A Critical Assessment of The Social And Economic Aspects Of Environmental Impact Assessments in South Africa.

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KEY WORDS

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ABSTRACT

A CRITICAL ASSESSMENT OF THE SOCIAL AND ECONOMIC ASPECTS OF ENVIRONMENTAL IMPACT ASSESSMENTS IN SOUTH AFRICA.

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MAGISTER SCIENTIAE IN THE FACULTY OF NATURAL SCIENCES OF THE UNIVERSITY OF THE WESTERN CAPE.

This thesis focuses on Environmental Impact Assessments (EIA's) as prepared in the Western Cape Province. The thesis attempts to summarise the legal requirements for EIA's and then to analyse two recent assessments in the light of the concern raised by Alex Weaver, at the South African chapter of the International Association for Impact Assessment National Conference in 1999, that EIA's neglect historically disadvantaged communities and do not give sufficient attention to social impacts. The thesis also attempts to analyse the EIA's and to critically assess whether they comply with the intention of the legal requirements. The applicable legislation and regulations are analysed to determine whether there are sufficient guidelines for practitioners to assess the socio-economic impacts of development in an equitable manner to the assessment of the biophysical impacts.

It was found that the legislation and the regulations do not provide clear guidance for the consideration of the socio-economic aspects of the environment or impacts in the preparation of EIA's.

The EIA's regarding the Relocation Of The Informal Settlement At Stanford and for the Koringberg-Platvlei-Middelburg Water Supply Pipeline required to provide potable water to rural communities are analysed, as both have socio-economic goals. In the Stanford case, an informal settlement located on the town's water source has to be relocated to the town, where there is a shortage of land available for development and site-specific impacts on a major employer, with the threat of a potential loss in employment opportunities. In the Koringberg-Platvlei-Middelburg case, the rural community has insufficient potable water and a supply scheme is proposed in a potentially sensitive environment. In order to analyse the two assessments, the ideal EIA and recent trends are first established from literature. Criteria for the assessment of the EIA's are determined and then used to ascertain whether the concern raised by Weaver is correct.

In the analysis of the subject EIA's it was found that both address the social issues of concern, albeit without clear guidance from the applicable legislation and regulations.

Following on the critical assessment of the recent EIA's, the thesis provides proposals and step-by-step guidelines for the drafting of EIA's for use by students and inexperienced practitioners in the field of environmental management.

Weaver's concern is found to be correct and recommendations are made to adjust the relevant regulations, to give clear guidance for the consideration of socio-economic concerns in the preparation of EIA's.

DECLARATION

I declare that this thesis: **A Critical Assessment of the Social and Economic Aspects of Environmental Impact Assessments in South Africa;** is my own work, that it has not been submitted before for any degree or examination in any other university and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

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CHAPTER 1. INTRODUCTION

1.1 Background

In South Africa the formal Environmental Impact Assessment (EIA) process is recent, but according to Fuggle and Rabie (1999) the notion of caring for the environment as a "product of the 1970's" is incorrect, as "environmental matters received much attention before this decade". Jan Van Riebeeck already made directives for the preservation of "gardens, lands and trees" in the 1600's (Fuggle and Rabie, 1999:13). In the 18th Century there was little other than the conservation of wild animals, while the late 1800's and early 1900's gave rise to numerous laws and regulations relating to the control of alien vegetation and the introduction of exotic fish species into inland rivers. There was also legislation for the protection of trees and the control of grass burning (Fuggle and Rabie, 1999). EIA's in South Africa are required in terms of the Environmental Conservation Act, 1989 (Act 73 of 1989) (ECA). The regulations published in Government Gazette No. 18261 dated 5 September 1997; regulations R1182 and R1183 in terms of Sections 21, 22 and 26 of the Act determine that environmental studies should be undertaken for specific activities. Amongst others, the regulations resulted from concerns that environmental policy was not integrated with mainstream economic thinking and development planning. The health and economic well-being of all South Africans and the environment in general suffered from the erroneous perceptions of the environment as a white middle-class issue of little or no relevance to the needs of the country for development and social justice (Whyte, 1995:xviii).

The Integrated Environmental Management (IEM) process required in terms of the South African legislation is detailed below. An EIA would only be required if the delegated authority (for purposes of this study it is the Provincial Administration of the Western Cape: Department of Environmental and Cultural Affairs and Sport (PAWC: DECAS)) was of the opinion that a development proposal or activity would have a significant impact (Republic of South Africa, 1997c). The EIA would then proceed in the accepted manner, with an Environmental Scoping Study (ESS), which is the first reporting phase of the IEM process required in terms of the Act for all activities that could potentially impact on the environment. The purpose of an ESS is to determine the extent of, and approach to, impact assessments required for the desired activity. On the one hand, the scoping is required to set the goals and objectives for the impact assessment, whereas on the other

it is a procedural guideline drawn up in consultation with the relevant authorities, to determine the approach to the EIA. The ESS is therefore the foundation for all EIA's and should, in view of the above, guide the consultation process and ensure inclusion of the community needs.

To this end the Department of Environmental Affairs and Tourism (DEAT) and in each province, the Provincial Departments of Environmental Affairs drafted guidelines for the preparation of scoping reports and EIA's.

In most instances, activities would have some impact on the environment and therefore it is seldom possible to comply with the intention of the Act or the National Environmental Management Act, 1998, Act 107 of 1998 (NEMA), unless a full EIA is undertaken and an Environmental Impact Report (EIR) prepared to follow on the scoping study.

There is growing concern about the EIA process (McDaid, 2001) and opinion that the disadvantaged communities in South Africa are excluded from the IEM processes, for whatever reason. Fuggle and Rabie (1999) suggests that the disadvantaged communities are simply excluded due to the process, whereas **Weaver (1999a) suggests that the entire process is of no benefit to the disadvantaged communities, as the social aspects of the environment are under emphasised and their skills levels misunderstood. "Poor communities will not continue to accept the marginalisation of their concerns in the EIA process. Unless the South African EIA community reconsiders their approach to EIA, the tool will become irrelevant in the Development Agenda" (Weaver, 1999a:321).**

During the 1960's, the process of Environmental Impact Assessment developed in the United States of America (USA) and the United Kingdom (UK). In the UK it was a gradual development process as part of the long tradition of town planning and development control (Weston, 2000), whereas in the USA it was developed as a result of the 1969 National Environmental Policy Act (Wood, 1995). In both instances it is described as a process, i.e. not a goal or an event. It is supposed to be a systematic, integrative, iterative and cyclical process (Weston, 2000), where the needs of the end-users are reflected in the goals and other program components (Zube, 1984). All these descriptions lead to the assumption that Environmental Impact Assessments (EIA's) are "caring" processes, where all aspects of relevance would be considered and where there is a long history of caring for the welfare of the earth (man and nature side by side).

The view of EIA however varies spatially and temporally. Whereas it developed as a "defensive tool" (Glasson *et al*, 1997) in the 1970's, there is a view that it should and is currently becoming an environmental and social betterment tool (Baines and Taylor, 1998; Avis and Ruten, 1998).

EIA's in Europe, the USA and Australia developed within the context of world environmental movements. Papadakis (1993) suggests that in Australia "the notion of environmentalism has become an integral part of the western democratic political cultures" (Papadakis, 1993:2). The movement started in Australia during the 1970's as a protest action against the "excesses of development" (Wood, 1995:64) and the opposition to an "economy obsessed with production and consumption" (Papadakis, 1993:4). In Europe a "Declaration of the Environment" was made in Paris in 1972 (Wood, 1995), from where the environmental legislation and action grew rapidly, albeit with lots of opposition and limited acceptance (Glasson, 1999).

However, the international community is attaching more importance to the social consequences of environmental degradation and development impact (Porter and Fittipaldi, 1998; Akpofure and Ojile, 1998; Atemie *et al*, 1998). This is however not to say that the social aspects are truly considered, sufficiently analysed or fully appreciated (Akpofure and Ojile, 1998; Venema and Breemer, 1999; Glasson, 1999; Jenkin, 1999). The social impacts of development must be analysed at the community level (Branch *et al*, 1984), as the community is a functional unit and central in the understanding of social change. The issue is not only analysis of the social impact, but also addressing and resolving community needs. The Charter Of European Cities And Towns Towards Sustainability (European Conference on Sustainable Cities and Towns in Aalborg, Denmark, 27 May 1994) includes a program according to which the problems of sustainability should be addressed. Amongst others it includes engaging in Local Agenda 21 processes. The Local Agenda 21 is a program prepared from the principles contained in the Rio Declaration on Environment and Development during the Earth Summit in 1992, which again built on the premises of the General Assembly Resolution 44/228 of 22 December 1989, when the nations of the world called for the United Nations Conference on Environment and Development and general agreement that a balanced and integrated approach to environment and development questions would be resolved (European Conference on Sustainable Cities and Towns in Aalborg, 1994). The Local Agenda 21 focus is on sustainable development in developing countries through various means. The

predominant focus is on the socio-economic well-being of the developing countries and with reference to program areas and action plans focussing on the conservation of the environment without neglecting the need for social upliftment and economic growth. One of the identified program areas is the combating of poverty. One of the recommended activities is a focus on the empowerment of local and community groups through the principle of delegating authority, accountably and resources to the most appropriate level to ensure that the program will be geographically and ecologically specific (Chapter 3, section 3.5 (a)).

1.2 Aims and objectives

This thesis aims to investigate whether the socio-economic well-being of the affected communities is sufficiently considered in EIA's and to propose ways of changing the current approach to EIA's, to the benefit of affected, under resourced, historically disadvantaged or poor communities, if it is found that EIA's generally neglect social upliftment and economic growth.

The first objective of the thesis is the analysis of literature in the South African and the international arena to determine the characteristics of the ideal EIA and then to critically assess some case studies (EIA's) undertaken in the Western Cape. The intention is to determine whether the case study impact assessments took due cognisance of the social aspects or whether the biophysical environment predominated in the impact assessments.

The secondary objective is the analysis of South African regulations and legislation, to determine whether or not it guides environmental practitioners in the preparation of EIA's that sufficiently value the social aspects of the environment and community needs.

Objective three is to propose an approach to EIA's that would ensure that the social aspects of the environment receive as much consideration and carry as much weight as the biophysical aspects. Guidelines for the preparation of EIA's will be proposed, to assist inexperienced practitioners and students in their analysis of environmental impacts and to benefit the disadvantaged communities while simultaneously ensuring sustainable management of the environment.

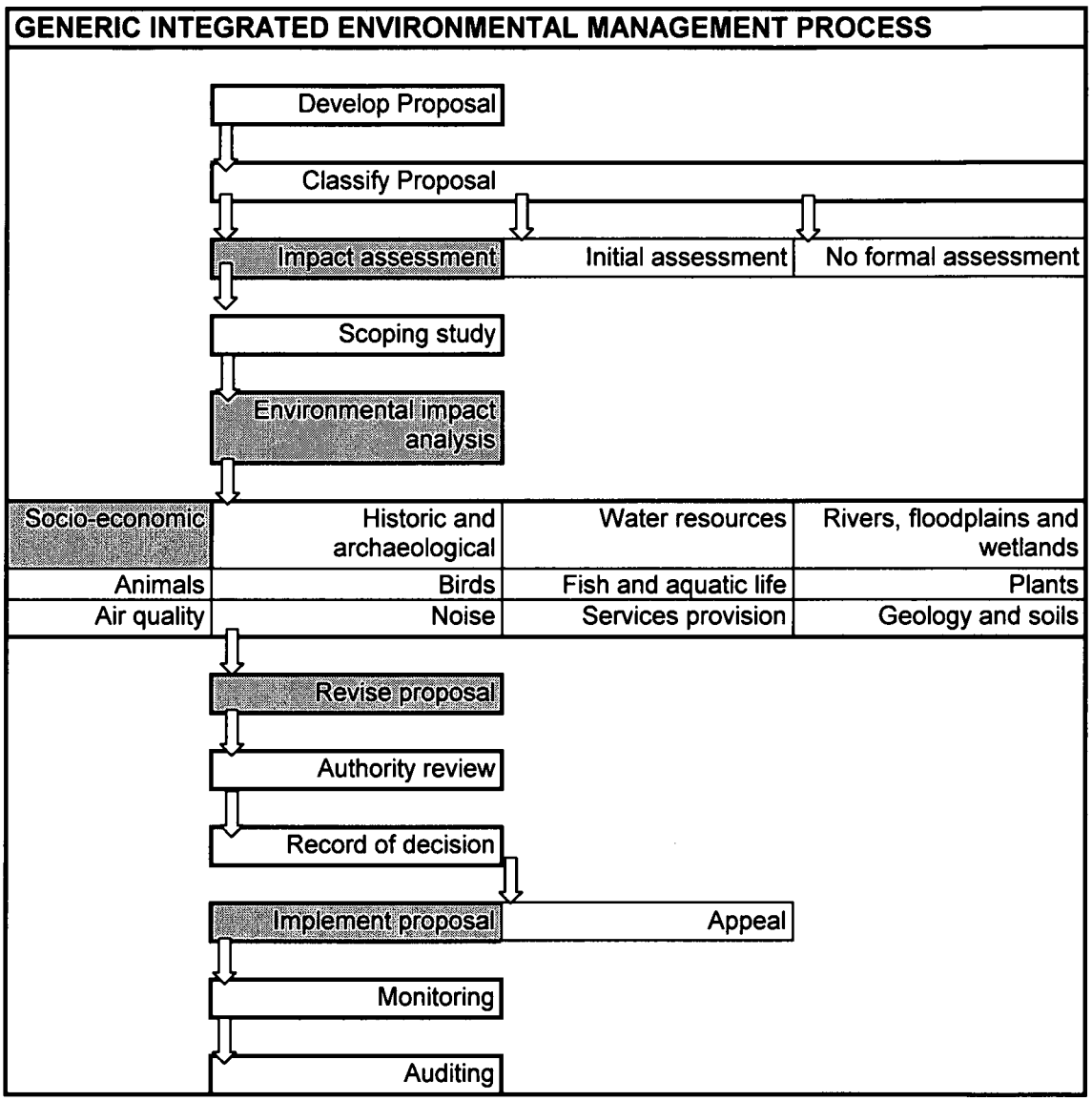
1.3 Approach

The approach to the thesis is based on the assumption that South African EIA's are lacking in the consideration of social aspects and responses to community needs. Therefore the international trends in EIA's and literature on the matter will be analysed, in order to determine criteria with which to evaluate the local EIA's. The focus of the thesis will be the highlighted steps and issues in the IEM process depicted in Figure 1 below.

The two local EIA's selected for evaluation, namely that for the Relocation Of The Informal Settlement At Stanford and for the Koringberg-Platvlei-Middelburg Water Supply Pipeline required to provide potable water to rural communities, will then be assessed in terms of the criteria. The environmental impact assessments have been completed, therefore the public reaction is known and recorded and it is possible to determine whether the impact assessments satisfied the public and / or legal requirements.

The government guidelines on the preparation of EIA's will also be analysed critically to determine whether there is significant guidance for environmental practitioners to address the social issues and provide for the inclusion of the disadvantaged communities.

Figure 1. Generic Integrated Environmental Management Process developed from the models in the Department of Environment Affairs, 1992 and Smith, 1997, indicating the focus of the Critical Assessment of Environmental Impact Assessments in South Africa.



CHAPTER 2. ANALYSIS OF IDEAL EIA AND LITERATURE REVIEW

The approach to and execution of EIA's depend amongst others on the culture of the practitioner or applicant (Phillips and Edwards, 2000). Moreover, the legislative background to EIA's and the interest of the delegated officials in the review of EIA's also contribute to the quality and value of EIA's (Weaver, 1997; Williams, 2000; Phillips and Edwards, 2000). Thus, in analysing what the ideal EIA should consist of, it would be essential to look at it from the perspective of the country where it is prepared. In this chapter, the general matters relating to EIA's will be discussed briefly, before analysing the ideal EIA's from the South African perspective and then for the UK, USA and Developing Nations, without any discussion of the origins of EIA's. The focus is on the execution of the EIA process and current trends and practices, with specific reference to strengths and weaknesses relating to social aspects in keeping with the aim of this thesis.

Generally, the objectives of an EIA (IAIA, 1998) are as follows:

- To ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process;
- To anticipate and avoid, minimise or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- To promote development that is sustainable and optimises resource use and management opportunities.

EIA is a process with several important purposes (Glasson *et al*, 1997):

- Aid to decision-making;
- Aid to the formulation of development actions; and
- Instrument for sustainable development.

An EIA is normally required for projects or actions that would have a significant effect on the human environment (Marriott, 1997) and it is defined as:

- "The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" (IAIA, 1999).

- "... identifying and assessing the environmental consequences of development projects, plans, programmes and policies in an attempt to ensure that the 'best' alternative for development is selected" (Biswas et al, 1987).

EIA's involve "assessing the outcomes and effects of a development project" and are therefore "explicitly concerned with the construction of knowledge" (Phillips and Edwards, 2000:49). The approach to an EIA has a "significant influence" on the way it is designed and its outcome. The consultant's knowledge base, history, perception of future opportunities and approach determines how the knowledge is constructed in an EIA (Phillips and Edwards, 2000:50). This article indicates that "culture" plays an important role in the preparation of EIA's, which leads to the concept that a comparison or an analysis of EIA's should be spatially specific, i.e. should be of relevance to specific areas, where similar externalities should influence the authors. The literature review will focus on the guiding documents and recent articles relating to EIA's, with specific reference to the social aspects of EIA's, community consultation and interaction. Although numerous publications were used in determining the "ideal EIA", these will only be referred to in the following section, in order to avoid duplication in the discussion.

2.1 South African government documents and guidelines and general publications

The following review focuses on the South African resources, as these are the guiding documents in the preparation of local EIA's. There are a limited number of government documents and guidelines, as virtually all originate from the Department of Environmental Affairs and Tourism (DEAT) and all provinces operate in terms of these regulations, policies and guidelines. The majority of the legal documents and government resources offer similar information. The non-government publications offer a different perspective. Weaver (1999a) and De Villiers Brownlie Associates (2000) list the environmental legislation, regulations and policy documents of relevance to EIA's in South Africa, which is a handy reference source in searching for applicable documents and publications.

The DEAT discussion document on a Strategy for Integrated Environmental Management in South Africa (1998b) provides some guidelines relating to the social aspects to be considered. For example, it is stated that "scientific analysis may at times have to be less intensive than experts might wish: It will be important for the managers of an IEM process to maintain an appropriate balance between scientific and general opinion" (DEAT, 1998:16). In explaining the approach to IEM's and therefore also EIA's, this publication refers specifically to the integration of "socio-economic development realities"

in the IEM procedures. Land Use Planning, Integrated Development Planning and Land Development Objectives, each of which is based on unique legislation, also have to be considered. This in itself should lead to the balancing of the biophysical and the socio-economic environments in IEM processes as last mentioned are supposedly derived through public consultation processes and represent the needs of the communities involved (DEAT, 1998b). The document continues to propose procedures to be followed for the preparation of land use zoning plans and schemes, IEM procedures for new activities, procedures for existing activities and for activities in terms of IEM-approved land use zoning plan or scheme activities. From this perspective it is a usable document as it is the only document found where the procedures are differentiated and understandable.

