Environmental Impact Assessment (EIA) is the tool that is most commonly utilised across Africa and in most developing countries for the purpose of integrating environmental concerns in development projects. South Africa’s experience with EIA dates back to the 1970s, but the first legislated EIA requirements came by way of the Environmental Conservation Act of 1989. EIA is now governed by sections 23 and 24 of the National Environmental Management Act (NEMA) of 1998, and regulations specifying procedures for carrying out and reviewing EIA reports have been promulgated. However, EIA has courted controversy ever since it was adopted in South Africa as a policy and regulatory tool, and recent public debates and negative media coverage of EIA processes suggest that EIA remains a controversial policy tool. The aim of this policy brief is to show that EIA is a well-intentioned policy tool that has some benefits to the environment and society at large, but that its implementation has some challenges which, if not addressed, could make EIA lose its relevance in a developmental state setting. The challenges are identified and recommendations for addressing them are discussed.

Introduction

Most countries from all corners of the world had representations at the environment and development summits that were held in Stockholm (Sweden) in 1972, Rio de Janeiro (Brazil) in 1992, and Johannesburg (South Africa) in 2002. These summits called on countries to formulate and implement a policy framework for integrating environmental concerns and sustainability issues in development planning. Across Africa and in most developing countries in other parts of the world, the policy instrument that has been adopted in response to this call is the EIA. The United Nations Environment Programme (UNEP) defines EIA as a systematic framework for identifying, predicting...
and evaluating the environmental effects of proposed actions and projects. This framework is implemented to provide information for decision-making on the environmental consequences of proposed actions; and to promote environmentally sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

EIA as a legislated framework for integrating environmental concerns and sustainability issues in development planning originated from the USA’s National Environmental Policy Act (NEPA) of 1969, and subsequent legal ruling and practices. NEPA stipulates that a proponent of an action that would likely impact on the environment should demonstrate that an assessment of the environmental consequences of the proposed action is undertaken, and that the findings are used by relevant authorities in making a decision whether to grant or refuse permission to implement the proposed action.4 In the last three decades, most developing countries in Africa and elsewhere have adapted the NEPA EIA framework to their own political, administrative capacity, technical and socio-economic conditions.5

South Africa’s experience with EIA dates back to the 1970s when the less-structured British-style EIA was adopted for some large scale and often unique or controversial projects. The term ‘integrated environmental management’ (IEM) was used then and well into the 1980s to convey the message that it was an approach that sought to integrate environmental considerations into all stages of development planning and implementation. However, the EIA in South Africa at that stage lacked proper policy framework and legislative backing.6

The first legislated EIA requirements came by way of the Environmental Conservation Act of 1989, which lists activities that require mandatory EIA. This was followed by the publication in 1997 of EIA regulations outlining procedures to be followed in conducting and reviewing EIA, as well as for communicating and appealing against records of decisions (RoD). EIA is now governed by sections 23 and 24 of NEMA of 1998, as amended in 2000. EIA regulations based on the provisions of NEMA were promulgated in 2006, but because of the challenges experienced in implementing them, they are about to be replaced again. Stakeholders have had the opportunity to comment on the re-drafted regulations in 2008.

Hill7 observes that EIA has courted controversy ever since it was adopted in South Africa as a policy and regulatory tool. Recent public debates and negative media coverage of EIA processes in South Africa suggest that EIA remains a controversial policy tool. People in authority have, at various occasions, disparagingly referred to EIA as a ‘green hand break’ in the development process, ‘unethical and anti-human policy tool,’ and ‘development speed hump,’ to mention but a few examples of negative references. The aim of this policy brief is to show that EIA is a well-intentioned policy tool that has some benefits to the environment and society at large, but that its implementation has some challenges which, if not addressed, could make EIA lose its relevance in a developmental state setting.

