 *ENDS Report* 332 3–4 <http://bit.ly/eK2x71> [date of use 14 Feb 2011]

ENDS 2006 <http://bit.ly/eZFYI9>

ENDS 2006 EMS survey brings mixed news for certifiers *ENDS Report* 382 30–33 <http://bit.ly/eZFYI9> [date of use 14 Feb 2011]

European Co-operation for Accreditation 2007 <http://bit.ly/foOG2U>

European Co-operation for Accreditation 2007 Legal compliance as part of accredited ISO 14001:2004 certification <http://bit.ly/foOG2U> [date of use 14 Feb 2011]

GRI sa <http://bit.ly/fyYPku>

GRI sa Reporting framework <http://bit.ly/fyYPku> [date of use 14 Feb 2011]

IEMA 2010 <http://bit.ly/f3UFKh>

IEMA 2010 Introducing EMAS <http://bit.ly/f3UFKh> [date of use 14 Feb 2011]

IPC 2009 <http://bit.ly/gbCMp8>

IPC 2009 Specification for the development of certification schemes for QMS & EMS auditors <http://bit.ly/gbCMp8> [date of use 20 Jan 2011]

ISO 2004 <http://bit.ly/h17w8o>

ISO 2004 Environmental management systems: Requirements with guidance for use <http://bit.ly/h17w8o> [date of use 14 Feb 2011]

SAATCA 2009 <http://bit.ly/eLYNBB>

SAATCA 2009 Certification schemes <http://bit.ly/eLYNBB> [date of use 14 Feb 2011]

SAI 2007 <http://bit.ly/fEytTx>

SAI 2007 SAI's partnerships <http://bit.ly/fEytTx> [date of use 14 Feb 2011]

Salgado 2007 <http://bit.ly/gwupQW>

Salgado I 2007 Green Scorpions raise red flag on habitual polluters *The Star* 5 Oct 2007 <http://bit.ly/gwupQW> [date of use 14 Feb 2011]

SANAS 2004 <http://bit.ly/i6GJhW>

SANAS 2004 Search for accredited bodies and laboratories in the SANAS directory <http://bit.ly/i6GJhW> [date of use 14 Feb 2011]

SANAS 2008 <http://bit.ly/9jespk>

SANAS 2008 The South African National Accreditation System <http://bit.ly/9jespk> [date of use 14 Feb 2010]

UNGC 2008 <http://bit.ly/BOPtK>

UNGC 2008 Corporate citizenship in the world economy <http://bit.ly/BOPtK> [date of use 11 Feb 2011]

US EPA 1992 <http://bit.ly/dYEjb8>

US EPA 1992 Principles of environmental enforcement <http://bit.ly/dYEjb8> [date of use 15 Feb 2011]

List of abbreviations

BAT	Best available technique
DWAF	Department of Water Affairs and Forestry
EIA	Environmental impact assessment
ELNI	Environmental Law Network International
ENDS	Environmental Data Services
EMAS	Eco-Management and Audit Scheme
EMP	Environmental management plan
EMS	Environmental management system
GRI	Global Reporting Initiative
IEMA	Institute of Environmental Management and Assessment
IPC	International Personnel Certification Association
ISO	International Organization for Standardization
NEMA	National Environmental Management Act
PDCA	Plan, do, check, act
ROD	Record of decision
SA 8000	Social accountability 8000
SAATCA	Southern African Auditor and Training Certification Association
SAI	Social Accountability International
SAJELP	South African Journal of Environmental Law and Policy
SANAS	South African National Accreditation System
SANS	South African National Standards
SAPL	South African Public Law
SDP	Site development plan
UNGC	United Nations Global Compact
USEPA	United States Environmental Protection Agency
WULA	Water-use license application