The DEAT Guideline Document on the EIA Regulations (1998a) that focuses on the implementation of Sections 21, 22 and 26 of the Environment Conservation Act, 1989, quite simply defines an EIA as a process of examining the environmental effects of development. In its introduction it states that the Act has the following objectives:

- To ensure that the environmental effects of activities are taken into consideration before decisions in this regard are taken;
- To promote sustainable development, thereby achieving and maintaining an environment which is not harmful to people's health or well-being;
- To ensure that identified activities which are undertaken do not have a substantial detrimental effect on the environment; and
- To prohibit those activities that will;
- To ensure public involvement in the undertaking of identified activities; and
- To regulate the process and reports required to enable the Minister or his designated competent authority to make informed decisions on activities.

There is, however, a noticeable shortage of guidelines relating to Social Impact Assessment (SIA) or the inclusion of social aspects in EIA's in South African publications. The DEAT guideline document regarding EIA regulations (1998a) contains some useful examples and hints on the preparation of an EIA, with specific reference to the preparation of public notices and the placing of advertisements. With reference to the impact assessment itself, there is limited reference to the social aspects and these receive simple mention, whereas investigation of the biophysical aspects is described in detail. Nonetheless, the document provides practical guidelines for all aspects of an EIA. It also

sets out the typical assessment criteria to be used in an EIA as well as guidelines relating to the mitigation of potential impacts.

A series of guideline documents prepared for the then Department of Environmental Affairs (1992a,b, c, d, e, f) are generally used as the indicative publications for the preparation of EIA's, however, these guideline documents are not very user-friendly and only understandable if the user understands both the supporting legislation and regulations. The guidelines offer a single proposal for the IEM process, making it confusing and extremely complex. The proposals contained in the documents explain the worst-case scenario for an IEM process, i.e. from the "develop proposal" stage through scoping to a full EIA and the review of the Environmental Impact Report (EIR). Because it includes all the options and alternatives, without distinguishing between the various alternatives or options, it is confusing. However, these guideline documents are the ones most frequently and freely distributed in the industry. The inclusion of the socio-economic aspects of the environment is only mentioned as part of the list of impacts to be considered. A detailed set of guidelines is provided for public consultation (DEAT, 1992f), but again it is so wide and inclusive that it is difficult to understand what the essential actions and processes are. In the IEM Guideline series (DEAT, 1992c), it is emphasised that the affected environment should be clearly described. However, in referring to the socio-economic environment and in setting out the assessment of the impacts, there is hardly any focus on the benefits derived from any development for specific groups. The entire focus of the report's contents is on the detrimental impacts, namely what would be affected and how it would be affected.

South Africa subscribes to the principles of the "Rio Conference", therefore the Local Agenda 21 document (Urquhart and Atkinson, 2000), which is a guideline prepared on behalf of the DEAT, recommends that four questions be asked in the environmental assessment, namely:

- What is happening to the environment?;
- Why is it happening?;
- How do the changes impact on human quality of life?; and
- What is our response and is it effective?

Specifically for the Western Cape area, the PAWC: DECAS publication of an Environmental Checklist (2001) also offers a guideline for the preparation of simple applications for

exemption or authorisation by means of a site scoping process, i.e. excluding any public consultation input. However, the checklist complies with only the minimum requirements of a scoping document and would not always suffice as a submission. The checklist document is periodically updated and circulated to the environmental practitioners and authorities registered with the PAWC: DECAS.

It is therefore quite easy to understand why authors such as Alex Weaver of the CSIR make such statements as: "environmental practitioners have not leveraged environmental assessment tools effectively for evaluating the positive impact that development in South Africa may have toward alleviating poverty" (Weaver, 1999:310). Weaver is of the opinion that EIA's in South Africa do not contribute to the upliftment of the majority of South African citizens who are impoverished due to the fact that EIA's focus on so-called "green" agendas (conservation of plants, animals and aesthetic issues) of the first world while neglecting the concerns and issues of the third world (brown issues such as employment, health, potable water, sanitation). Weaver, together with other authors, question EIA preparation and its continued significance in the South African scenario and on the other offer guidelines for the preparation of EIA's that respond to both the "green" and "brown" issues of concern in the dichotomous South African society (Weaver, 1997, Weaver, 1999, Sadler and Weaver, 1999).

Fuggle and Rabie (1999), define an EIA in the South African context as the administrative or regulatory process by which the environmental impact of a project is determined. Social values, administrative constraints and legal provisions normally define the nature of the process according to their opinion. Duard Barnard (1999) offers a loose definition, stating that an EIA is nothing more, nor less, than a simple fact gathering exercise. According to him the fact gathering exercises can take many forms for the purpose of collecting facts to facilitate good management decision-making. The purpose of environmental evaluations are as follows (Fuggle and Rabie, 1999):

- to aid decision making by providing objective information on the environmental consequences of actions, plans and projects;
- to provide sound, comprehensive data to inform and direct development planning;
- to analyse plans objectively so as to ensure that benefits are maximised and that negative effects are mitigated to the greatest extent possible;
- to propose solutions to problems that may arise through interactions between the environment and project action; and

- to communicate information as to the positive and negative effects of development proposals to both decision makers and interested parties.

Fuggle continues to explain that it often happens that impact assessments do not provide acceptable alternatives. Amongst others this leads to problems in the evaluation of the assessments by the decision makers. Due to the fact that there is a predominantly "scientific approach" to EIA's, they are often "a compendia of technical material (and) are not helpful". Ideally, teams of multi-disciplinary specialists should undertake EIA's, as this would lead to different perspectives and approaches in the assessments and ultimately lead to the inclusion of social aspects in environmental impact assessments (Fuggle and Rabie, 1999:762). Each specialist would focus on different aspects of the project and on different issues, thus widening the scope of the EIA and assessing the impacts from social, biophysical, engineering, economic, aesthetic and other perspectives, depending on the composition of the specialist team. Fuggle and Rabie then continue the argument by stating that environmental evaluations are not the "much sought after scientific device that needs only to be plugged in to solve all planning problems" (1999:766). Instead, the ideal environmental evaluation should:

- collect all data relevant to the impact prediction;
- analyse and interpret the data;
- identify the significant environmental impact; and
- communicate the findings of the analysis.

The ideal approach to an environmental impact assessment according to Fuggle is the "cross-tabulation or matrix approach" (Fuggle and Rabie, 1999:767). A matrix is like a spreadsheet, where the issues are cross-tabulated with possible impacts in a predetermined format, used for all EIA's by all the practitioners. The checklist used as application form for the PAWC: DECAS is an example of a matrix. The environmental practitioner ticks off the relevant blocks and then assesses the issues that have been identified as having potentially significant impacts. However, the approach focuses on the identification of problems rather than providing solutions to the problems. Moreover, such matrixes are difficult to interpret and require detailed and well-structured reports in order to be of assistance to decision makers.

The next approach would be the "environmental mapping or overlay approach" (Fuggle and Rabie, 1999:769). This approach relies on GIS and mapping skills, as the

environmental characteristics of a specific area are mapped in order to determine the sensitivity levels of the area. It is therefore obvious the areas with significant numbers of sensitive features are subject to maps with a large number of layers. As a result this approach is usable in digital format only, as it is difficult to represent in written reports. Interpretation of the sensitivity analysis results is also difficult, as the criteria for the determination of the sensitivity depend on the operator's opinion.

Regardless of which approach is used, Fuggle suggests that any impact assessment report should at least contain the following:

- a description of the development proposal and reasons for the development;
- a description of the environment within which the development is proposed;
- a statement on the nature, sources and quality of data used in the impact assessment;
- details of all people involved in the study so as to clearly define the expertise involved;
- a description of the process / approach that was followed in the assessment; and then depending on the approach or process
- a statement of all assumptions used in the assessment;
- completed matrix / or the mapping layers if the mapping approach was followed;
- a summary of all findings (matrix or maps);
- review of all the problems revealed by the analysis, i.e. possible significant impacts; and
- a conclusion.

Glazewski (2000:270) is of the opinion that, simply put, an EIA is the analysis of the likely environmental consequences of a proposed human activity. Glazewski continues to state that the ultimate success of an EIA depends on three fundamentals, namely:

- public participation;
- inter-sectoral co-ordination; and
- the consideration of alternatives to specific development proposals.

Glazewski suggests that in most instances the division between a scoping process and an EIA is vague and often, scoping reports are written so as to produce environmental impact reports (2000). The reason for this is to save on time and cost for the client, as it

encapsulates two processes, which obviously take time for individual and separate consideration at the approving authority.

Recent IAIA newsletters (November and December 2001) featured editorial comment and letters from disgruntled "Interested and Affected Parties", claiming that EIA processes they were involved in have been "window-dressing exercises", as the EIA's did eventually not incorporate the community opinions or respond to them satisfactorily. In response to numerous similar comments, the erstwhile Cape Metropolitan Council commissioned a report by consultants in 2000, to set guidelines for the review of EIA's in the then Cape Metropolitan Area. The following extracts from the report, indicate the major factors considered in the EIA review process (De Villiers Brownlie Associates, 2000):

"The term 'EIA' is taken to refer to the project planning process, from project initiation through to authorisation. It thus embraces screening, scoping, assessment and evaluation, and the planning of mitigatory and/or enhancement measures, management and monitoring. The review of an EIA can take place at any stage during this process. However, review most commonly occurs after screening, scoping (culminating in a Scoping Report) and/or on completion of the EIA (culminating in an Environmental Impact Report).

Nine review areas were selected, based on the principles of EIA's, the ideal EIA and the approach to EIA review. The nine areas of review are separated into two fields as follows:

- *Four review areas linked to overall quality assurance:*
  - *Ethics.*
  - *Adequacy of information.*
  - *Clarity of report.*
  - *Due consideration of alternatives.*
- *Five review areas linked to the key stages in the EIA procedure:*
  - *Description of project and affected environment.*
  - *Legislation, policies and plans.*
  - *Scoping and participation by interested and affected parties (including authorities and the public).*
  - *Assessment and evaluation of impacts.*

- *Mitigation, enhancement, management and monitoring."*

The report identifies "social involvement" as one of the fields requiring specific attention due to shortcomings in this regard and offers recommendations on how to encourage "stakeholder participation" (De Villiers Brownlie Associates, 2000;17).

Quite clearly therefore the social aspects are significant in any environmental impact assessment. However, this is not always stated in official (government) publications, such as the guideline documents prepared for the then Department of Environmental Affairs (1992a,b,c,d,e,f). Based on all of the above, it is quite clear that a socio-economic or social element is required in each and every EIA, as the beneficiaries of any development are obviously part of the social structure of the country. The question is whether the social aspects are satisfactorily addressed or not, as most of the sources indicate that more attention has to be paid to these aspects. It has to be concluded that current guidelines relating to EIA processes are lacking and that more attention should be given to the ideal EIA.

2.2 South African legal requirements

In terms of the National Environmental Management Act, 1998, Act 107 of 1998 (Republic of South Africa, 1998), environmental management must place people and their needs at the forefront of its concern and serve their physical, psychological, development, cultural and social interests equitably. On the one hand thus development must be socially, environmentally and economically sustainable, whereas on the other the social, economic and environmental impacts of activities including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment. It is thus not only the disadvantages of development but also the benefits that should be evaluated.

The regulations relating to the preparation of EIA's (Republic of South Africa, 1997a,b,c) are made under Sections 21 and 26 of the Environmental Conservation Act, 1989 (Act 73 of 1989). These regulations were published in Government Notices R1182, R1183 and R1184 in Government Gazette No 18261 of 5 September 1997. The regulations briefly set out the requirements for scoping and EIA's as detailed below. They do not offer any guidelines relating to the preparation of either, as they only deal with the legal aspects and not the approaches or the methods. The regulations should, however, be taken note

of as the procedures contained therein would obviously be the procedures that would be tested in any case if an application is taken on review (a legal process through the courts). The regulations simply state "what" has to be done and not "how". It places an obligation on the applicant to follow an IEM process.

In the Western Cape, the Act is administered by the Provincial Administration of the Western Cape: Department of Environmental and Cultural Affairs and Sport (PAWC: DECAS), i.e. the interpretation of the act and enforcement of compliance with the regulations is a provincial responsibility. The regulations refer mainly to activities identified in terms of Section 21 of the Act, being activities that potentially have a detrimental effect on the environment. However, the regulations do not limit the interest of any applicant to what is prescribed, as in general no activity may take place that could have any potentially significant negative impact on the environment, regardless of whether it is described in the regulations or not. In addition to the regulations, the six DEAT IEM 1992 Guideline Documents and the April 1998 Guideline Document on the EIA Regulations referred to above must be read and implemented.

The IEM processes required in terms of the applicable national legislation are guided by regulations made under Section 21 and 26 of the Environmental Conservation Act, 1989 (Act 73 of 1989). These regulations were published in Government Notices R1182, R1183 and R1184 in Government Gazette No 18261 of 5 September 1997. In the Western Cape the Provincial Administration of the Western Cape: Department of the Environment and Cultural Affairs and Sport administers the Act. The regulations refer mainly to activities identified in terms of Section 21 of the Act, being activities that potentially have a detrimental effect on the environment. However, the regulations do not limit the interest of any applicant or consultant to what is prescribed, as in general no activity may take place that could have any potential significant impact on the environment, regardless of whether it is described in the regulations or not. In addition to the regulations, the six DEAT IEM 1992 Guideline Documents and the April 1998 Guideline Document on the EIA Regulations must be read and implemented.

The regulations do not make any significant difference to the approach required for small-scale or large-scale development proposals. Therefore, whether a signals distribution mast is being erected, a water supply scheme constructed or whether an informal settlement relocated, the regulations require the same process to be followed. The process is shown in Annexure A and more fully explained in Annexure B. The

responsibility is on the applicant, in terms of the regulations, to determine what impacts are likely and what the procedure should be in order to apply for exemption or authorisation to undertake said activity. Amongst others it is expected of an applicant to appoint an independent consultant to act on his or her behalf and to bear all the costs of any IEM process. The regulations further determine that the applicant should consider all issues and aspects relating to an activity and that access to all information should be granted to all authorities, interested and affected parties. The authorities have the responsibility to employ expertise in the related areas of environmental concern in order to adjudicate applications submitted to it. There is also a responsibility on the authority to provide applicants with guidelines relating to the EIA process and access to information in order to assist the applicant in fulfilling all obligations in terms of the regulations.

The regulations contain two schedules, namely a schedule indicating what activities are harmful to the environment and a schedule dealing with procedural aspects.

- Schedule 1 in itself is divided into two parts, namely one part listing specific activities, such as the construction or upgrading of roads, structures associated with communication networks, dams, schemes for the abstraction or utilisation of ground or surface water and the development of public and private resorts. The second part of the first schedule refers to changes of land use (land use planning being controlled by the Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)) from any form of natural use to any form of development or specific processes, such as high-intensity agriculture (chicken farming, feedlots) or the genetic modification of any organism, or the reclamation of land in coastal areas.

- Schedule 2 of the regulations addresses the procedural and legal aspects regarding the IEM procedures. It defines the various terminology and applicability of the regulations and then leads into the responsibilities in terms of the regulations, as briefly set out above.

The next issue addressed in the regulations relates to applications for authorisation to undertake specific activities. In this section it is clearly detailed that applications have to be in a specific form and that applications should be lodged with specific delegated authorities.

The regulations also guide the preparation of the required Plan of Study for Scoping (PSS). The Plan of Study for Scoping should include a description of the activity to be undertaken as well as all tasks to be performed during the scoping, linked to a time program and a program for consultation with authorities as well as a description of the method of identifying the environmental issues and alternatives. The regulations detail the content and structure of the scoping report as well as the actions taken by the authorities on receipt of a scoping report. These include the option of requesting further information or accepting the conclusions in the report. It is obvious that if, in terms of the scoping report no significant impacts are identified and the PSS was sufficiently detailed, that authorisation would be granted for the activity for which the scoping was undertaken. If the authorities were of the opinion that there could be a significant impact, then they would call for an EIA and an EIR.

Should an EIA be required, the regulations determine that all environmental issues be addressed in relation to feasible alternatives. The process through which the assessment is undertaken is of importance judging from the regulations. Each impact should be individually described and analysed and mitigation measures explained in terms of the regulations.

The regulations then continue to describe how the EIR would be considered by the delegated authority and what the structure of a record of decision is.

Nowhere in the regulations does it indicate specifically what issues and topics should be included in an EIA or what the extent and nature of an EIA should be. Instead, the onus is on the applicant (consultant) to determine the process, the issues, the impacts, the survey and assessment methods and all aspects of the IEM process.

2.3 Indicative publications in the international field

United Kingdom

The tradition of impact assessment in the UK stems from the land use planning process, i.e. it was an un-legislated and mostly voluntary process (Weston, 2000). Since implementation of European Union (EU) legislation and directives in 1988, it has been legislatively controlled, but with negative consequences according to some sources

(Glasson, 1999; Weston, 2000; Wood, 1995). The major benefit of the EU Directive is the fact that it sets minimum standards for European countries in the undertaking of EIA processes. However, the "Directive does not establish any real framework for carrying out an EIA" (Weston, 2000:11). Some of the other weaknesses listed in the EU and therefore the UK EIA processes (Glasson, 1999; Wood, 1995; Glasson *et al*, 1994) are:

- multiple and fragmented legislation and links related to various sets of legislation and government departments;
- little consideration of alternatives;
- monitoring and auditing included in the EIR but not implemented or managed;
- biophysical perspective on environment, while excluding social aspects;
- consideration of cumulative impacts is neglected and focus is project related;
- weak quality control of EIA process and implementation;
- perceived problem of developer/ consultant management of the EIA process; and
- lack of effective public participation with no third party recourse upon decision.

Generally, the EIA process takes place according to the same linear model as in the USA case, however there is a movement towards a more iterative and cyclical model (Weston, 2000) that will ensure public involvement and improved evaluation of socio-economic aspects of the environment. The obligation for an EIA is contained in the EU Directive, which distinguishes between the potential impacts expected of activities and prescribes certain processes for each, i.e. it is legislated in categories, indicating what level of assessment is expected for specific activities and scale of development (Glasson *et al*, 1994).