Benefits of EIA

Effective tool for integrating environmental concerns in development

EIA has proved to be a more effective tool for integrating environmental concerns in project planning and development in both developed and developing countries. Since the 1960s there has been a growing understanding of the adverse environmental impacts of most development projects. One result of this has been the exertion of concerted efforts to identify specific formulae for avoiding or minimising such environmental impacts, and EIA is the most acclaimed tool in this regard. It has superseded tools such as cost-benefit analysis and risk assessment as a more rounded tool that takes into consideration bio-physical and socio-economic environmental factors in assessing the feasibility of proposed projects.8 The EIA is a proven effective tool for raising developers’ and administrative authorities’ awareness of the essential environmental issues that deserve attention; and for ensuring efficient coordination of administrative action, as well as public opinion. Contrary to some expressed opinions, EIA is not concerned with the setting up of new environmental standards, but rather with ensuring that existing standards and protective measures are well adapted to the specific conditions of the project proposals in question.

Promotes better planning and design outcomes

EIA regulations force designers and planners to come up with alternates in terms of project design, scale and location. In so doing, it forces designers and planners to have a holistic view of any proposed project by considering all possible alternatives or scenarios, and this often results in better planning and design outcomes. For instance, it can result in the selection of an improved technology which lowers waste outputs, or an environmentally
optimum location for a project. It may also encourage proponents to change the initial project design to one that is friendly to the environment. A well-designed, properly located and optimally-scaled project can minimise risks and impacts on the environment and people, and thereby avoid associated costs and remedial treatment or compensation for damage. EIA is ultimately about making informed choices from a number of alternatives, therefore it produces more balanced and equitable outcomes.9

**Supported by legal and regulatory frameworks**

EIA is the only environmental management tool that is supported by legal and regulatory frameworks. This makes EIA enforceable by law, while its processes are standardised through guidelines or regulations. It is the only one among a suite of integrated environmental management tools that has attained this legal and policy status in most countries. While strategic environmental assessments (SEAs), life cycle assessments (LCAs) and other environmental assessment tools are important in their own right, the lack of legal and regulatory frameworks have made them unenforceable and, therefore, less utilised. On the other hand, EIA is more effective because it is grounded in well-defined legislation and procedural rules where the rights and obligations of all stakeholders are clearly defined, and its enforcement is ensured through appropriate implementation, monitoring procedures and other instruments.10

**Positive employment, business and academic development spin-offs**

Said11 observes that EIA has created a new scientific services sector comprising EIA consulting companies, and a growing number of EIA professionals. Across the world and in South Africa, EIA has created employment for a mass of graduates and post-graduates, and EIA consulting companies are key players in the economic development of some regions, such as Cape Town, Johannesburg, Pretoria and Durban in South Africa. It has also given rise to professional bodies such as the International Association for Impact Assessment (IAIA), and academic journals such as the Impact Assessment and Project Appraisal. Similarly, institutions of higher education and training have mounted courses and short training courses in EIA that bring in substantive amounts of income to their coffers. EIA has had positive spin-offs, therefore, in the employment, economic development, knowledge economy and academic development. EIA is second to computers and information technology in terms of generating growing professional service sectors. It has had far-reaching developmental impacts on different aspects of the knowledge economy, and on the livelihoods of the ever-increasing numbers of EIA practitioners and reviewers.

**Based on principles of good governance and fundamental rights**

UNEP12 explains that one of the benefits of EIA is that it is based on, and seeks to promote, principles of good governance. The first of such principles is purposive: EIA seeks to meet its aims of informing decision-making and ensuring an appropriate level of environmental protection and human health. The second principle is focused: EIA seeks to concentrate on significant environmental effects, taking into account the issues that matter. The third principle is adaptive: EIA seeks to adjust to the realities, issues and circumstances of the project proposals under review. The fourth principle is participative: EIA seeks to provide appropriate opportunities to inform and involve the interested and affected parties, and their inputs and concerns should be addressed explicitly. The fifth principle is transparent: EIA seeks to be a clear, easily understood and open process with early notification procedures, access to documentation and a public RoD taken, and reasons for them. The sixth principle is rigorous: EIA seeks to apply the ‘best practicable’ methodologies to address the impacts and issues being investigated. The seventh principle is practical: EIA seeks to identify measures for impact mitigation that work and can be implemented. The eighth principle is credibility: EIA seeks to be carried out with professionalism, rigour, fairness, objectivity, impartiality and balance. The ninth principle is efficiency: EIA seeks to impose the minimum cost burden on proponents consistent with meeting process requirements and objectives.