In terms of the EU Directive, the following information has to be included in an EIA:

- Project description (e.g. physical characteristics, production process, estimate of the type and quantity of the emissions or residues);
- Outline of the main alternatives and reasons for choice;
- Description of aspects of the environment likely to be significantly affected (must include interrelationship between aspects);
- Description of likely significant effects of project on the environment resulting from:
  - Existence of the project;
  - Use of natural resources; and
  - Emission of pollutants, nuisance and elimination of waste.

- Description of forecasting methods used for the assessment;
- Description of measures to prevent, reduce and where possible offset significant adverse effects;
- A non-technical summary of the above under the same headings; and
- Indication of the difficulties encountered in the compilation of the EIA.

The one aspect that is not defined in the EU Directive and leads to much confusion in the preparation of EIA's is the description of the alternatives (Wood, 2000), as the alternatives could include either the locality or process, which leads to significantly different results. Another aspect of concern is the fact that the directive only ensures that information relating to the project or the impact is made known prior to a decision being made. It does not address the process that should be followed, as stated above, with the result that the focus and perceived goal of the EIA process is the EIR. There are however benefits in opening the process to include the public and to focus on the process, rather than the product and this approach should be promoted (Glasson *et al*, 1994).

Glasson (1999) criticises the UK EIA system and claims that more attention is given to the Environmental Impact Statement (EIS) than to the process, which detracts from its value. Weston (2000) concurs with this view. Glasson and Weston suggest criteria for the evaluation and review of EIA's. These include (Glasson, 1999:364; Weston, 2000:139):

- compliance with applicable regulations;
- completeness with respect to the agreed scope of the EIA work to be undertaken;
- adequacy of the methods to be used with regard to the guidelines, peer review, judicial review, etc.;
- influence on the weight given to environmental factors in decision making;
- influence on the decision of whether to approve, reject or modify the project;
- cost effectiveness;
- contributions to sustainable development;
- transparency, objectivity and impartiality;
- effective communication and accessibility to relevant audiences.

It was found that 60% of the post 1991 EIA's are "satisfactory", i.e. satisfy the criteria, albeit that EIA's are generally lacking in effective public participation and concerned more with the planning than the long term management. The importance of considering socio-

economic and social impacts is also a weakness in UK EIA practice, which can be seen as primarily biophysical in focus, with only limited consideration of socio-economic impacts (Glasson, 1999:368).

Following on this is an article relating to the sustainable housing development in rural Gloucestershire, which might as well have described the typical South African situation, as the sustainability of rural towns and the "cycle of poverty" brought about through lack of access (referred to as travel poverty) and opportunities is highlighted (Williams, 2000). The standard methods employed when considering new housing strategies include sieve-map analysis, strategic environmental impact assessment and transport modelling, as one-off events without continuous monitoring. The techniques used are described as time consuming, expensive, complicated and requiring high levels of expertise, i.e. not within the scope of reference of the majority of practitioners and exclusive of all but a few in the lesser skilled communities normally found in the rural population. This is an obvious reference to the weaknesses alluded to above. The outcome of the article is that socio-economic analyses provide more realistic and usable results than the typical EIA's (Williams, 2000). Jenkin (1999) analysed the EIA for petroleum exploration in the Coogie Lakes (rural) area in central Australia, only to reach the same conclusion, namely that assessment of the social impacts is of as much significance as the biophysical. In addition thereto, the article focuses on the conflicting interests within the government that has to consider EIA's, as conservation of the cultural and natural environment must be weighed against potential economic benefits. In matters of such extent and where policy decisions are required rather than "project-focus", Strategic Environmental Assessment (SEA) offers the solution (Zagorianakos, 1999), as the approach to SEA is all encompassing.

United States.

The EIA process in the United States is fragmented, due to the fact that each state has its own legislative guidelines in terms of NEPA (Wood, 1995). Generally though, the process is similar to that found elsewhere and it typically follows eleven steps in a linear model (Bregman and Mackenthun, 1992; Zube, 1984), albeit that this model is often criticised for not being efficient in dealing with development impacts and not permitting acceptable public participation (Jain *et al*, 1993). Smith makes the statement that under NEPA, a model for EIA's emerged that was "product-driven" with a strong focus on

"scientific data collection". In his opinion the EIA's that resulted were ineffective, as they amongst others, showed "a marked absence of socially related data" (Smith, 1993:9).

The strongest criticism is against the shortcomings in the legislation and regulations. Some of the critique (Jain *et al*, 1993; Smith, 1993) follows:

- It causes unnecessary high costs in relation to the benefits.
- The regulations do not provide incentives for achieving social goals.
- Too much paperwork is required and time delays occur in the administration of the process and issuing of decisions.
- Regulations at different levels are often duplicative and incompatible.

EIA takes place in a political environment and therefore it is inevitable that economic, social and political factors could outweigh environmental factors (Wood, 1995), which has lead to environmental degradation at the cost of society and the economy (Jain *et al*, 1993), even though the intention with the development proposals and the approvals was to create benefits. The intent expressed in the preparation and implementation of NEPA was to inform and assist decision-makers in development planning. Smith (1993:1) believes that a more appropriate statement of intent would have been to inform and assist the decision-maker in understanding the community needs as the legislation does not guide the process to ensure achievement of the sustainability goal.

According to Smith there are three approaches to EIA's, namely:

- The synoptic approach;
- The manual approach; and
- The scientific approach.

Smith explains that the scientific approach offers a framework for the integration of impact assessment in planning that is a "normative ideal". Of the three, the scientific approach is the "ideal" albeit "often closer to an exercise of environmental inventory, expert comparison and proposed mitigation" (Smith, 1993). The scientific approach does not facilitate public interaction, as the general public lack the capacity to contest "scientific findings". This fits the approach to the EIA process as established in most sources. In terms of this approach, once the scope of the study has been determined, then the impact analysis follows immediately. The significance of impacts is determined

in terms of their context (the immediate setting / locational factors / extent) and intensity (severity of impact / presence of unique characteristics / degree to which effects are likely to be controversial / precedent for future activities / conflict with laws) (Marriott, 1997). It seems that applicants often avoid a true participatory approach, due to the potential time delays and costs involved with it. There is evidence in the literature that the citizens who want to play a role in decision-making often lack familiarity with the technical terms in scientific analyses and are mostly driven by self-interest (Bregman and Mackenthun, 1992) as opposed to community interest.

Whatever the approach, there are certain aspects of the environment that have to be considered. Not all sources agree with what environmental attributes need to be considered. Those attributes that provide indications of change in the environment and should therefore be assessed are listed as follows (Jain, *et al*, 1993):

- Air;
- Water;
- Land;
- Ecology;
- Sound;
- Human aspects;
- Economics; and
- Resources.

These obviously include both biophysical and socio-economic aspects. Regardless of what aspects have to be considered, the process remains the major stumbling block and the approach to EIA one of the weaknesses (Smith, 1993; Marriott, 1997; Zube, 1984). Zube (1984), Finsterbusch *et al* (1983) and Bregman and Mackenthun (1992) advocate the Social Impact Assessment (SIA) approach, as this leads to interaction with the public, while criticising applicants and the legislative guidelines for excluding the social aspects. The steps in the SIA process are fairly similar to those in the EIA process. These are (Branch *et al*, 1984):

- Description of the existing environment;
- Projections without the proposed action; or
- Description of the proposed action;
- Projections with the proposed action;

- Analysis of the impact; and
- Analysis of opportunities for mitigation and enhancement.

The components of the social environment that need to be considered are (Jain *et al*, 1993; Branch *et al*, 1984):

- People;
- Jobs;
- Income;
- Resources;
- Organisations and Regulations; and
- Health and Public Safety.

The UNU publication on "Poverty, Population and the Environment" (IAIA, 1998) makes the following statement: "Economic development that reduces poverty also protects the environment. Public health services, female education and the provision of rural infrastructure are necessary for protecting the environment in rural economies." The methods suggested are based on the so-called Agenda 21 principles. These methods are explained in detail in the guidelines and principles relating to the preparation of social impact assessments (USA Dept Commerce, 1994). The suggested headings for a SIA are:

- **Population Characteristics** (present population and expected change, ethnic and racial diversity, and influxes and outflows of temporary residents as well as the arrival of seasonal or leisure residents);
- **Community and Institutional Structures** (the size, structure, and level of organisation of local government including linkages to the larger political systems, including historical and present patterns of employment and industrial diversification, the size and level of activity of voluntary associations, religious organizations and interests groups, and finally, how these institutions relate to each other);
- **Political and Social Resources** (the distribution of power authority, the interested and affected publics, and the leadership capability and capacity within the community or region);
- **Individual and Family Changes** (factors which influence the daily life of the individuals and families, including attitudes, perceptions, family characteristics and

friendship networks, ranging from attitudes toward the policy to an alteration in family and friendship networks to perceptions of risk, health, and safety);

- **Community Resources** (patterns of natural resource and land use, the availability of housing and community services to include health, police and fire protection and sanitation facilities, the "keys" to the continuity and survival of human communities; their historical and cultural resources, and also possible changes for indigenous people and religious sub-cultures).

Developing nations

Tortajada (2000) comments critically on water project development in Mexico. According to the comment, the benefits of the water projects are listed in the EIA's, but these benefits seldom materialise and are often simply listed in EIA's as duplications of previous studies, with no grounds. Most EIA's do not even correctly analyse the status quo of the communities, i.e. they are totally lacking in social baseline information and would not be able to evaluate any social or real economic impact. The legislation only refers to the need to consider environmental implications and ignores the responsibility for social and economic implications (Tortajada, 2000: 78). The authorities seem also not to question many of the statements made in the EIA's, which leads to the conclusion that the consultants and the officials are to blame for the fact that communities receive no real benefit through the EIA's. The resettlement of communities in Indonesia, as part of the Cirata Dam Project, is analysed in a recent study to determine whether or not the social consequences were correctly and satisfactorily addressed (Nakayama *et al,* 1999). The outcome of the report is that there is room for improvement in the approach to and implementation of such projects, however, the EIA's commissioned for the project by the World Bank and the follow-up studies focussed on the social aspects of the environment and contributed to the mitigation of impacts and opportunities for the communities. The most significant opportunity being the establishment of an aquaculture project to compensate for the loss of farmland. The most significant aspect of this report is the extent of the socio-economic analysis included in the EIA for the Cirata Dam Project. It included every aspect of the community's assets and livelihoods, which provides the kind of baseline information lacking in the previous source.

There are a considerable number of indicative international publications relating to Environmental and Social Impact Assessments, of which the above are only a sample,

showing the focus of the thesis and strengths and weaknesses established in other areas. The publications on the International Association for Impact Assessment (IAIA) web page are by far the most usable and user-friendly documents. The above articles act simply as trendsetters for the remainder of the thesis, as they are of particular value in re-focussing the approach from the "biophysical" to the "holistic".

2.4 The Ideal

The ideal EIA should therefore in all instances, regardless of the nature of the environment or the proposed activity, include a social assessment, covering issues such as community values, social systems, demographic profiles and cultural traits, in addition to the often over-emphasised biophysical aspects. It is not simply the socio-economic or economic benefits that need to be discussed, evaluated and assessed but also the educational and economic characteristics. In addition thereto, the full spectrum of social values such as the way in which communities hold together through social and cultural institutions and the way that communities are organised, how they would adapt to changing conditions and what impact the proposal would have on quality of life in the community (Branch, *et al*, 1984) need to be considered. This would require in-depth interaction with the communities, as social values are predominantly emotive and perceptive issues that change over time. There is even an argument to be made that no EIA is possible unless the community needs, consumption and utilisation patterns and perceptions are known (Biswas *et al*, 1987)(Finsterbusch *et al*, 1983), i.e. unless a full social assessment is included in the EIA.

The cost of preparation of the ideal EIR or management of the ideal EIA process is probably prohibitive, therefore most developers and government agencies accept lesser processes and assessments (Glasson, 1999; Wood, 1995; Jain *et al*, 1993). As a result the initiation of the ideal EIA, or its design, is important, as it is during the design thereof that cost could be saved (Biswas *et al*, 1987), by doing a thorough scoping and involving the community from the outset, rather than have the community object to and oppose the EIA or any part thereof at a late stage and having to redo some or analyse new issues. Venema and van den Breemer (1999) call the in-depth interaction with communities "co-management", based on their research into development projects on the African continent. It involves the identification of all possible stakeholders and their unique problems in relation to the proposal, where after a management group is

established to oversee the completion of the planning and impact assessment and eventually the implementation of the proposals.

Drawing from the above resources and incorporating the SIA concepts, it seems that the most fundamental principles that the ideal EIA should satisfy are:

- Requirements for EIA's must be established in law, in terms that are specific, place obligations on all role-players and that are simply and confidently enforceable;
- The conceptual design / planning of the proposal, impact assessment as well as the decision must be transparent, consultative, participative, impartial and fair;
- The EIA process and decision must be designed and expressed in such a way that it is understood by all stakeholders and role-players, that it is implementable and it should be possible for all stakeholders and role-players to efficiently monitor implementation;
- The process must encourage an integrated approach to include all environmental aspects that effect sustainability, at local, regional, national and global levels;
- All development proposals and activities should be subject to environmental assessment if they could potentially have any significant effect on the environment or if the sustainability of the project is questionable, without prescriptive and limiting legislative intervention;
- The process must be cost effective from all perspectives;
- The EIA process should identify the best practicable options or alternatives rather than the most acceptable proposals;
- An EIA must include an EIR that presents the data, information, conclusions and recommendations in a form that is understandable to all interested and affected parties (I&AP's) and communities; and
- The EIA process must include evaluation and assessment all aspects of the environment, including the biophysical and socio-economic factors by specialists and a multi-disciplinary team and provide management objectives, monitoring guidelines and mitigation measures for all.

Thus, the ideal EIA should include at least an element of social analysis to equal the biophysical, economical and other analyses that are done as a matter of course. With this aspect resolved, it is necessary to investigate how to prepare and undertake an EIA and to summarise the criteria according to which EIA's would be assessed in this study.

In the UK system EIA's evolved from a voluntary process (Weston, 2000). However, there is no evidence that impact assessments are a voluntary part of any development project or proposal to undertake an activity in any country, i.e. there have to be clear statutory requirements and guidelines on the full spectrum of the EIA process. As this falls outside of the focus of this study as depicted in Figure 1 above, a criterion in this regard is not set.

From the above it is also clear that the approach to an EIA would depend on the circumstances. However, in all cases, a multi-disciplinary approach and public consultation from an early stage would contribute to the successful preparation of the EIA. For purposes of this study it is assumed that any project or activity would impact on a community and therefore requires a social assessment and a suitably qualified expert as part of the environmental assessment project team. The public consultation is included in the scoping process that is part of the EIA process, but the scoping does not necessarily lead to actual involvement of the affected community in the EIA or project design. What is required to satisfy the ideal is for the community to be fully involved in the process as opposed to being "soundboards". The criteria that evolves from consideration of these two aspects are:

- Multi-disciplinary assessment team to undertake EIA; and
- I&AP involvement in EIA design and process.

Disparities exist in the levels of education in the majority of South African communities, i.e. between the levels of education of the well educated professionals involved in the preparation of EIA's and project plans and the majority of members of the rural and a large percentage of the urban communities. Under these circumstances it is important to use layman's language in all reports and public documents that form part of the EIA. Not only must understandable language be used in reports, but also in all public interaction. This becomes even more important if it is kept in mind that the social assessment depends amongst others on the understanding of community needs and values, which in turn depends on efficient communication. To cover this aspect, the following criterion is set:

- Non-technical terminology and understandable language used in EIR and documents.

As the projects are still in the "risk phase" when an EIA is being prepared, the cost involved in the process should be kept to a minimum, however, the costs should not be limited at the expense of the affected community. By involving the community in the EIA

process from the outset and designing a focussed EIA through efficient scoping, the costs could be reduced and limited. There is also the implementation cost to consider, as the EIA could have an impact on it. By adhering to all the whims and pleasures of the I&AP's, implementation costs could be escalated beyond feasibility, whereas refusing to incorporate community issues could lead to a protracted process and escalated costs. The balance must be found through consultation and a definite set of guidelines for all parties to adhere to. This leads to the following criterion:

- Limit costs to reasonable levels.

The consideration of an EIA (primarily through consideration of the EIR) leads to a record of decision by the delegated authority in terms of ECA (or the relevant legislation). The decision must be made known publicly and provide reasons for whatever the outcome or response to the application for authorisation is. It should also express clear decisions or principles for implementation, in order for all role-players and stakeholders (including the community or other I&AP's) to fully understand how implementation will occur and be monitored and what mitigation measures are required. The record of decision falls outside the focus of this study. Implementation is part of the focus, therefore a criterion will be set. This leads to the following criterion:

- Include implementation program in EIR and ROD.

Communities are in all instances important stakeholders in development proposals. No development would occur if not in response to actual or perceived needs and demand, even if the development is intended for a national benefit, e.g. electric power generation plants or large dams. Thus, it is logical that communities would be affected or benefited by development and that some form of change in the community would occur. This aspect necessitates a social assessment if not a full SIA as part of the EIA. The suggested criterion covering this aspect is:

- Include social assessment in EIA.

The stated purpose of an EIA, as stated in 1.1 above, is that it is an:

- aid to decision-making;
- aid to the formulation of development actions; and
- instrument for sustainable development.

Amongst others, there must therefore be recommendations in the EIA to guide the development, whether through the implementation of mitigation measures or through adaptation of the proposal in order to ensure its sustainability (which refers specifically to sustainability in community context, i.e. where the community stays intact). In addition thereto, the EIA must guide and make recommendations regarding the implementation of the development proposal (if there is no significant impact) to ensure that tangible benefits for the community are realised, as opposed to the indirect economic benefits that are mostly claimed. The criteria that cover these aspects are:

- Include recommendations and proposals to ensure sustainable development; and
- Include recommendations to ensure direct community benefits.

CHAPTER 3. ASSESSMENT

3.1 Assessment of completed EIA's in terms of the ideal

Arcus Gibb (Gibb Africa as they were known at the time of preparation of the report) and to Enviro Dinamik, both environmental management consultancies, are acknowledged for providing copies of reports identified by the PAWC: DECAS as probably the most suitable reports relating to IEM processes since 1999. In both instances the clients in the process were local authorities. In recommending the reports, it was pointed out that few EIA's are done in the Western Cape, as most consultants prepare highly detailed and inclusive ESR's, which then leads to authorisation. EIA's have only been requested for major projects.

The report on the Koringberg-Platvlei-Middelburg Water Supply undertaken in August 1999 as an environmental scoping study with additional analyses requested by the PAWC: DECAS, focussed on the provision of potable water to rural communities in the then West Coast District Council area. The rural communities in this area are dependent on the nearest towns for their water supply, as the groundwater in the area is not suitable for human consumption, nor is the storage of water from the winter rainfall feasible to supply the communities through an entire summer. The water pipeline and related infrastructure has been established and the project successfully completed.

The assessment of the impact of the relocation of the informal settlement at Stanford is also relevant, as it deals with the impact of relocating an informal settlement while simultaneously improving the living standards for the residents of the settlement. The informal settlement is located on the aquifer above the water source of the town of Stanford. The settlement consists of roughly 150 households, with no toilet facilities or municipal services such as refuse removal. Various groups for different and conflicting reasons contested their relocation to within the town. The report was prepared during August 2001 as a combined Scoping and EIR. The recommendations contained in the Stanford report have not yet been implemented, therefore there is scope for further reporting on this case.

The analysis of the EIA's is done through simple noting of the processes followed in the assessments, the conclusions reached and the implementation of the recommendations

made in the relevant reports. The evaluation is thus based simply on the EIR and no other research into the matter is made. The criteria set in paragraph 2.3 above are used to evaluate each EIA to determine whether it satisfies the requirements and potentially benefits the community.

Case Study 1

Koringberg-Platvlei-Middelburg Water Supply Pipeline Project. The proposed water supply scheme aims to provide water to 40 farms, accommodating approximately 1 230 people in the Koringberg region. The project required the installation of approximately 24 km of water pipelines and connection points for the supply of potable water to the rural residents together with the construction of a 110 Kl reinforced brick reservoir on the outskirts of the Koringberg town, to supply the scheme. The water would be drawn from the Withoogte Water Treatment Works, which is the supply scheme for the majority of the area.

Due to the potential impact of the development Gibb Africa was appointed to conduct an environmental scoping study together with the drafting of an environmental management program for the construction phase, in order to mitigate any potential impact. The negative impacts envisaged in the water supply scheme included impacts on:

- flora and fauna;
- surface and groundwater quality;
- erosion;
- visual and aesthetic elements of the environment;
- traffic flows; and
- socio-economic impacts on the surrounding communities.

Some positive impacts were also identified, namely:

- the provision of potable drinking water to the Koringberg-Platvlei-Middelberg communities and;
- job creation and capacity building of the local community.

The scoping report found that none of the potential impacts would justify the rejection of the application for authorisation to proceed with the project. In reaching this

recommendation the consultants firstly set out the need and the background to the project. The needs analysis clearly indicated that the community was to a large extent reliant on homemade storage tanks to collect rainwater for a yearlong supply of potable water. The groundwater in the area is of poor quality and due to the high salinity resulting from the underlying Malmesbury shales, the groundwater is regarded as unfit for human consumption. Under extreme heat and dry summer periods most of the farmers in the area arranged for water supply by means of water tankers travelling to an from the Koringberg reservoir at obvious great cost.

The study was initiated by the analysis of maps and also photos, determining the most suitable route to follow for a water pipeline, based on engineering reports and principles. Once the route had been established, site visits took place in order to determine what the environmental quality of the area is, so as to determine whether the route could be used without significantly impacting on the environment.

The project proposal was clearly detailed and all role-players in the project were identified. The management, operation and maintenance responsibilities for the project, from construction through to operations were detailed, i.e. at all stages of the project. Any interested or affected party would have sufficient detail as to who to contact should any impact become obvious or questions arise.

Following on the broad project description, the detailed construction methods were analysed, obviously based on engineering design and a good knowledge of contract work. In this regard it is of significance to note that the report addresses the following matters in detail, with specific reference to construction activities:

- description of all the materials to be used in the construction of the water pipeline;
- the demarcation of the pipeline routes;
- the demarcation of working areas and areas where site clearing had to be undertaken in order to undertake the construction activities;
- the transport routes for materials from Withoogte to the respective construction sites along the 24 km route;
- methods of excavation of the pipeline trenches and the temporary stockpiling of the excavated material;
- pipe-laying, trench backfilling and compaction operations;
- disposal of excess and unusable soil and material;

- the installation of connections to the various farms, including standpipe taps and water meters;
- the excavation of the reservoir base;
- concrete mixing and construction of the new reservoir and where necessary the construction of manholes; and
- site rehabilitation, including the removal of all construction materials, litter, etc.

Given the purpose of the project, namely to be of socio-economic benefit, it was clearly stated that all construction had to be done with the use of local labour so as to maximise local job creation and resultant skills transfer. On the other hand, so as to reduce any potentially negative impact, routes for the pipelines were chosen in such a manner that road reserves were used over the longest possible routes of the pipeline. Thus, the biophysical environment would be disturbed to the minimum albeit at some additional cost due to the increased length of the pipeline. In considering the alternatives for the project, it became quite clear that neither the use of groundwater nor pumping water from the Berg River would be feasible or sustainable. There was also no choice but to provide a water supply scheme, given the growth in rural community and the pressure on the community as the result of the recent dry spells.

Farming and agriculture activities in the area caused only limited remnants of natural vegetation (Renosterveld) in the area. Nonetheless, these remnant patches were deemed significant for preservation and the route of choice for the installation of the pipeline by-passed the majority of the natural vegetation remnants.

The potential impacts were evaluated in terms of the following criteria:

- extent;
- duration;
- intensity;
- probability of occurrence;
- significance;
- status; and
- degree of confidence in the predictions.

In using these analysis criteria, it was found that the potential impact on the biophysical environment would be significant in impacting on surface and groundwater quality.

However, given mitigation of construction methods, the probably significant impacts could be reduced to be of extremely short duration and totally insignificant. The potential impact of soil erosion was considered to be slightly higher, however, strict mitigation could reduce the impact's significance considerably. In assessing the socio-economic impacts, the visual and aesthetic impacts, traffic flows and socio-economic quality of life were seen as the main issues. None of the aspects would be significantly impacted upon after implementation of mitigation measures according to the report. The potentially positive spin-offs of the project were not analysed. Instead, the report continued directly into the Environmental Management Program (EMP), setting out the organisational requirements and the rules and principles according to which the project had to be undertaken.

Amongst others, the EMP included a skills training program together with a labour management program for the local disadvantaged communities. For this purpose a Project Steering Committee was initiated in order to improve communication with the local communities. The program even detailed the meetings to be held in order to implement the EMP and to introduce the communities to their responsibilities in terms of the water supply scheme (payment for use, water conservation and maintenance).

Assessment of the Koringberg-Platvlei-Middelburg Water Supply Scoping Process.

Summary. The EIR does not detail the scoping process. Instead, a copy of the scoping proposal made to the PAWC: DECAS is annexed to the report. This illustrates the point made by the DECAS officials, namely that most scoping reports are sufficient detailed to warrant consideration as EIA's for authorisation purposes. The scoping proposal attached to the EIR is detailed to the level of setting dates for the public and steering committee meetings.

It is important to note that the consultants were provided with a problem, for which they had to find an acceptable solution. The pipeline route and the project were not presented to them and they had to defend the proposal. They could therefore do a "textbook analysis" to guide the project in the most environmentally acceptable manner.

The process included the local communities, i.e. it provided opportunities to the beneficiaries for job creation and skills transfers.

Criteria. *Multi-disciplinary assessment team to undertake EIA.* The assessment team consisted of an ecologist and a geologist. The project team included engineers and representatives of the community and other role-players, such as the client. No social experts were involved, therefore the ideal is not achieved.

I&AP involvement in EIA design and process. A statement in the report indicates that a public participation program was implemented at the initiation of the project. A project steering committee was set up and this committee was involved throughout the planning and design process. This is the ideal situation.

Non-technical terminology and understandable language used in EIR and documents. Evaluation of this aspect is subjective, within the context of the evaluator's field of reference. The EIR is written in simple enough language, however its structure and composition makes it difficult to assimilate. The topic contributes to the limited need for technical language. The EIA could be described as close to the ideal, as it does allow for non-technical people to understand it.

Limit costs to reasonable levels. Although it is extremely difficult to determine and compare the cost of alternatives, methods have been developed (Barde and Pearce, 1991) to attach a monetary value to the environment. As analysis of the costs and the cost of alternatives would in itself be the subject of research, no such analysis was undertaken. Instead, the engineers involved in the project were asked to offer an opinion on the cost. In this case the project engineer (Dr Aldu Le Grange, *pers comm*) was of the opinion that an EIA in itself increases the cost of any project, but that it could also save costs, as the "moral and ethical" attempts to minimise the impacts of projects could lead to unnecessary costs. EIA's could lead to implementation cost reductions if done with a cost sensitive approach. In this instance the engineer was of the opinion that the EIA did not lead to an increase in the cost of implementation and it therefore fits the ideal.

Include implementation program in EIR and ROD. No implementation program exists in the EIR (or the ROD). The ROD simply limited the duration of the authorisation, thus ensuring implementation within a reasonable period (two years).

Include social assessment in EIA. Only three "socio-economic" factors were included in the EIA, namely:

- Visual / aesthetic impacts;
- Traffic flow; and
- Potential impacts on the socio-economic life of surrounding communities.

None of these truly assess the impacts on the community, therefore the EIA does not fit the ideal model.

Include recommendations and proposals to ensure sustainable development. Sustainability in this instance is assumed to refer to:

- the economic sustainability of the water supply over the long term;
- expansion of the system to cater for natural growth in the population and resultant demand:
- the development of management and maintenance skills in the community;
- the education of the individual households, with a view to improve their living conditions over the long term through the efficient use of the water supply; and
- the rapid rehabilitation of the disturbed environment so as to prevent long-term impacts and degradation.

The EIR includes recommendations relating to the sustainability of the project. It addresses the economic, use and maintenance aspects of the supply scheme in the EMP in addition to the rehabilitation of the construction site. The recommendations are implemented through the establishment of a project steering committee, whose members are formally trained and assisted in the education of the community by a social consultant. The EIA therefore satisfies the criterion for the ideal.

Include recommendations to ensure direct community benefits. This criterion is closely related to the aspects discussed under the previous one. The aspects covered by the last two criteria are not necessarily related. In this case there are recommendations that would lead to direct benefits for the community. There would probably have been more opportunities to benefit the community had a full SIA been included in the EIA, but this would probably also have increased costs. Under the circumstances it is concluded that sufficient recommendations relating to direct benefits for the community exist, over and

above the development, which in itself has direct community benefits. The EIA therefore fits the ideal model.

Case Study 2

The Relocation Of The Informal Settlement At Stanford From Stanford Water Source To A Portion Of Portion 2 Of The Caledon Farm Riverside 644, The County Fair Elite Poultry Breeding Farm. The focus of the EIA is an informal settlement consisting of approximately 150 households located 5km south of Stanford, at the town's only potable water source. The purpose of the relocation is to remove the residents of the informal settlement from the highly permeable part of the Stanford aquifer where they live under unacceptable conditions, to a place adjacent to similar development in town, where they could be integrated into the town. On the one hand the settlement impacts on the water supply to Stanford and on the other the residents cannot be integrated into the Stanford community nor can services be feasibly provided in order to improve their living conditions at their current location.

Western Cape Environmental Consultants (Pty) Ltd or Enviro Dinamik as they are known were appointed by the Overstrand Municipality to undertake the required IEM processes in order to establish the impact of the relocation if development occurred on the most suitable locality for the relocation of the informal settlement, in terms of a planning report, as the primary task. Secondly, Enviro Dinamik had to advise on alternative sites that could be used. The intention with the relocation was to resettle the residents in a planned layout where rudimentary services would be provided, e.g. one toilet for four households and one standpipe/potable water supply for eight households. The proposed settlement has to form part of the existing Stanford subsidised housing scheme, i.e. where the residents could be integrated into the community and benefit in the existing facilities available to the community. A limited number of alternatives were provided to Enviro Dinamik for consideration, i.e. the IEM process was intended to analyse the impacts of relocation to specific sites in view of a town planning analysis that indicated the property as being the most suitable site and to recommend alternatives.

The EIA followed the prescribed IEM process, starting with the preparation of a background information document (BID), plan of scoping, submission of checklist information to the PAWC: DECAS and field surveys, all of which are detailed in the comprehensive report.

A public meeting was held at the start of the process and the meeting led to the identification of additional issues to be investigated, over and above those included in the BID. The negative impacts identified were:

- the existing informal residential living environment;
- construction activities for urban development;
- sustainable service delivery;
- impact on the groundwater/aquifer;
- the keeping of domestic animals and birds with specific reference to chickens;
- the transmission of diseases to the Elite Breeding Farm;
- the establishment of a socially cohesive community;
- job creation; and
- local economic activities.

The identified opportunities included:

- improvement of the living conditions of the residents of the informal settlement;
- integration of communities;
- preservation of the Stanford water source; and
- job creation activities for the relocated residents.

The impacts were identified within the local context, i.e. not considering any alternative for the relocation to another town within the municipality, as considered in the planning report.

The land identified as potentially the most suitable for accommodation of the informal settlement is private property, abutting the existing subsidised housing scheme in the town. It acts as a buffer area between the housing development and the County Fair Elite Poultry Breeding Farm, where the grandparent stock for the entire southwestern and eastern regions of South Africa are bred. The chickens on the farm are highly susceptible to infection. Any form of salmonella infection would for example cause a chain reaction, as the salmonella found in the grandparents could be passed on through the parent stock to broiler chickens or the parent stock for laying hens and on to eggs.

From the informal settlement point of view the major concern is the segregation that occurs, in that the community has no access to opportunities such as schooling for the children, clinics, postal services, shopping or other community facilities. The residents have to walk a distance of roughly 5 km daily to and from work or town.

The concerns of the local authority are for the contamination of the water supply as the informal settlement is located directly above the discharge area of the aquifer, from where the water for the town's use is drawn. The municipality can also not provide an acceptable level of service (potable water, refuse removal, sewerage and clinic services) to the settlement.

The residents of the town opposed the relocation due to the potential impact of a large informal settlement in the town. Security matters were most mentioned as a negative impact. Differences in social values, overcrowding of the community facilities and impact on property values were also mentioned as impacts.

According to the report, few alternatives are available for the relocation of the informal settlement. Whatever relocation takes place to Stanford would impact on the agricultural resources of the area, as the town has insufficient vacant land to accommodate the informal settlement, unless vacant erven in the higher income parts of the town are expropriated where the variance in socio-economic level would be unacceptably high.

The Scoping Report included an EIR in that the identified impacts were already fully investigated and commented on upon submission of the Scoping Report to the relevant authorities. All the identified impacts were analysed by suitably qualified specialists. The report provides a detailed description of the affected environments and the development proposals.

The impacts are assessed in similar manner as in the Koringberg case, namely by the preparation of a table or matrix listing all the impacts and the criteria according to which they are assessed, making it possible to compare all the impacts with a single glance.

The following issues were assessed, with the expert or person indicated in brackets:

- health issues in the existing informal settlement (feedback from local authority);
- community facilities available within the existing development (town planners);

- sustainable service delivery in the existing informal settlement (engineers);
- sustainable service delivery in the town (engineers);
- access and traffic issues (engineers);
- impact on the groundwater/aquifer (existing studies and reports - geo-hydrologists);
- impact on vegetation and animals (existing studies and reports – botanists and zoologists)
- presence of domestic animals and poultry in proximity of the Elite Breeding Farm (veterinary surgeon);
- the transmission of diseases to the Elite Breeding Farm (veterinary surgeon);
- socially cohesiveness in the affected communities (environmental consultant - psychology major);
- job creation (no expert – opinions not tested); and
- local economic activities (community volunteer worker / WESGRO Reports).

No assessment or technical team was established for the EIA. Instead, each issue or expected impact was given to a consultant or expert to investigate and assess if there was a likely impact to result from the issue. In the assessment of the impacts, the conclusion was reached that the informal settlement had to be relocated to Stanford where it could be integrated into the existing infrastructure network and where the residents could be integrated into the community. The EIA found that the benefits that the residents of the informal settlement would derive from the relocation outweigh the potential biophysical impacts. The residents in the informal settlement are to a large extent related to and part of the community in the subsidised housing, i.e. relocation would increase social cohesion rather than splitting it. The EIA also found that the negative social impacts raised by the local residents do not provide sufficient grounds for ignoring the benefits. Moreover, the impact assessment found that the provision of formal services to the existing informal settlement would not be feasible and therefore not sustainable and in conflict with all relevant norms and principles, i.e. there are benefits for the entire community through sustainable development. However, it was also found that the impact on the Elite Breeding Farm could result in the closure of the breeding farm due to the probable threat of infections and the cost of combating such infections. This would lead to a major loss in employment opportunities and a large cost in relocation for the Elite Breeding operation. At best the chicken farm would then be used for rearing of broiler chickens although this would require further investment in order to change the operation. This has a potential impact on the supply of jobs.

The conclusion of the report is that the informal settlement would have to be relocated to within the existing Stanford subsidised housing area and that an alternative site should be investigated, i.e. the original proposal for relocation to the Elite Breeding Farm is unacceptable and should only be considered if no alternative is found and then only subject to onerous mitigatory conditions.

Assessment of the EIR on the Relocation Of The Informal Settlement At Stanford.

Summary. The Stanford report does not include a SIA, but does make reference to an existing socio-economic analysis done within the community and analyses certain aspects of the community structure. The focus of the report nonetheless is the relief of socio-economic pressures on the informal settlement and the local authority.

According to the report there are widely divergent and opposing views on the relocation issue. Most of the objections that were raised were responded to by Enviro Dinamik and the specialist consultants, i.e. there was a good attempt at dealing with the public concerns. For example an expert veterinarian confirmed the claim that the chickens in the Elite Breeding operation could be infected, should an informal settlement be located on a portion of the farm. Claims regarding the aquifer were commented on by geo-hydrologists proving that the existing informal settlement had a significantly more serious impact on the groundwater than the relocated settlement would have.

The dynamics of this study are different to what would normally be expected, as all options are disputed. The retention of the existing informal settlement, the relocation of the informal settlement to the preferred site and the relocation of the informal settlement in general to Stanford were all disputed. Therefore it is the function of the consultant in this case to make a recommendation as there is no compromise in terms of the public consultation process.

Criteria. *Multi-disciplinary assessment team to undertake EIA.* No assessment team was established, but experts from various fields (town planning, geo-hydrology, health, engineering, economics, veterinary science) commented and reported on issues raised. The community and other role-players, such as the client, were only indirectly involved through community workers. The ideal is not achieved, primarily due to the non-existence of a project team and the lack of community consultation.

I&AP involvement in EIA design and process. There are no indications of any such involvement, which leads to the conclusion that the ideal is not achieved. The EIA followed the typical route of "testing proposals" rather than "constructing proposals". The cause of this is obvious, namely that the consultants were only appointed after the completion of the planning process, as opposed to during the planning process.

Non-technical terminology and understandable language used in EIR and documents. Even if subjective, it is believed that the EIR is written in simple language, it has a simple structure and the specialist reports are suitably written to inform the lay public. The EIA fits the ideal, as it does allow for non-technical people to understand it.