**Savings in capital and operating costs**

EIA can also bring about savings in capital and operational costs. It does so by preventing the incurrence of the undue costs of unanticipated impacts. Such costs can escalate if environmental problems have not been considered from the start of proposal design and require rectification later. An ‘anticipate and avoid’ approach is much cheaper than ‘react and cure.’ Generally, changes which must be made late in the project cycle are the most expensive. EIA has, therefore, also become a tool by which unnecessary cost risks are anticipated and necessary steps undertaken to avoid such risks.13
Challenges of EIA

Lack of universally standardised impact prediction methodologies
The most serious problem of EIAs is that the regulatory frameworks stipulate the need for predicting impacts, but they are silent on exact methodologies for making such predictions. The result is that different EIA practitioners use different approaches. Weaver and Sibisi add that, with EIA becoming a business for consulting firms that are more interested in improving their turnover than in the rigours of science, there has been a concomitant slip away from the ‘hard’ quantitative prediction approaches to the ‘soft’ qualitative and subjective approaches. Consequently, most predictions these days lack any scientific basis and validity. Outcomes of EIA processes are hence viewed with suspicion and lack credibility. We hardly see the use of methodologies developed in the 1980s, such as overlay, checklist, systems diagrams, modelling or network analyses in contemporary EIA procedures. The pendulum has swung too far from over-reliance on the quantitative and largely objective science, to over-reliance on the qualitative and more subjective needs in the EIA process. The sad reality is that the art (subjective) dimension of the EIA is not able to provide decision-makers with valid and reliable predictions of impacts of projects.

Ethical challenge
Over time, the ethical issues that EIAs fail to address have come to the fore. One classical example has been provided by Lindiwe Sisulu, South African Minister of Housing during the 2004-2009 ANC Government. Frustrated by EIA results that delayed or stopped some housing programmes, she observed that it is unethical to deny people their right to housing just because an EIA has found that the housing development programme would affect some butterflies, chameleons or some other insect. The question raised is: Are the lives of butterflies or chameleons more important than that of human beings? There are no guidelines in EIAs about how to solve such ethical dilemmas, hence EIAs have become the opposite of what they initially intended to be. Instead of becoming the vehicle of sustainable development, they have become anti-human and hand-breaks to development. The ‘tool’ for promoting sustainable development has become a ‘weapon’ against development needs of people. Concerns about EIAs hampering the development process have been expressed in South Africa directly or indirectly by senior government officials and politicians, including the former State President, Thabo Mbeki.

Limited resources and technical abilities
In almost all countries, the volumes of EIA work required far exceed the expertise available to execute the EIA with the rigour and quality standards. The result has been that unqualified personnel are now being deployed to execute EIAs. In South Africa, this has meant that people with little or no environmental management background are now involved in conducting EIAs. The majority of EIA consulting firms use students or inexperienced staff as ‘cheap labour’ in EIA work: no wonder the quality of EIA reports leaves a lot to be desired.

The same situation repeats itself on the side of EIA review authorities in the Department of Environmental Affairs and Tourism (DEAT), and its provincial arms. These are poorly resourced, staffed with inexperienced and/or under-qualified staff, suffer from high staff turn-over and, as a result, are ill-equipped to handle the large volumes of EIA applications that they receive. Delays in processing EIA applications are, therefore, the order of the day, and sometimes applications may take up to three years before being processed completely.