Limit costs to reasonable levels. As in the above Koringberg case, it would be extremely difficult to "cost" the alternatives. The only analysed cost factor of the EIA is the delivery of services to the alternative sites for the relocation of the informal settlement. From this point of view, the recommended alternative is also the least cost alternative. The local authority representative (Mr Jaques Carstens, *pers comm*) is of the opinion that the process of relocation of the informal settlement is delayed by the EIA process, which inevitably increases costs. However, the EIA would probably lead to cost savings in that the recommendations point to various issues that were not considered in the original planning and could reduce the eventual development costs. The EIA therefore fits the ideal model.

Include implementation program in EIR and ROD. The EIR does not include an implementation program and therefore does no fit the ideal.

Include social assessment in EIA. No social assessment is included in the EIA, however it does include the assessment of various social matters and the one aspect that is of primary importance in social assessments, namely the community as a functional unit (Branch, 1984). It could thus been seen as moving towards but not yet fitting the ideal.

Include recommendations and proposals to ensure sustainable development. Sustainability is assumed to refer to development that would over the long term ensure community cohesion without additional costs incurred in the establishment of community facilities or support structures and the economic provision and delivery of services to the new "neighbourhood". Recommendations are also included to develop a market for the

residents of the subsidised housing, which would contribute to the long-term sustainability of the development. The EIA fits the ideal.

Include recommendations to ensure direct community benefits. The recommendation to relocate the informal settlement to within the existing town and the simultaneous development of a market for the use of the community ensures direct benefits. The existing residents may be of a different opinion, but the related cost savings and long-term preservation of the water source benefits the entire community. The EIA satisfies the criterion and fits the model of an ideal EIA from this perspective.

3.2 Assessment of completed EIA's in terms of the regulations and legislation

Case Study 1

Assessment of the Koringberg-Platvlei-Middelburg Water Supply Scoping Process.

The EIA process for the project was done according to the regulations. The applicant appointed a consultant and the consultant had to determine the extent of the EIA, the methods, time program and the public consultation program. As expected, due to the lack of guidance in the regulations relating to the assessment of the socio-economic aspects of the environment and the inclusion of a social assessment, these aspects were not formally assessed. All the potential impacts identified by the consultants were assessed, therefore the regulations were complied with from this perspective.

The consultants submitted a scoping program and a PSS to the delegated authority (PAWC: DECAS), who approved of the PSS and granted permission for the study to proceed, even though the PSS did not indicate the inclusion of a SIA in the process. A public participation process was included in the EIA process. The EIA program was implemented and concluded, resulting in an application that was favourably considered by the delegated authority and the Record of Decision (ROD) was implemented, i.e. the regulations were seemingly complied with.

Alternatives were discussed, but not fully assessed in the EIA process. However, the implied conditions contained in the regulations were adhered to, as the project had insignificant impacts and therefore there was no need to investigate significant alternatives, as the effect of the alternatives was obvious impacts on the community.

Case Study 2

Assessment of the EIR on the Relocation Of The Informal Settlement At Stanford.

In this case the EIA process was also in accordance with the regulations. The applicant appointed a consultant as prescribed and the consultant determined all the expected impacts, methods, time program and the public consultation program, which were included in a plan of scoping submitted to the authority prior to proceeding with the public consultation and assessments. As above, the socio-economic aspects of the environment were not fully assessed and a social assessment was not mentioned in the PSS, yet it was approved by the PAWC: DECAS. All the impacts identified by the consultants and the public were assessed, therefore the regulations were complied with from this perspective.

Alternative relocation sites were assessed in the process and the impacts, advantages and disadvantages of each reported on. This EIA thus complied with the regulations relating to this aspect.

There is as yet no ROD for this case and therefore no implementation has occurred, but the EIA process and the EIR comply in all respects with the regulations.

CHAPTER 4. DISCUSSION

4.1 Trends in the preparation of EIA's

Whereas the focus of EIA's was the natural or biophysical environment during the 1970's, the human or social environment has become more important in the design and evaluation of projects (Papadakis, 1993), as development is aimed at the satisfaction of human needs (Phillips, *et al*, 2000). The nature of development projects covered by the EIA regulations is such that the degree of information required to comply with minimum requirements will vary widely due to the public becoming more involved and aware of environmental impacts and the consequences of development and a simple checklist approach to reviewing EIA processes and statements will not be sufficient to test the legality of a process (Weston, 2000).

So-called "community-based planning" is occurring more often. This leads to process-oriented EIA's, where consensus and the finding of common interests and ground between stakeholders become more important than the EIR (Maier, 2000). The process itself is valued by the PAWC: DECAS, hence the insistence on the submission and consideration of PSS's prior to any EIA being undertaken, as is obvious from the two cases analysed above. This is an advance in the direction of achieving the ideal EIA that would lead to benefits for the affected communities and would satisfy the need for social upliftment and advantageous and more likely sustainable development.

If "community-based EIA's" were undertaken and prescribed in regulations, the public would have the opportunity and structure to voice its opinions, knowing a legal framework existed through which opinions, needs and proposals would be considered (Jenkin,1999), with obvious benefits to the community, albeit not to the satisfaction of developers, who prefer to limit the cost and time assigned to any regulated process (Glasson, 1999). In addition to the notion of "community-based EIA's", social impact assessment is predicted on the notion that decision-makers and the delegated authorities should understand the consequences of their decisions before they act and that the people affected will not only be appraised of the effects, but have the opportunity to participate in designing their future (National Environmental Protection Agency, 1994). The social environment differs from the natural environment, in that communities, which are the core of the social environment, react in anticipation of change as much as in

reaction thereto, while also being able to adapt to changes. Different communities in different social settings interpret change in different ways and react in different ways (Finsterbusch *et al*, 1983; Branch *et al*, 1984), therefore it is important to move towards the regulated inclusion of SIA's in EIA processes or at the very least the undertaking of "community-based EIA's".

4.2 Are the analysed EIA's satisfactory?

From the above it is clear that the two EIA's that were analysed satisfy the regulations and some of the criteria established as "ideals".

Table 1. Analysis of completed Environmental Impact Assessments in terms of the determined criteria for ideal Environmental Impact Assessments

Criterion (does the EIA meet the following criteria ?)	**Koringberg Water Supply**	**Stanford Relocation**
Multi-disciplinary assessment team to undertake EIA	No	No
I&AP involvement in EIA design and process	Yes	No
Non-technical terminology and understandable language used in EIR and documents	Partly	Yes
Limit costs to reasonable levels	Yes	Yes
Include implementation program in EIR and ROD	No	No
Include social assessment in EIA	No	Partly
Include recommendations and proposals to ensure sustainable development	Yes	Yes
Include recommendations to ensure direct community benefits	Yes	Yes

The Koringberg EIA refers to, but does not analyse the socio-economic benefits of the proposed scheme. The Stanford relocation EIA likewise did not analyse the socio-economic benefits, but reported on the impacts and the benefits. In both cases there was no envisaged biophysical impact and therefore it is assumed that there was no need to assess the social impacts or benefits from a "cost - benefit" point of view. It is obviously more difficult to assess the social impacts and benefits, as these are perception driven or subject to thorough socio-economic surveys that are seldom budgeted for.

In the case of the relocation of the informal settlement at Stanford, the social benefits are weighed up against the biophysical impacts, albeit on a "perception scale" without the backing of a socio-economic survey. The economic and therefore socio-economic impacts and benefits are much greater than the biophysical impacts that are in any event applicable, whether relocation takes place or not. As the Elite Breeding Farm cannot withstand the pressure placed on it through the urbanisation of its immediate surroundings, the socio-economic aspects are predominant. The cost of production of the Elite breeding stock is too high to continue with the breeding operations in an urbanised environment and therefore it threatens closure. Closure would automatically lead to a loss of jobs and thus have a major socio-economic impact on the Stanford community. On the other hand, the perceived social impact of the relocation by the residents of Stanford is outweighed by the benefits of integrating the informal settlement with the existing urban infrastructure and social system. Therefore an alternative is proposed where the community as a whole carries short-term cost in order to ensure the long-term benefit of job creation at the Elite Breeding Farm while simultaneously incorporating the informal settlement into the social system with obvious benefits to the beneficiaries. Albeit lacking in cost-benefit analysis of the socio-economic impacts, the Stanford EIA does satisfy the need for a balanced approach in its preparation and process. It clearly includes and responds to the needs of the historically disadvantaged communities.

Thus it appears that the Koringberg-Platvlei-Middelberg Water Supply Scoping Study likewise produced the desired outcomes even though it does not fully satisfy all the criteria set for the ideal EIA. In assessing the socio-economic environment, the needs analysis should have determined exactly what the population growth of the area would be and therefore the demand on the potable water supply. In addition, the cost-benefit of the water supply scheme could have been weighed up against the cost of construction of the supply scheme and the potential loss of tree lanes, aesthetic appeal of the environment due to soil erosion and changes in the habitat of certain bird species.

However, regardless of whether the analysis was complete or not, the outcome of the project was:

- a transfer of skills to a large portion of the local community; and
- a cost saving in the supply of potable water to a large percentage of the local community.

The report on the Koringberg-Platvlei-Middelberg Water Supply Scheme does not provide evidence of detailed analyses, but the concepts therein suggests an in-depth understanding of the expected outcomes and the EIA generally resulted in benefits to the community.

4.3 Do regulations and legislation in South Africa guide assessments?

As stated previously, the regulations (R1182, 1183, 1184, September 1997) determine for what activities the IEM processes should be followed and provide general guidelines regarding the required processes.

In terms of the regulations, specific responsibilities are assigned to applicants, referring to the project initiators as opposed to consultants and the relevant authorities. The regulations then continue to determine guidelines for the drafting of applications for authorisation to undertake the specified activities as set out in Schedules 1 and 2. Regulations relating to the responsibilities for and scope of the Plan of Study for Scoping, the requirements of Scoping Report, the Plan of Study for an Environmental Impact Assessment and guidelines regarding the submission of an Environmental Impact Report are then presented. The regulations only state the broad guidelines, with the focus on the responsibility of the applicant to identify and record all potential impacts and to propose an approach and a method. Predominantly, these regulations are focussed on the processes, not the methods, with a repeated placing of the responsibility on the applicant to determine all the potential impacts, analyses and descriptions. The regulations therefore do not guide the practitioner in the practical preparation of EIA's.

The Environment Conservation Act, 1989 (ECA) does not give guidance in the preparation of an EIA or drafting of an EIR or the approach to determining of any potential impacts (scoping report).

The National Environmental Management Act, 1998 (NEMA) on the other hand quite clearly sets out in its preamble what is expected in terms of the Act, i.e. it places responsibility on all residents of the country to comply with the Act and therefore per definition all consultants submitting applications for authorisation of activities or changes in land use in areas as determined in the regulations.

- Chapter 5 of the Act (Sections 23 and further) sets out the required IEM process. Section 23(2)(b) determines quite clearly that the general objective of IEM is to identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits and promoting compliance with the principles of environmental management set out in Section 2;
- Section 2 of the Act refers amongst other to the principles of environmental management in relation to people. It states that the needs of the people should be at the forefront of the concern and serve their physical, psychological, developmental, cultural and social interests equitably. It also refers to the fact that all development must be socially, environmentally and economically sustainable.
- Thus, without specifying the process, NEMA quite clearly sets the guidelines for consideration in all impact assessments.

In keeping with ECA, the Department of Environmental Affairs (now DEAT) published guideline documents on IEM (Department of Environment Affairs, 1992). The guidelines broadly relate to the following:

- The Integrated Environmental Management procedure;
- Guidelines for Scoping;
- Guidelines for Report Requirements;
- Guidelines for Review;
- Checklist of Environmental Characteristics; and
- Glossary of Terms used in Integrated Environmental Management.

The authorities refer to these documents as "regulatory sources", i.e. as supporting the regulations and therefore binding. As a result the documents are included in this assessment. An analysis of the first guideline document clearly indicates that extensive analysis is required in the process. It states that "the scope of the impact assessment investigation will vary from a relatively brief assessment by a competent party to a very detailed assessment by a team of professionals, depending on the circumstances". The intention in terms of the IEM procedure is for development proposals to be undertaken in terms of the IEM procedures. However, in reality development proposals at a local scale are developed with little or no consideration of the potential environmental impact and

even less for the social impact. The IEM procedures are simply followed by the majority of applicants due to the legal requirements and then to facilitate the best possible implementation viewed from the applicant's perspective. As a result, it is often expected of the environmental practitioner to defend controversial project proposals or to motivate in favour of project proposals that are in conflict with the principles set out in the relevant legislation.

Guideline document 3 (DEAT, 1992c), which provides the guidelines for report requirements, quite clearly states that both the "major positive and negative impacts and mitigation / optimisation measures" should be addressed. The guideline document also clearly indicates that the affected environment, with specific reference to the socio-economic environment (e.g. demographics, standard of living, employment levels, housing, education, services, social infrastructure, local government and administration, water and power supply) should amongst others be fully described.

Thus, although the legislation and the regulations do not provide any clear guidance for the drafting of environmental impact assessments, the guideline documents do and they are referred to in the application forms as part of the regulations and legal requirements that have to be complied with (PAWC, 2001).

4.4 Strengths and weaknesses of EIA's and regulations relating to social aspects

Due to the fact that there is no legal obligation in South African regulations on any applicant to undertake specific assessments or focus on issues as in the case of EU Directive applications (Glasson *et al*, 1994), it is the applicant that determines the focus of the application. It could thus be assumed that the experience and background of the applicant and the official, dealing with the application at the delegated authority, would determine what issues should be analysed. Unless a full scoping process is followed and an aware public makes input to direct the focus of the EIA or regulations prescribe issues to be dealt with, the focus of the EIA would depend on the applicant and the delegated official. In the South African situation, there are divergent communities that are interested or affected parties in most EIA processes. Some would focus on the social aspects, such as job creation, security, hygiene, health and access to opportunities, whereas others would focus on the biophysical aspects, depending on their socio-economic status and environment (Porter *et al*, 1998). Under these circumstances the

strengths and weaknesses of EIA's are impossible to describe in specific terms, due to the wide variety of applications required and the perspective of the commentator.

Generally, EIA's offer opportunities for addressing social problems and contributing to the relief of poverty in historically disadvantaged communities through the introduction of the principle of "community based planning" and the next stage of the process, namely the implementation of a management plan that focuses on socio-economic benefits. This is, however, only possible if the EIA relates to a proposal that would potentially impact on such disadvantaged communities. An application for a filling station or the construction of a signals distribution mast in the middle of a CBD or industrial area could obviously not hold any benefit for disadvantaged communities other than employment opportunities that would in any event have occurred with the development. On the other hand, applications for the provision of services, setting aside land for development in favour of disadvantaged communities and projects such as major industrial development where job creation is a short and long term reality, could be undertaken in such a way as to reduce poverty in the disadvantaged communities while sacrificing some biophysical attributes or with some social impact on the advantaged communities. Less focus should in such cases be given to the so-called "Green Agendas" (biophysical aspects) and more focus should be placed on the "Brown Agendas" (socio-economic aspects) (Weaver, 1999).

Where possible, EMP's should make provision for opportunities for historically disadvantaged communities to be involved in mitigating the impacts of development. Normally all applicants prepare a budget for rehabilitation or mitigation, which might as well be used for labour-intensive, community-based projects as opposed to projects allocated to well-established businesses and contractors. This would, however, depend on the circumstances of each case, as it is obvious that the rehabilitation of an opencast mine would not fall within the scope of work that a historically disadvantaged community could undertake.

The way in which to ensure that this strength, namely the opportunity to benefit disadvantaged communities, could be utilised is to bring about the amendment of regulations, so as to guide applicants to include a SIA in each application or EIA and to establish a project management team from representatives of all interested and affected communities as a first step in the scoping process. Zube (1984) calls this team a "citizen-participant body". If such regulation exists, it would be the applicant's responsibility to eventually prove that no benefits exist in the project and that historically disadvantaged

communities were included in and consulted in the process. Consultation refers to the involvement of the entire community by means of public meetings within their areas of residence, as opposed to expecting the communities to attend meetings in distant halls and localities or through selected representative attendance. It is however not likely that this strength will always be fully realised or honestly pursued, as full disclosure of all aspects of a project would be detrimental to the developer / applicant and some confidentiality must be retained (Zube, 1984; Glasson, 1999) and not all communities have the ability to participate (Venema and van den Breemer, 1999:310).

Such a regulation would have a cost impact on the preparation of EIA's and it is unlikely that it would be supported by the majority of role-players in the development field (Biswas *et al*, 1987), however, it is quite clear from the above that there is a need for such stringent measures. By involving historically disadvantaged communities in EIA processes there would on the one hand be a skills transfer and on the other an allocation of responsibility to the communities to conserve the environment. The long-term cost benefit of this should outweigh the financial cost of widening the scope of all EIA's.

One of the weaknesses in the EIA's is the consideration thereof by individual or a limited number of authorised officials. It is virtually impossible for a handful of provincial officials to fully consider all the EIA's presented for development in an area as large as the Western Cape. It is a recorded problem in most of the provinces that the severe shortage of qualified officials prevents the national legislation and IEM procedures from being implemented. If however the regulations make provision for the inclusion of socio-economic analyses in EIA's, then inappropriate EIA's are less likely to occur and could be affordably contested by communities that have been neglected in the process and (Jain *et al*, 1993; Zube,1984).

Another weakness in the EIA regulations and system is the lack of benefit to the applicants that fully comply with the regulations and incur costs and actively promote concepts to benefit disadvantaged communities (Jain *et al*, 1993). Whether an EIA process is beneficial to disadvantaged communities or whether it includes a SIA or not, makes no difference in its consideration by the delegated authority. There is therefore no incentive to improve EIA processes if this will increase the cost of the process for the applicant.

The last notable weakness related to the local situation, but also one of international significance, is the limited capacity for and effective monitoring of the implementation of EIA's (Glasson, 1999; Wood, 1995). Unless the recommendations in the EIA's and the EMP's are actually implemented, the processes are there for the sake of "process" and the EIR remains the main focus of the process, rather than the implementation thereof (Smith, 1993), which is the stage where a real difference could be made to the impact on the community and where the benefits of job creation etc. are derived.

CHAPTER 5. RECOMMENDATIONS

5.1 Guidelines for EIA process

As a result of the shortcomings in the EIA process, it is necessary to consider an alternative approach to the process and to make recommendations in this regard. The general strengths and weaknesses of EIA processes are thoroughly documented in the sources used above (Chapters 1, 2 and 4) and shown in the bibliography hereafter. Moreover, the methods involved in the preparation of EIA's, the best processes for inclusion of the interested and affected communities and the subject matter of EIA's are as detailed as could be hoped for in the sources (Bregman *et al*, 1992; Biswas *et al*, 1987; Venema and van den Breemer, 1999; Porter *et al*, 1998). One of the sources, namely Venema and van den Breemer (1999), makes practical and realistic recommendations and gives workable guidelines. In the majority of sources the practitioner is presented with theories and academic ideals, which have to be applied in the real world, where time and cost are the determining factors for the majority of developers and there are corrupt political regimes that consider development proposals (Papadakis, 1993). A typical problem that exists is that the practitioner could be briefed to defend the indefensible in that development proposals with glaring impact potential have to be justified. The few cases where the environmental practitioner has a significant degree of freedom in recommending alternatives for development are few and far between and normally only applicable to major regional and national projects. In addition thereto, there are few developers / applicants that fully understand the IEM processes, therefore they sometimes rely on environmental practitioners to achieve "the impossible". In order to circumvent these problems, the guidelines for the preparation of an EIA are recommended.

5.2 Guidelines for preparation of an EIA

Three sources referred to above and referenced below (International Association For Impact Assessment, 1998; De Villiers Brownlie, 2000; National Environmental Protection Agency, 1994) offer practical guidelines for the review of EIA's and preparation of a SIA and guide the practitioner in what aspects of the EIA will be critically assessed during its

consideration by the delegated authority. Further, they serve to focus the EIA on community issues. In addition thereto, some practical guidelines are proposed, to assist the inexperienced practitioner.

The guidelines are:

Prepare A Study Brief With The Client

It is of the utmost importance to from the outset prepare a study brief with the client on the one hand to protect the practitioner and on the other to ensure that the client fully understands the process and the outcomes of the IEM. It is also a requirement in the Western Cape that the environmental practitioner be granted power of attorney by the applicant (client), who is either the owner of the land or the developer, to prepare and lodge applications to the Provincial Administration of the Western Cape: Department of Environmental and Cultural Affairs and Sport (PAWC: DECAS). This issue is clearly dealt with in the relevant checklist / application form to be submitted to the PAWC: DECAS for each application (PAWC: DECAS, 2001).

Preparation of a study brief also gives the practitioner the opportunity to consider whether or not to accept the terms of the appointment or perhaps to point out to the applicant that the project proposal would require reconsideration in view of the potential impacts.

Determine A Work Or Study Program

In terms of the guidelines for the preparation of an application to the PAWC: DECAS it is essential to determine a work or study program. It is also one of the principles of the IEM process, as the approach to the study to a large degree determines its success in addressing all the relevant or potential impacts.

The program is at this stage not yet for official purposes, but rather a tool to gain a better understanding of the project and provide the client (applicant) with a realistic time / activity schedule. The study program need not be fixed, in the sense that it is a pre-scoping attempt at understanding the problems and setting a process for the analysis thereof and the recommendation of solutions. In order to determine a thorough work or

study program, the environmental practitioner has to fully understand the development proposal.

The environmental practitioner should therefore enter into a problem analysis phase when setting up the work or study program and should not hesitate to contact the obvious role-players in any proposal, such as large construction companies, engineering consultants, town planning consultants, architects, landscape architects or even the developers involved, in order to establish what activities could all be included in the process. In order to achieve the ideal EIA set out above, it would be beneficial to also establish contact with interested and affected communities. Once the work or study program has been completed, it would provide the practitioner with an indication of the scope of the work and the requirement for specialist input.

Prepare A Budget For The Client

The client should be presented with a budget for the IEM process only, which should include the following:

- professional fees for the environmental management consultant;
- professional fees for specialists;
- fees (direct costs) relating to geo-technical and soil analyses, water analyses, plant identification, topographical surveys, aerial photography, socio-economic surveys, etc.;
- advertising costs;
- direct costs relating to the distribution of public notices and reports;
- costs relating to the renting of halls for public meetings or other consultation / facilitation costs; and
- specialist input for alternative proposals.

The client should be advised of what aspects have not been allowed for in the budget, e.g. preparation of an EMP or appointment of an Environmental Site Officer (ESO), multiple copies of full colour documents, etc.

Establish Contact With The Relevant Authorities

Upon completion of the first three steps and the signing of an agreement with the client, the environmental practitioner should formally establish contact with the relevant authorities in whose area of jurisdiction the proposal is being made and who would have to consider the relevant application. At this stage the only authority to consider applications in the Western Cape is the PAWC: DECAS. However, the larger local authorities in the Western Cape have environmental or planning officials that deal with projects of environmental significance. The local officials should indicate what concerns they have that require investigation and what their consideration processes are. For instance, submission to the town council or a standing committee, or the submission of reports for information purposes only, time requirements for items to be placed on agendas and information regarding community structures. Many local authorities do not consider development applications during the December vacation period, therefore, it is important to establish contact, in order to understand the local dynamics so as to best serve the client.

The contact with the DECAS officials is done specifically in order to prepare a scoping program as required in terms of the regulations. This initial contact is informal and need often not take more than a simple phone call or a brief meeting with the officials. However, there is a requirement for the practitioner to formally consult with the officials in the preparation of a Plan of Study for Scoping (PSS).

The practitioner must use this opportunity to gain as much information from the authorities regarding I&AP's as possible. The officials could supply the practitioner with a list of all the major government role-players and their contact details.

Prepare A Scoping Program

The scoping program can take any form. It serves as an indication to the DECAS officials as to how the scoping is to be approached. The scoping program must cover the following three aspects:

- Description of activity;
- Description of tasks to be performed (e.g. public participation process, identification of issues and alternatives);
- Timetable of tasks.

Not only does this assist the officials in dealing with the case but it also prepares them for the inevitable queries and interaction that accompany all significant applications. The scoping program must be prepared in keeping with the regulations and be as broad and inclusive as possible. If the PSS is well researched, this aspect would be a mere formality, e.g. the I&AP's must be identified as an initial input and included, to indicate to the officials what the extent of community consultation would be. The PSS must also indicate how other I&AP's will be identified and consulted.

Guidelines For Field Research

Upon approval of the scoping program the field research can proceed. The term field research refers to all research, whether of a desktop nature or actual site surveys that must be undertaken in order to determine the extent of the proposal and the issues involved. For more detail in this regard it is best to consult the referenced sources below (Branch *et al*, 1984; Finsterbusch *et al*, 1983; Glasson *et al*, 1994; Weston (ed), 2000; Bregman *et al*, 1992; Biswas *et al*, 1987).

It is advisable to start the field research by analysing the existing planning frameworks applicable to the development proposal. In the Western Cape there should be integrated development plans, structure plans or development frameworks that indicate what development is envisaged over a ten year period for virtually all land in the province. At this stage the majority of the plans were undertaken without any significant environmental input, therefore they represent the economic, spatial and engineering viewpoints and only in some instances social / welfare viewpoints. Nonetheless, these plans indicate how the proposed activity would fit with the development trends and plans for the area. Following on this, it is essential to note the parallel processes in the Western Cape. On the one hand there is the land use planning process through which property development rights are granted to all landowners and on the other the IEM processes that seek to minimise the environmental (biophysical and socio-economic) impact of specific developments or development in general in specific areas. The environmental practitioner should therefore be fully aware of the land use processes and requirements so as not to make recommendations that are in conflict with the land use planning relating to the proposal.

The next phase would be the actual field research, which depends on the nature of the application. This includes a socio-economic survey, analysis of the community dynamics,

site scanning by means of a walkover of the site and the use of clear aerial photographs or maps of the site indicating the features, such as high points, streamlines, infrastructure, etc. so as to facilitate notation and detailed mapping. It is advisable to use a GPS or at least to prepare a thorough photographic record when doing field research. It is also important to make field notes, as the volume and nature of information gained in a walkover of a site is too complex to remember. In doing the field research it is important to remember all aspects of the problem, therefore, field research should not be limited to the site only, but also include all the potentially affected areas surrounding the site.

It is always a good idea to establish contact with local residents, especially those who have been resident in the area for a number of years. These residents can often supply information that a single site visit cannot. For example, the investigation of a site from a botanical perspective during late summer or mid-winter would hardly provide any leads as to where rare and endangered species of flora occur. The local residents would be likely to know where such flora occurs and could provide sufficient indication to enable a sensitivity mapping process without having to delay the development until the following spring or summer when a thorough botanical research project can be undertaken. Likewise, information regarding stream runoff, groundwater, the occurrence of fauna and socio-economic information could be gathered from local residents. Such conversations should be noted and contact should again be established with these residents during the consultation phase.

The site scanning should include research into activity patterns of the local communities, i.e. how they use the infrastructure in the area and what possible effect the proposal would have. The cultural background to the community is important, as certain activities might be acceptable to one part of the community but impact on another. Traffic access, noise levels, smells, wind direction, soil characteristics, water runoff, visual qualities, influx of residents from other areas, impact on existing similar developments, opportunities for economic empowerment, views, security and health are the normal issues raised by the public and therefore the issues to be kept in mind when doing the site scanning. The availability of an impact matrix when doing a site scan is helpful, as it helps to focus the scan on the possible impacts, rather than the proposed development. The matrix should always include reference to the benefits of the proposal as well, so that the positive aspects could also be noted when in the field.

Establish Interested And Affected Parties

Once the field research has been done and the practitioner has an understanding of the extent of the development proposal and the potential impacts, it is essential to establish a list of I&AP's. This can be done by contacting the relevant local authority and by determining the names and addresses of all the adjacent property owners and residents on the one hand and the contact details of organisations that might have an interest in the matter on the other. Examples are Bird Clubs, Ratepayers Associations, sports clubs, cultural societies and other research organisations.

All the I&AP's should be listed in table format. This table would facilitate later use as an attendance record at meetings and for circulation in order to add additional contacts.

Prepare And Circulate Public Notices

Once a list of I&AP's has been established, a brief document setting out the development proposal, the expected impacts and the scoping program should be prepared for circulation to all the interested and affected parties. A public notice to this effect should be circulated by means of a notice being sent to each of the established I&AP's and all the relevant government departments in addition to the placing of a visible notice in the local newspapers. Good examples of such notices are available in the DEAT IEM Guideline Document (1998). Depending on the extent of the project, radio broadcasts relating to the project, news items and even reports in the local newspapers could be used to sensitise the I&AP's.

Public Consultation

Once the I&AP's have been notified of the IEM process, it is essential to enter into a formal public consultation process. This consultation process depends on the extent of the development proposal. The IEM guidelines prepared by the DEAT provide various approaches to public consultation, ranging from telephone interviews to public meetings and individual meetings with I&AP's. The impact assessments that were analysed above indicated that public meetings were not necessarily the best solution. Zube (1984) offers practical guidelines in this regard.

Should it be necessary for full public meetings it is advisable to first have individual meetings with community leaders and some of the affected parties, so as to fully understand what could be expected at a public meeting and to approach a public meeting well-prepared for all the comments, objections (abuse and threats) and suggestions. The approach to such public consultation should always be objective and all criticism should be taken positively, as the public do not necessarily understand the process on the one hand and the consultant's viewpoint on the other. Therefore, it is best to accept all comments, abuse, criticism and suggestions and not to respond thereto unless the relevant issue has been fully researched and a clear and well-founded response is possible.

When entering any public consultation through a public meeting it is essential for at least two team members on any project to attend such meeting to enable one member to note all comments made and the other to interact with the public. The practitioners should not chair such public meetings. It is advisable for a facilitation specialist to chair such meetings, but not to respond in any way to the public other than to manage the meeting. The limitations of the interested and affected communities should also be considered, e.g. where disadvantaged communities are involved in meetings in the evenings, transport must be arranged for them, as they are reliant on public transport that does not normally run after normal working hours, or the meetings must be held in the community, to enable their attendance.

Following on the public consultation process, provision must be made for the submission of written input, in whatever format is convenient for the public. Normally a period of 21 days is given for such input to be submitted to a pre-arranged address. All such submissions should be kept, as it would form part of the submission to the authorities.

Determine What Specialist Studies Would Be Required

Depending on the input received, some specialist studies could be undertaken in order to address the potential impacts. The most likely specialist studies required are for:

- Groundwater assessment / geo-hydrological issues;
- Botanical assessments;
- Demographic and social data;

- Socio-economic surveys with special reference to community resources and social organisation;
- Wildlife management;
- Hydrology and surface water issues;
- Traffic and transport issues; and
- Engineering services.

It is not unusual to employ architects to undertake studies relating to overshadowing of buildings, the wind diversion effects of large buildings or for engineers who are suitably qualified to do noise testing studies. The environmental practitioner should approach the specialist studies with an open mind in order to respond constructively to reasonable objections and input by I&AP's. The cost of employing a specialist is often a lot less than the delay cost in a project. Therefore, it is better to employ a specialist and to respond to all impacts and queries raised by the public than to save on the cost of the specialist study only to have an interested or affected party object to the EIA or to the record of decision at the end of the process and to delay the process by a few months.

Resources Available For Data Collection

The environmental practitioner should build up a database of resources used for data collection purposes. The most obvious resources available to all environmental practitioners are:

- The National Botanical Institute;
- The South African Heritage Resources Agency;
- Statistics SA;
- The Demarcation Board;
- Local Authorities;
- Local residents;
- The CSIR;
- The Department of Water Affairs and Forestry;
- The Western Cape Nature Conservation Board (CAPE Project, SKEP and others);
- Internet resources;
- Periodicals and publications; and
- Other consultants involved in the project.

Guidelines Regarding The Layout Of Reports

The guidelines relating to the layout of reports contained in the IEM guideline documents prepared by DEAT (1992) are fairly complex. There are also simple yet effective guidelines for report preparation in Fuggle and Rabie (1999). Whatever the source for the layout of a report, it is of critical importance to structure a report in such a way that the brief, the approach to the EIA, the scoping phase, with specific reference to the public consultation process, the findings of field research, the analysis of all the potential impacts, the mitigatory proposals relating to all impacts and the conclusions and recommendations are clearly set out.

Where possible, the report should already include or at least highlight aspects to be included in an EMP. The EMP is essential for the implementation of the proposal and, as seen in the Koringberg case above, creates opportunities for inclusion of the local communities in the project. The EMP highlights would also lead to thorough consideration of mitigation measures, which form part of the approval process and ROD.

One aspect that is not covered in the guidelines or the regulations and does affect the value of the EIA is the inclusion of an implementation program in the EIR. The implementation program should be prepared in consultation with the applicant, the other consultants and project managers, so as to advise all I&AP's and the officials of the timings, responsible parties, involved parties and external factors effecting the EIA and the project implementation.

Submission Of EIA

The submission of the EIA depends on the scoping program. If a simple EIR is prepared with few impacts to be assessed, it could be submitted together with a scoping report and the required checklist. If, however, a more complex EIA is undertaken and a long EIR is prepared with numerous specialist studies, it is best to submit the scoping report together with a checklist directly upon completion of the first public consultation cession, to the PAWC: DECAS. It should, however, be pointed out to the DECAS officials that it is not required of them to respond to the submission so as to prevent them from spending time on the scoping detail while an EIR is already being prepared. This is, however, only possible if the scoping program and the scoping process has been fully detailed and discussed with the officials, i.e. they have in principle consented to the process and

agreed with the proposed analyses to be undertaken. It is thus dependent on the environmental practitioner whether a long or a short process would be followed. The short process refers to a single record of decision once the EIR has been submitted and the long process refers to a record of decision based on the scoping report and then a further record of decision based on the EIR.

The EIR must contain all the relevant information (De Villiers Brownlie, 2000). All correspondence with I&AP's, advertisements, maps and research should be included in the submission. The entire process could be jeopardised if a single affected party questions the exclusion of a single piece of information. Therefore, it is best to respond to all input and to include all input and research, even if it does seem to be detrimental to the application.

Record Of Decision

A record of decision (ROD) is given by the designated competent or delegated authority in terms of the proclamation of the abovementioned regulations (R1184) made by the National Minister of "Environmental Affairs". If a development is of regional or national significance, it must be referred to the National Department of Environmental Affairs and Tourism. If it is of any lesser significance, it is dealt with at the provincial level (PAWC: DECAS). Issues that normally require national consideration are:

- Development proposals in or abutting National Parks, National Monuments and World Heritage Sites;
- Proposals made by or on behalf of the designated authority (PAWC: DECAS – can not make and consider application);
- Development proposals in proximity of or across provincial or national borders;
- Proposals with regional or national effect, e.g. major import / export manufacturing processes such as MOSSGAS; and
- Proposals that generate major public debate and controversy or are in conflict with national policy.

Once the EIA has been submitted, it would be beneficial to make periodic enquiries as to the progress of the matter at the relevant authority, as it often happens that there are questions relating to the submission that require elaboration. Once the officials have applied their minds to an application and a response is made, it is sent by facsimile to the

applicant (developer / land owner), rather than to the consultant, as the ultimate responsible party for implementation of the ROD.

An appeal against the ROD must be made within 21 days of the date of the letter containing the ROD, therefore the distribution by facsimile and certified / registered mail. It is the applicant's responsibility to notify all I&AP's of the ROD within 3 - 5 days of receipt of the ROD, to enable them to appeal if they are aggrieved by the decision (thus the comment above that a detailed list of I&AP's should at all times be kept). Failing to notify the I&AP's within a reasonable period of the decision would make it null and void and could lead to claims against the applicant.

The ROD is normally conditional. The conditions are on the one hand a standard set of procedural aspects contained in virtually all ROD's and on the other specific conditions regarding limitations and mitigation of the probable impacts. More often than not, the conditions are drawn from the EIA, i.e. the recommendations of the EIA are made conditions of approval, which places a major responsibility on the shoulders of the environmental practitioner to act in a professional and ethical manner when preparing an EIA.

Appeals against ROD's should be fully detailed, as the appeals should motivate on what grounds the decisions should be reconsidered. Appeals normally have no time limit and decisions are conveyed as in the case of ROD's.

The implementation of recommendations and monitoring of the project development follow once the appeal period has closed. These aspects are not dealt with in the context of this thesis.

5.3 **Proposed amendments to regulations**

The most important recommended amendment to the regulations would be for the inclusion of the obligation on the applicant, whether for a scoping or for an EIA, to report on the socio-economic aspects of the environment. Amongst others it includes the establishment of a project management team, where representatives of the interested and affected communities participate in planning and designing the scoping process.

It should be a requirement to note who the affected communities are, what their socio-economic status and position is and what benefits could be derived from the development proposal / activity. This would also be applicable to all applications for changes in land use. Thus, where the biophysical impacts are to be determined by the applicant, the socio-economic impacts should be a prescribed consideration, detailing at least the following:

- Description and identification of interested and affected communities;
- Demographic and population data relating to interested and affected communities;
- Economic status of interested and affected communities;
- Analysis and description of existing land use patterns, community facilities, modes of transport and recreational facilities in affected neighbourhoods;
- Employment, health and security profiles of the interested and affected communities; and
- Cultural description of interested and affected communities.