Logistical problems
Wathern explains that there are also some logistical problems in most countries where attempts are made to implement EIA regulations. For instance, assessments are sometimes undertaken too late in the planning process to contribute to decision-making, and are used instead to confirm that the environmental consequences of the project are acceptable. Saidi, Bikam and Kamohi
discovered from a nationwide survey carried out in South Africa on behalf of the national DEAT that there are great political influences in the EIA process as well. The due processes of EIA are often truncated, and the approval process reduced to mere rubber-stamping as a result of influence of politicians, those in administrative authorities, or rich businessmen that are prepared to pay kickbacks. These practices render the whole process a mockery. Similarly, the study revealed that the appeal processes are often not as transparent as required by EIA regulations; environmental impact management plans discussed in EIA reports are often not implemented; and the monitoring of compliance is almost non-existent in most provinces.

Petts also explains that the listing of activities that require a mandatory EIA poses other challenges. Firstly, the lists are compiled without complete knowledge or information, and hence they are misleading since they give the impression of being exhaustive while, in actual fact, they are not. Secondly, the lists blind authorities from focusing on novel non-listed activities that may have more significant impact on the environment than some of the listed ones. Such non-listed but potentially harmful activities are often allowed to proceed without EIA, to the detriment of the environment.

Wrong and undefined assumptions
The EIA process itself is fraught with either wrong or un-clearly defined assumptions. One such assumption is that there are ‘significant’ and ‘non-significant’ impacts. Scoping is, therefore, undertaken to isolate significant impacts and the ensuing EIA process is supposed to focus on the significant impacts only. Participatory and immensely subjective approaches are used to isolate significant impacts, with a great chance of misidentifying and misclassifying impacts into the two categories. No proper guidelines are available to help identify and distinguish ‘significant’ from ‘non-significant’ impacts.

EIAs also look at projects as a ‘point-source’ of potential impacts. Thus, the possibilities of cumulative impacts coming from a number of different projects in a particular area is excluded, and this is a serious problem. In reality, it is these cumulative impacts rather than impacts from one particular project that gives rise to detrimental impacts on ecosystems. Related to this is the issue of boundaries: ecosystems, eco-zones and other larger ecological units are not self-contained. They do not have water-tight boundaries and so continuously receive impacts from ‘outside’ while ‘exporting’ some impacts to other areas. Unfortunately, EIA processes and guidelines are not clear on how to incorporate these realities in EIA processes.

Recommendations
Despite the challenges discussed, EIAs remain the most practical tool for integrating environmental concerns and sustainability issues in development planning. It is essential, therefore, that steps should be undertaken to address the challenges of EIAs to make the tool more effective and more user friendly. To this end, a number of recommendations are made in this paper.

The first step is to return to the science of EIAs. The more rigorous protocols for detecting and predicting impacts as outlined in the earlier writings (including text books) on EIAs should be re-visited and fine-tuned to suit current conditions and technological developments. These should then be adopted for use in EIA processes to reduce subjectivity that characterises most of the EIA work in the contemporary world. To this end, EIA practitioners need to be grounded in relevant sciences, and should be accredited as such by relevant scientific bodies. Currently, accreditation by the International Association of Impact Assessors (IAIA), or by the National Council of Science Practitioners (NCSP), is not a condition for conducting EIA. It is recommended in this paper that such accreditation should be made mandatory on all that carry out EIA work.

The ethical challenge of EIAs as described earlier stems from two situations. One is where development projects are unduly delayed because of the delays in carrying out assessments and reviewing EIA reports. The second is where the EIA process finds that the proposed projects will have more impact on the environment that cannot be easily mitigated and, therefore, the ‘no action’ option is recommended. The former situation can be addressed by deploying sufficient personnel in the assessment and review processes. Proper human resource planning by both the consulting firms that carry out the assessments and by the review authorities could substantially reduce the waiting time for proposed projects. As regards the situations where the ‘no action’ option recommendation is made, often there would be alternatives recommended as well. Thus, the ‘no action’ option should not, in essence, translate into complete abandonment of projects. It should rather mean that alternative locations, scale or design are recommended for the implementation of the projects. Where the recommended alternative location,
scale and design are unacceptable to government, then the principle of ‘ethical relativism’ should be adopted to decide whether developmental needs are more pressing than environmental protection for particular case situations.