The next amendment recommended is for an obligation to be put on the applicant to include an implementation program in the EIR, as this would provide concise detail to the delegated authority to evaluate who will be involved in the implementation of the development proposal and what the timings are, making monitoring of the project possible and more easily achievable.

CHAPTER 6. CONCLUSION

The primary aim of the thesis is to investigate whether the socio-economic well-being of the affected communities is sufficiently considered in South African EIA's. The thesis is in response to the comment made by Weaver (1999a) that the entire EIA process is of no benefit to the disadvantaged communities, as the social aspects of the environment are under emphasised and their skills levels misunderstood. He also commented that "Unless the South African EIA community reconsiders their approach to EIA, the tool will become irrelevant in the Development Agenda" (1999a:321).

Current trends in international EIA processes indicate a shift from the "scientific approach", which is "often closer to an exercise of environmental inventory and proposed mitigation" (Smith, 1993) that does not facilitate public interaction, to "community-based EIA's" where the public would have the opportunity and structure to voice its opinions, needs and proposals (Jenkin, 1999).

There are, however, no legislative grounds for truly "community-based EIA's" to be undertaken in South Africa, as the principles and guidelines to achieve this are not prescribed in regulations. The case studies assessed in the thesis indicate some concern for the socio-economic aspects of the environment. Even though neither of the case studies included socio-economic assessments, the needs of the affected communities were addressed in the EIA processes. The assessment of the case studies indicated sufficient consultation with and resultant benefits for the local communities in the EIA process. Although neither case studies satisfied all the criteria set for the ideal EIA, the indications are there that the international trends are being followed.

The situation could be remedied through the amendment of the regulations, in order to guide EIA practitioners in the preparation of EIA's that benefit to the disadvantaged communities and sufficiently emphasise the social aspects of the environment. In addition to the amendment of the regulations, the approach to the education and training of EIA practitioners should change, to include practical and workable guidelines as suggested by Venema and Breemer (1999) and to sensitise practitioners to the need for "community-based EIA's" as proposed by Weaver (1999a).

BIBLIOGRAPHY

Akpofure, E.A. and Ojile, M.O. (1998). Social Impact Assessment: An interactive Participatory Approach. IAIA Resource. [online] Available www.iaia.org.

Altinbilek, H.D., Bayram, M. and Hazar, T. (1999). The New Approach to Development Project-induced Resettlement in Turkey. Water Resources Development, Vol. 15, No. 3, 291 – 300.

Asit, K.B. and Geping, Q. (eds). (1987). Environmental Impact Assessment for Developing Countries. London: Tycooly Publishing.

Atemie, D.O.S., Inko-Tariah, To., Benebo, T.E.T. and Dania, V.O. (1998). Socio-Economic And Consultation Issues As Critical Components of EIA Approval Process in Nigeria – A shell Nigeria Experience. IAIA Resource. [online]. Available www.iaia.org.

Azizi, M.M. (2000). The User-pays System in the Provision of Urban Infrastructure: Effectiveness and Equity Criteria. Urban Studies, Vol. 37, No. 8, 1345 – 1357.

Avis, A.M. and Ruten, T. (1998). A Standard Rating Scale for Assessing the Significance of Social and Ecological Impacts. IAIA Resource. [online] Available www.iaia.org.

Barnard, D. (1999). Environmental Law for All. Pretoria: Impact Books.

Baines, J. and Taylor, N. (1998). Social Impact of Casinos in New Zealand. IAIA Resource. [online] Available www.iaia.org.

Box, J.J. and Forbes, J.E. (1992). Ecological considerations in the environmental assessment of road proposals. Highways and Transportation, April 1992, 16 – 22.

Branch, K., Hooper, D.A., Thompson, J. and Creighton, J. (1984). Guide to Social Assessment. A Framework for Assessing Social Change. Boulder: Westview Press.

Bregman, I.J. and Mackenthun, K.M. (1992). Environmental Impact Statements. Boca Ranton: Lewis Publishers.

Cartwright, L.E. (2000). Selecting Local Sustainable Development Indicators: Does Consensus exist in their Choice and Purpose? Planning Practice and research, Vol. 15, Nos. 1/2, 65 – 78.

Cowell, D.W. (1998). Ecological landscape planning techniques for biodiversity and sustainability. Environmental Management and Health, Vol. 9, No. 2, 72 – 78.

De Villiers Brownlie Associates. (2000). Review Guidelines for Environmental Impact Assessment in the Cape Metropolitan Area: Draft for comment. Environmental Management Department, Planning, Environment and Housing Directorate, Cape Metropolitan Council.

Department of Environment Affairs. (1992)a. Checklist of Environmental Characteristics. Pretoria.

Department of Environment Affairs. (1992)b. Glossary of terms used in Integrated Environmental Management. Pretoria.

Department of Environment Affairs. (1992)c. Guidelines for Report Requirements. Pretoria.

Department of Environment Affairs. (1992)d. Guidelines for Review. Pretoria.

Department of Environment Affairs. (1992)e. Guidelines for Scoping. Pretoria.

Department of Environment Affairs. (1992)f. The Integrated Environmental Management procedure. Pretoria.

Department of Environmental Affairs and Tourism. (1998)a. Environmental Impact Management Guideline Document EIA Regulations. Pretoria.

Department of Environmental Affairs and Tourism. (1998)b. Environmental Impact Management Guideline Document. A national strategy for Integrated Environmental Management in South Africa. Pretoria.

European Conference on Sustainable Cities and Towns in Aalborg. (1994). Charter of European Cities and Towns towards sustainability. Aalborg. [online] Available http://www.our world.compuserve.com/homepages.

Finsterbusch, K., Llwellyn, L.G. and Wolf, C.P. (eds). (1983). Social Impact Assessment Methods. Beverley Hills: Sage Publications.

Fuggle, R.F. and Rabie, M.A. (eds) (1999). Environmental Management in South Africa. Cape Town: Juta & Co.

Glasson, J. (1999). The first 10 Years of the UK EIA System: Strengths, Weaknesses, Opportunities and Threats. Planning Practice and Research, Vol. 14, No. 3, 363 – 375.

Glasson, J., Therivel, R. and Chadwick, A. (1994). Introduction to Environmental Impact Assessment. Principles and procedures, process, practice and prospects. London: UCL Press Limited.

Glazewski, J (2000). Environmental Law in South Africa. Durban: Butterworth

Goodland, R. (1995). The Concept of Environmental Sustainability. Annual Review of Ecology, Vol. 26, 1 – 24.

Heydenrych, R. and Claasen, P. (1998). Discussion Document, A national strategy for Integrated Environmental Management in South Africa. Department of Environmental Affairs and Tourism. Pretoria.

Hill, M.R. (2001). Sustainability, greenhouse gas emissions and international operations management. International Journal of Operations and Production Management, Vol. 21, No. 12, 1503 – 1520.

IAIAsa Western Cape Newsletter. (2001). Letters to the editor: AII&AP (an irate interested and affected party). December.

International Association For Impact Assessment. (1998). Principles Of Environmental Impact Assessment Best Practice. [online] Available www.iaia.org

Jain, R.K., Urban, L.V., Stacey, G.S. and Balbach, H.E. (1993). Environmental Assessment. New York: McGraw-Hill.

Jenkin, T. (1999). Exploitation or "Wise Use" of the Coongie Lakes, South Australia: issues arising from a petroleum exploration proposal. Australian Geographer, Vol. 30, No. 3, 355 – 371.

Lin, B., Jones, C.A. and Hsieh, C. (2001). Environmental practices and assessment: a process perspective. Industrial Management and Data Systems, Vol. 101, No. 2, 71 – 79.

Maier, K. (2000). The Role of Strategic Planning in the Development of Czech Towns and Regions. Planning Practice and Research, Vol. 15, No. 3, 247 – 255.

Marriott, B.B. (1997). Practical Guide to Environmental Impact Assessment. New York: McGraw-Hill.

Mathews, B.P., Ueno, A., Kekäle, T., Repka M., Pereira, Z.L. and Silva, G. (2001). European quality management practices: The impact of national culture. International Journal of Quality and Reliability Management, Vol. 18, No. 7, 692 – 707.

Mc Daid, L. (2001). NGO Concerns About The EIA Process. Newsletter of the International Association for Impact Assessment S A. November.

Nakayama, M., Gunawan, B., Yoshida, T. and Asaeda, T. (1999). Resettlement Issues of Cirata Dam Project: A Post-project review. Water Resources Development, Vol. 15, No. 4, 443 – 458.

National Environmental Protection Agency, Call-in. (1994). The Guidelines and Principles of Social Impact Assessment. [online] Available http://www.gsa.gov/pbs/pt/call-in.

Papadakis, E. (1993). Politics and the Environment: the Australian Experience. St Leonards: Allen & Unwin Pty Ltd.

Phillips, S. and Edwards, R. (2001). Development, Impact Assessment and the Praise Culture. Critique of Anthropology, Vol. 20, No. 1, 47 – 66.

Porter, A.L., and Fittipaldi (eds). (1998). Environmental Methods Review: Retooling Impact Assessment for the New Century. Fargo: AEPI.

Provincial Administration of the Western Cape. (2001). Western Cape Province EIA Guideline Series: EIA Application Form and Screening Checklist in Terms of Section 21, 22, 26 and 28A of the Environmental Conservation Act, 1989 (Act 73 of 1989). Cape Town.

Rawwas, M.Y.A. (2001). Culture, personality and morality: A typology of international consumers' ethical beliefs. International Marketing Review, Vol. 18, No. 2, 188 – 209.

Republic of South Africa. (1989). Environmental Conservation Act, 1989, Act 73 of 1989. Cape Town. Government Gazette No 11927.

Republic of South Africa. (1998). National Environmental Management Act, 1998, Act 107 of 1998. Cape Town. Government Gazette No 19519.

Republic of South Africa. (1997)a. Regulation No. 1182, The Identification Under Section 21 Of Activities Which May Have A Substantial Detrimental Effect On The Environment. Cape Town. Regulation Gazette No 18261.

Republic of South Africa. (1997)b. Regulation No. 1183, Regulations Regarding Activities Identified Under Section 21 (1). Cape Town. Regulation Gazette No 18261.

Republic of South Africa. (1997)c. Regulation No. 1184, Designation Of The Competent Authority Who May Issue Authorisation For The Undertaking Of Identified Activities. Cape Town. Regulation Gazette No 18261.

Sadler, B. and Weaver, Alex. (1999). Forecasting the Future – Impact Assessment for a new century: A framework for change and an agenda for discussion. Paper presented at: IAIA Conference, Glasgow. Unpublished paper.

Scott, A. (2000). Planning for Recreation in the South Wales Countryside: From Presumption to Empiricism. Planning Practice and Research, Vol. 15, No. 3, pp 175 – 192.

Simpson, B. (1990). Assessing the Impact: Should we extend the scope of environmental assessments for transport projects, or just do them better? Surveyor, May 1991. 14 – 15.

Smith, G.L. (1997). Impact Assessment and Sustainable Resource Managements. Essex: Longman.

Tortajada, C. (2000). Environmental Impact Assessment of Water Projects in Mexico. Water Resources Development, Vol. 16, No. 1, 73 –87.

Uitto, J. and Ono, A. (Eds). (1996). Population, Land Management, and Environmental Change. Toronto: UNU Press.

United States Department of Commerce. (1994). Guidelines and Principles For Social Impact Assessment. [online] Available www.iaia.org

Urquhart, P. and Atkinson, D. (2000). A Pathway to Sustainability – Local Agenda 21 in South Africa. Rondebosch. UCT Environmental Evaluation Unit.

Van Wyk, J. (1999). Planning Law: Principles and Procedures of Land Use Management. Cape Town: Juta & Co.

Venema, B. and Breemer, H van den. (eds). (1999). Towards Negotiated Co-management of Natural Resources in Africa. Münster: LIT Verlag.

Walton, W. (2000). Windfall Sites for Housing: An Underestimated Resource. Urban Studies, Vol. 37, No. 2, 391 – 409.

Weaver, Alex. (1997). Assessing Human Impact on the Natural Environment: a 21st Century perspective. Paper presented at: Institute for Futures Research Symposium, Stellenbosch.

Weaver, Alex. (1999)a. Can EIA in its present form contribute to poverty alleviation in South Africa? A think-piece. Seminar delivered at the IAIA SA Annual Conference, Bloemfontein. Unpublished paper.

Weaver, Alex. (1999)b. EIA in South Africa. Newsletter of the Institute for Environmental Assessment. September.

Weston, J. (ed). (2000). Planning and Environmental Impact Assessment in Practice. Harlow: Longman.

Weston, J. (2000). Reviewing Environmental Statements: New Demands for the UK's EIA Procedures. Planning Practice and Research, Vol. 15, Nos. 1/2, 135 – 142.

Whyte, A. (ed). (1995). Environment, Reconstruction, and Development. A report from the International Mission on Environmental Policy. Ottawa: International Development Research Centre.

Wilding, S. and Raemaekers, J. (2000). Environmental Compensation for Greenfield Development: Is the Devil in the Detail? Planning Practice and Research, Vol. 15, No. 3, 211 – 231.

Williams, J. (2000). Tools for Achieving Sustainable Housing Strategies in Rural Gloucesthershire. Planning Practice and Research, Vol. 15, No. 3, 155 – 174.

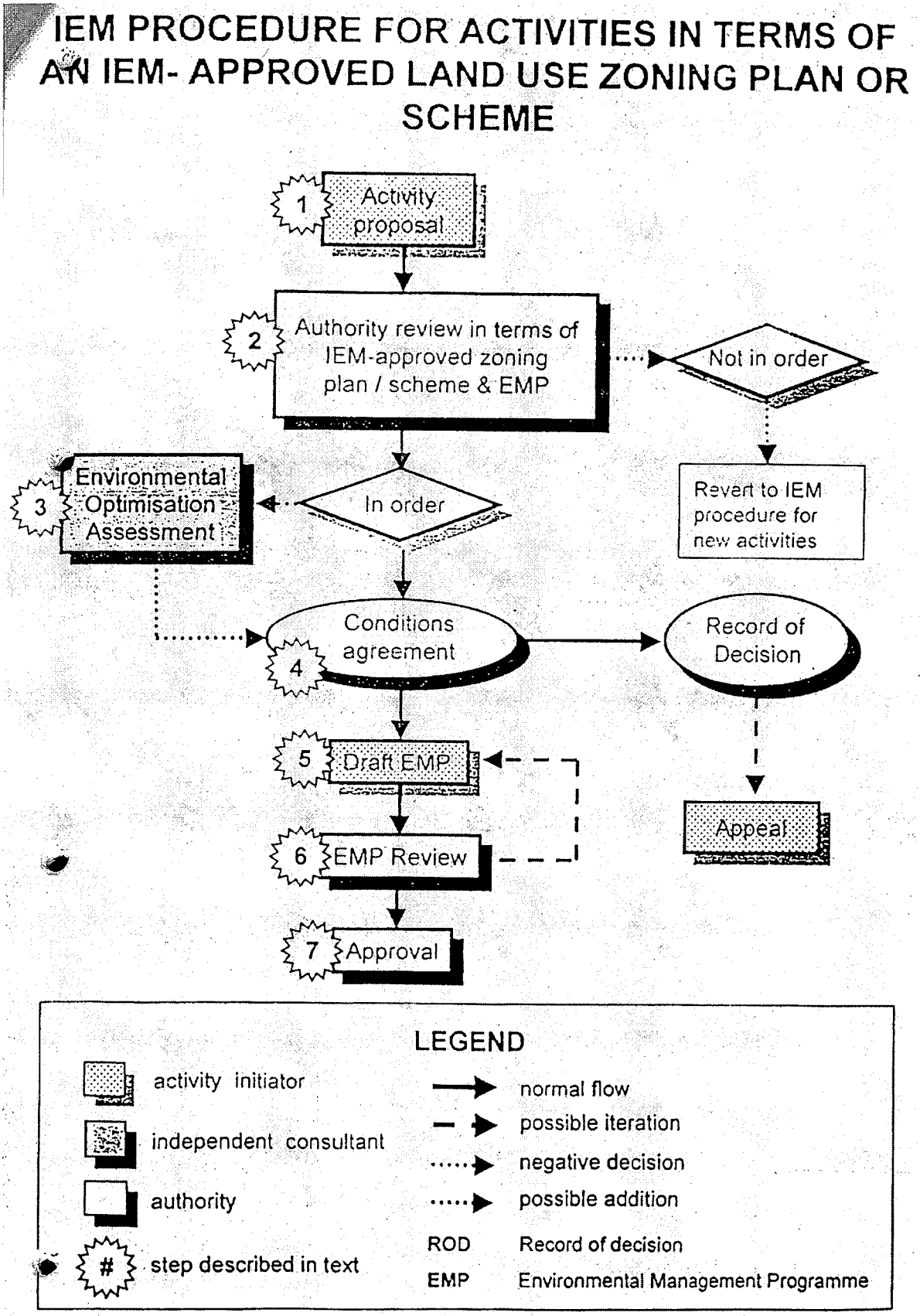
Wood, C.W. (1995). Environmental Impact Assessment: A Comparative Review. Harlow: Longman.

Zagorianakos, E. (1999). An Ex-ante Appraisal of the Possible Implementation of the Proposed Directive on Strategic Environmental Assessment (SEA) in England and Greece. Planning Practice and Research, Vol. 14, No. 4, 445 – 465.

Zube, E.H. (1984). Environmental Evaluation: Perception and Public Policy. Cambridge: Cambridge University Press.

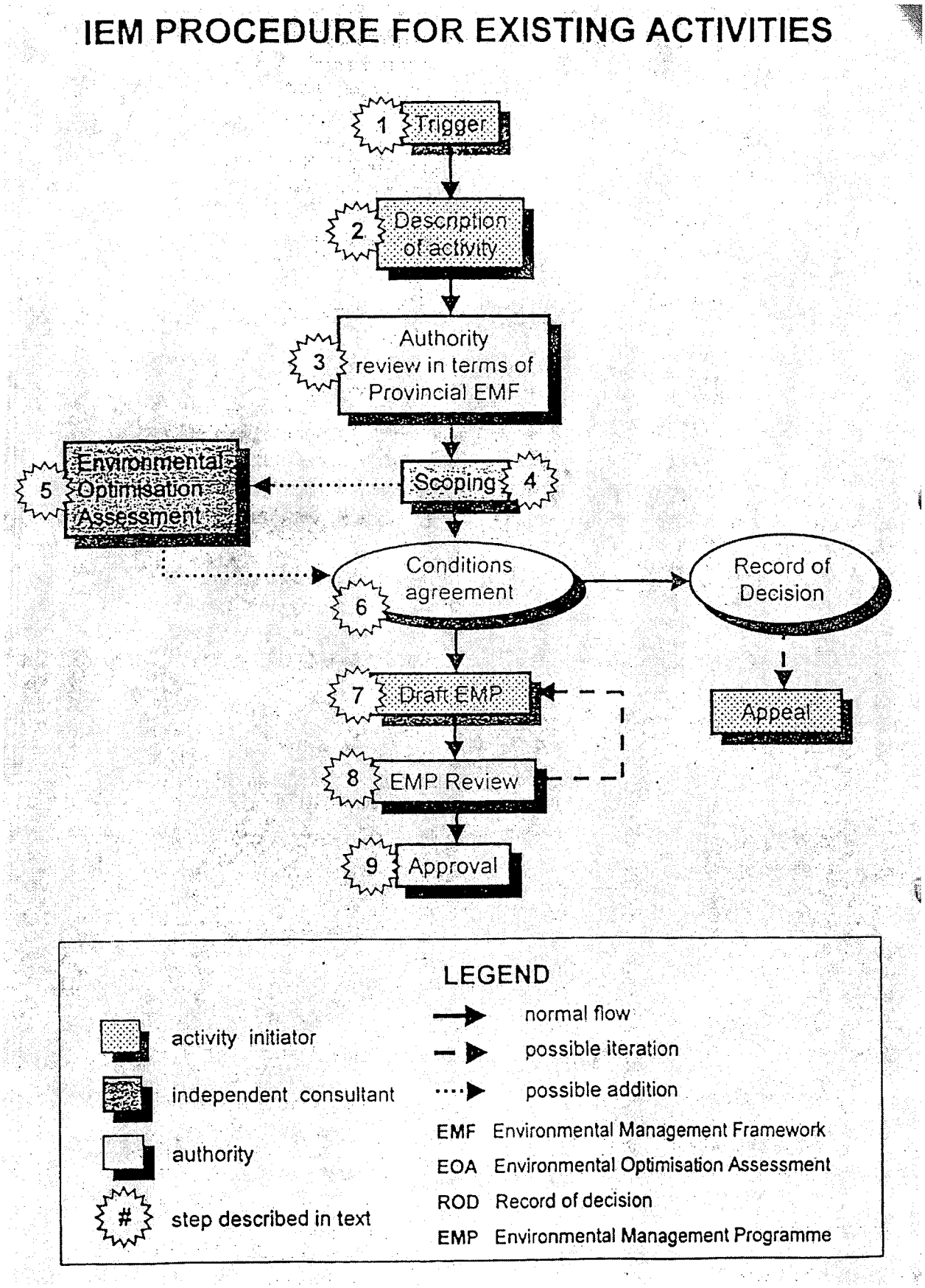
INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS DIAGRAMS

INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS FOR DESIRABLE ACTIVITIES IN TERMS OF APPROVED PLANS



Process as proposed by the Department of Environmental Affairs and Tourism, 1998 – IEM Guideline Document

INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS FOR EXISTING ACTIVITIES



Process as proposed by the Department of Environmental Affairs and Tourism, 1998 – IEM Guideline Document

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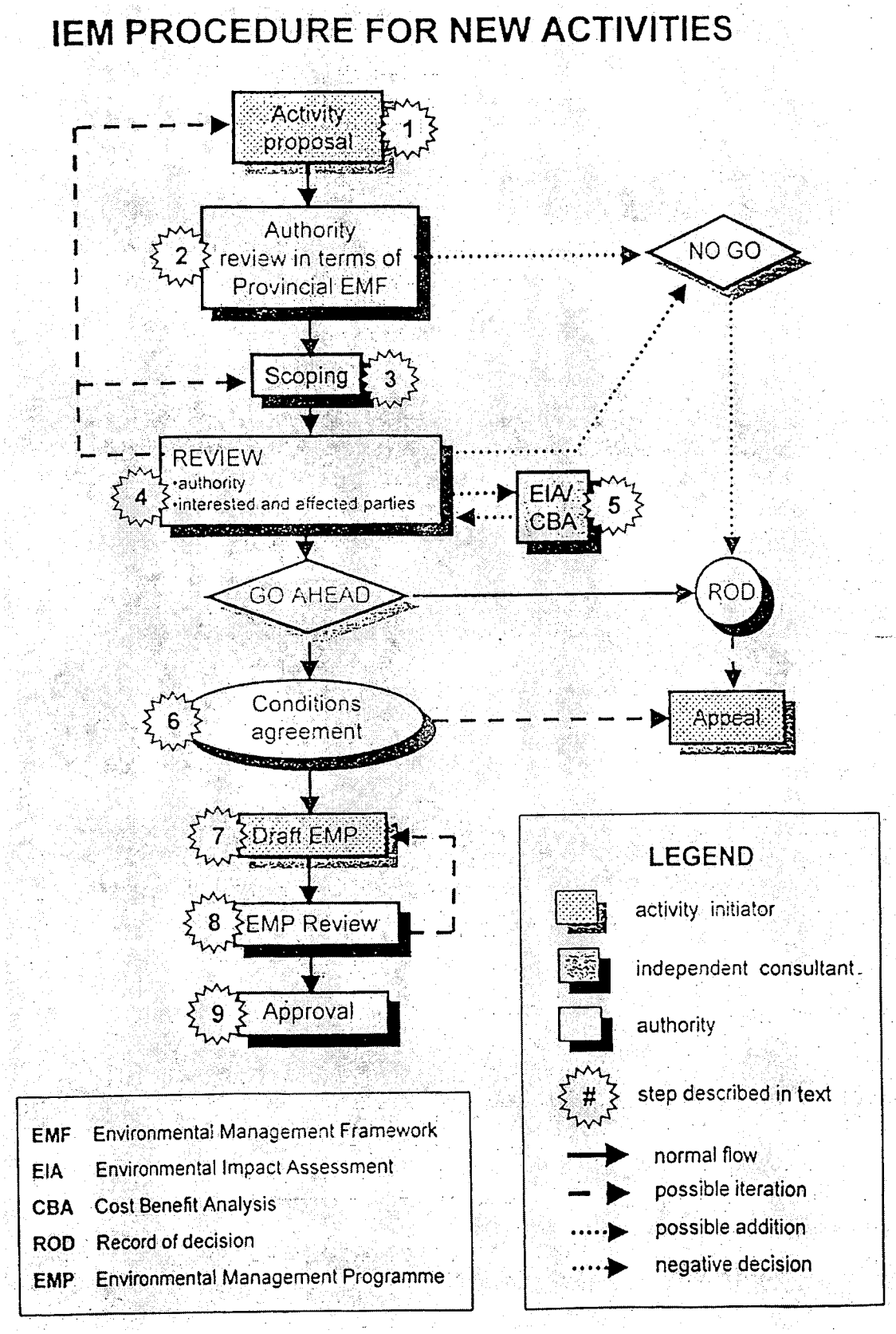

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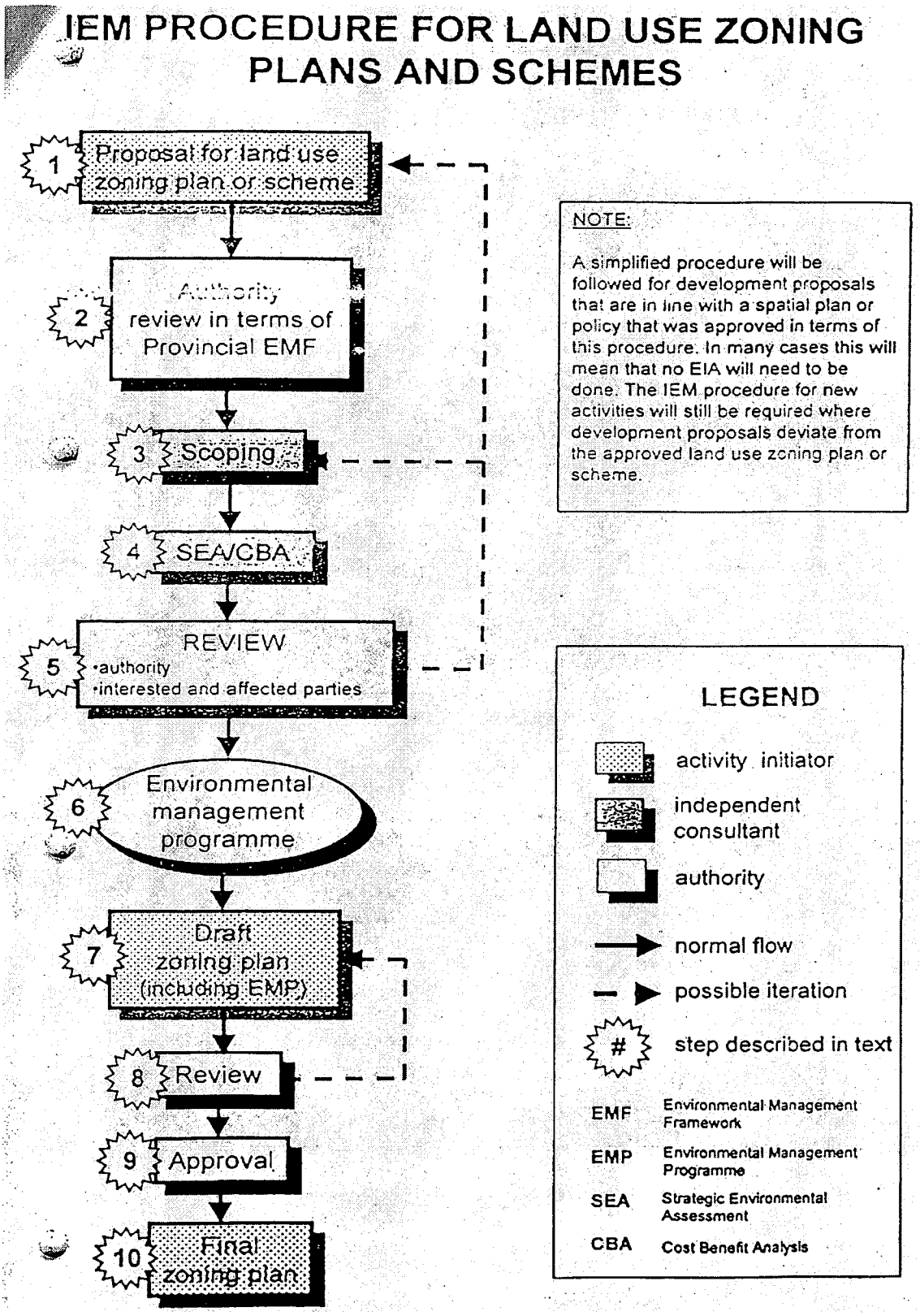
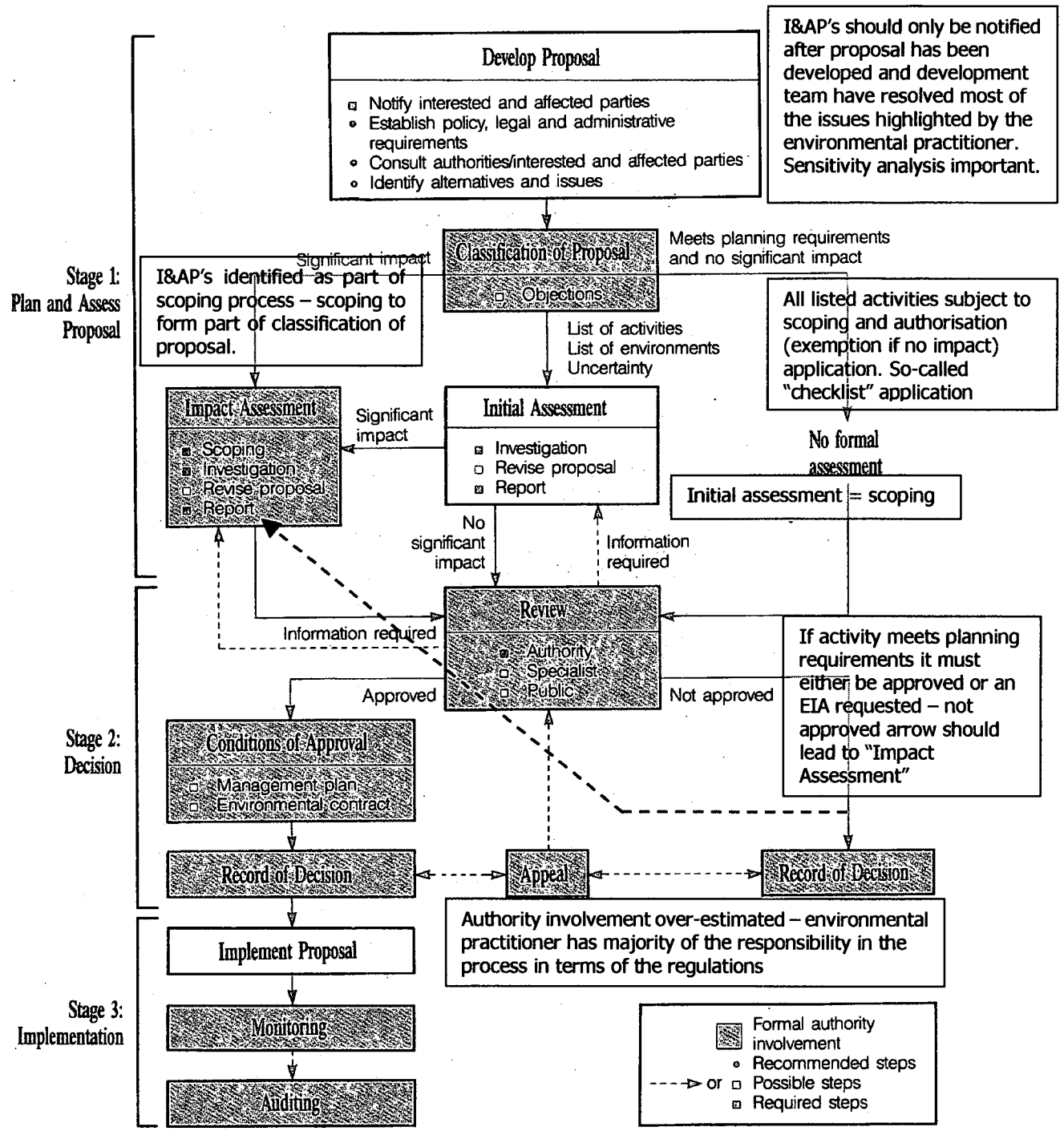


Process as proposed by the Department of Environmental Affairs and Tourism, 1998 – IEM Guideline Document

INTEGRATED ENVIRONMENTAL MANAGEMENT (IEM) PROCESS

INTEGRATED ENVIRONMENTAL MANAGEMENT PROCESS



Process as proposed by the Department of the Environment 1992 – IEM Guideline Document – comment added in preparation of alternative process proposal

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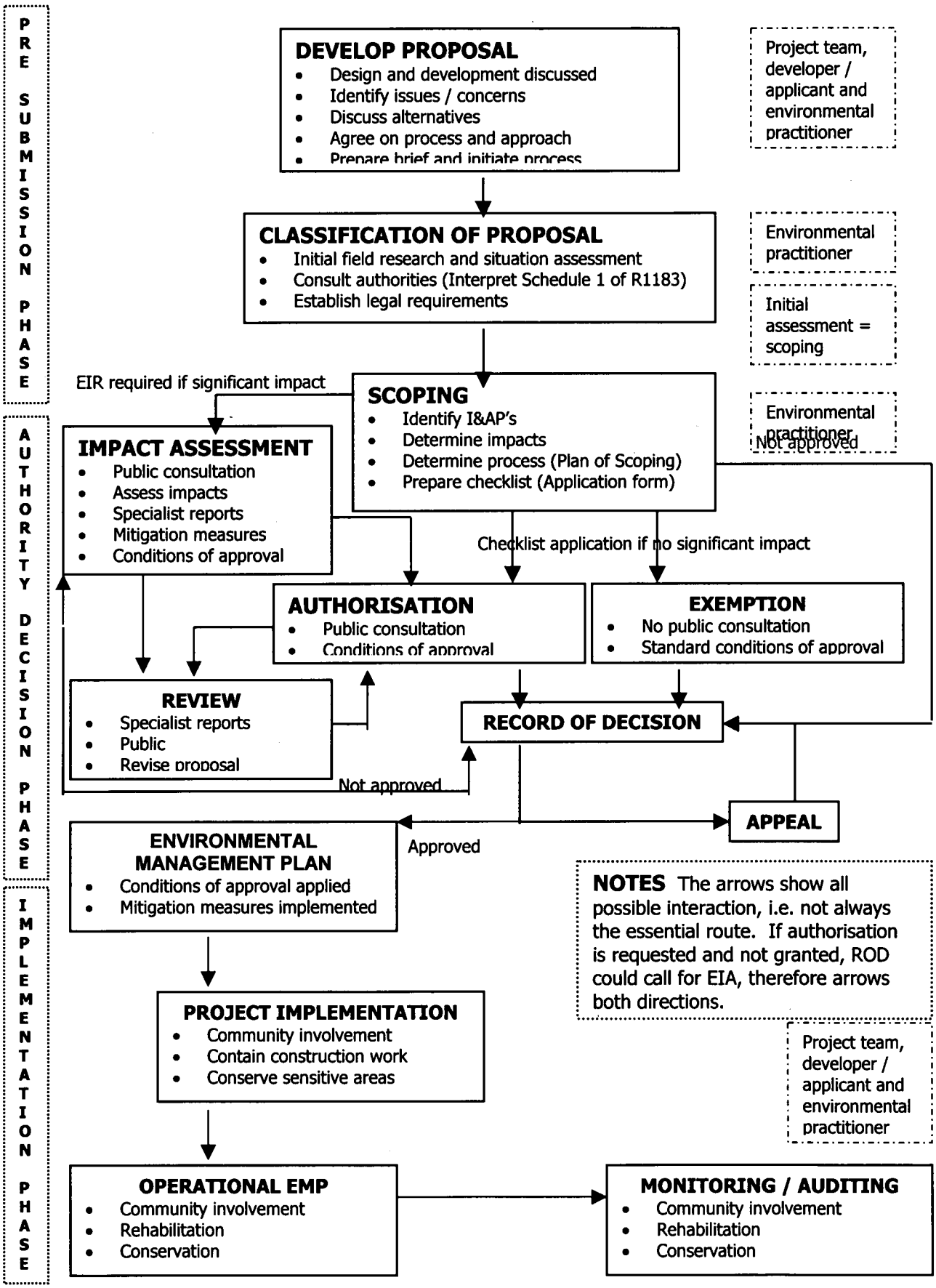

Proposed amended IEM Process based on DEAT 1992 IEM Guideline Document