Capacity building has long been identified as the strategy for addressing the challenge of limited technical abilities, while an increase in budget levels allocated to departments responsible for EIAs has been identified as the key to addressing limitations in human and other resources in the field of EIAs. In South Africa, DEAT has established whole directorates on EIA capacity building, and on EIA tools and systems development. Should they function properly and succeed in achieving their intended goals, the two directorates should together be able to address the challenge of limited technical abilities.

The recommendation for increasing budget allocation to EIA directorates or divisions is yet to be taken on board by decision-makers in South Africa. The motivation for such an increase is that, with extra money, the national and provincial departments responsible for EIAs should be able to create more posts and employ more personnel to handle the ever-increasing EIA workload; provide better career development opportunities to staff and, therefore, improve staff retention and reduce staff turnover; and invest in technologies that will improve productivity of the personnel.

Political interference and other administrative malpractices that bedevil EIA administration can only be addressed through communication and education. Politicians need to be properly informed about the importance of the due processes of EIA, and the need not to interfere in such processes. This requires proper communication of the EIA ‘gospel’ to unconverted politicians and other stakeholders. However, at the end of the day there should be a political will to make EIA administration work in an effective and transparent manner. This is an absolute requirement for addressing these sets of challenges. Training EIA review personnel to adopt incorruptible professionalism is also equally critical in this regard.

The challenge related to undefined, and sometimes wrong assumptions, can be addressed by having continuous research on improving the premises and procedures of EIAs. As a science field, EIAs need not be a static area. It rather needs to develop and revise its assumptions, premises and procedures with changing times. This can only be achieved if substantial investment is made into EIA research. Unfortunately, the situation in South Africa in this regard is not encouraging. The Council for Scientific and Industrial Research (CSIR) that hither-to led the research on EIAs has changed its priorities. It still retains a group of EIA practitioners that are involved in carrying out EIAs for clients, but has no research capacity of note in this area. Universities, on the other hand, are focused more on training students in the processes of EIAs, but not in researching to open new grounds related to EIAs. This is an issue that needs to be taken up with the research institutions and universities.

Conclusion

EIAs are the most popular among the EIM suite of tools. With its origins in the USA, EIA is considered the starting point in the process of implementing sustainable development agendas. This policy brief has looked at both the benefits and challenges of EIAs, and has also made recommendations on how to address the challenges. In terms of benefits, it has identified EIAs as the most effective tool for integrating environmental concerns in development planning and implementation. It also promotes better planning and design outcomes, and savings in capital and operating costs. Its other benefits include the fact that it is guided by legislation and a regulatory framework; and is also based on principles of good governance and fundamental human rights. EIA has generated employment for professionals, and has engineered the development of environmental consulting companies and professional bodies. EIAs also provide a good example on how a combination of ‘top-down’ and ‘bottom-up’ approaches could improve democracy and service delivery.

Chief among the EIA challenges is the increasing level of subjectivity and the lack of universally scientific standards and methodologies. The issue of ethics has also bedevilled EIA in some countries, including South Africa. Most EIA processes are also based on wrong assumptions and/or unclearly defined concepts, such as ‘significant impacts.’ There are also intractable logistical problems and challenges related to availability of resources and the necessary EIA capacities.

The return to science and objective EIA procedures, as opposed to the subjective ones that are prevalent currently, is recommended as the required first step towards addressing the challenges of EIAs. Other recommendations include making proper human resource planning and utilisation; building relevant capacity; modernising and developing new tools and technologies; increasing budgetary allocation to the EIA function; undertaking to educate politicians and other
stakeholders about the sanctity of the EIA business; communicating effectively about the EIA processes; providing the necessary political will to make the EIA administration function effectively and in a more transparent manner; and increasing investment in EIA research.

Notes and References

11 TA Saidi (2000), Integrating Environmental Issues in Project Planning and Implementation, Thohoyandou: School of Environmental Science Monograph, University of Venda.
15 TA Saidi (2000), Integrating Environmental Issues in Project Planning and Implementation, Thohoyandou: School of Environmental Science Monograph, University of Venda.