



An evaluation of environmental impact assessment in Eritrea

Tedros Kubrom Zeremariam & Dr. Nevil Quinn

To cite this article: Tedros Kubrom Zeremariam & Dr. Nevil Quinn (2007) An evaluation of environmental impact assessment in Eritrea, *Impact Assessment and Project Appraisal*, 25:1, 53-63, DOI: [10.3152/146155107X190604](https://doi.org/10.3152/146155107X190604)

To link to this article: <https://doi.org/10.3152/146155107X190604>



Published online: 20 Feb 2012.



Submit your article to this journal [↗](#)



Article views: 836



View related articles [↗](#)



Citing articles: 14 [View citing articles](#) [↗](#)

An evaluation of environmental impact assessment in Eritrea

Tedros Kubrom Zeremariam and Nevil Quinn

This paper reviews the environmental impact assessment (EIA) system in Eritrea against a set of evaluation criteria. It analyses the institutional aspects of EIA, the process of EIA, together with other features of the system. The review indicates that the current EIA system in Eritrea meets eleven of the 18 evaluation criteria, partially meets three and fails to meet four. The major weaknesses relate to; the lack of legal provision for EIA; inadequacy of resources; failure to make the EIA findings a key aspect of decision-making; and the lack of formal provision for Strategic Environmental Assessment (SEA). To strengthen the current EIA system in the country, therefore, investment in training and continuing professional development in EIA for different stakeholders is needed. The most urgent priority is the establishment of a sound legal basis for EIA.

Keywords: Eritrea, EIA, EIS, SEA, evaluation

ERITREA IS A COUNTRY in the East of Africa bordering Ethiopia (South), Djibouti (South-east) and Sudan (West), with an extensive eastern coastline along the Red Sea and a total land area of 124 320 km². Its population is estimated to be 4,038,000 with a growth rate of 2.9% per year (MoA, 2002). The country has a varied terrain and climate that includes savannah, temperate highlands and a desert coastal plain (Pool, 1982). Agriculture contributes 80% of the country's economy, while the balance is shared by industry and service. Land degradation and loss of productivity are mentioned to be among the major environmental problems (MoA, 2002).

Tedros Kubrom Zeremariam is in Department of Land Resource and Environment, College of Agriculture, University of Asmara, POB 1220, Asmara, Eritrea, East Africa; Email: zteddi@yahoo.com; Tel: +291 1 164020. Dr Nevil Quinn (corresponding author) is in the School of Geography and Environmental Management, University of the West of England, Frenchay Campus, Coldharbour Lane, Bristol BS16 1QY, UK; Email: Nevil.Quinn@uwe.ac.uk; Tel: +44 117 32 83383.

The authors are very grateful to all those who gave of their precious time to provide them with information, documents and materials. Any error of fact or judgment is the authors, and should not be attributed to any respondent.

Between 1960 and 1991, Eritrea was engaged in armed conflict with Ethiopia with the aim of securing independence. Thirty years of war have had severe consequences for the people and the environment of the nation. However, soon after independence, Eritrea joined the global community and committed itself to sustainable development (SD) and to the principles of Agenda 21.

In 1995, a *National Environmental Management Plan for Eritrea* (NEMP-E) was developed through an inter-ministerial committee to address environmental problems and promote SD (GoE, 1995a), followed by a *Draft Environmental Proclamation* (DEP) in 1996 (GoE, 1996). In 1997, the Constitution of Eritrea was ratified with a provision that the State shall be responsible for land, water, air and natural resource management to ensure SD.

In response to these policy initiatives, the *National Environmental Assessment Guidelines and Procedures Manual* (NEAPGM) was developed and instituted in 1999 (DoE, 1999). The NEAPGM was prepared on the basis of the World Bank environmental assessment (EA) principles and more or less corresponds with procedures and guidelines of the World Bank. Currently Eritrea is party to several international conventions (for instance, the Convention

on Climate Change and the Convention on Biological Diversity) that recognise domestic EIA as a basic requirement for their implementation.

Thus, if Eritrea is to remain committed to these conventions and if future development is to be sustainable as stated in the policy directives, an effective national EIA system is mandatory. This paper, therefore, aims to review the current EIA system in Eritrea with respect to international principles and procedures, and with a view to providing recommendations for better application.

Methodology

A review of national EIA systems against international principles and procedures has been adopted as a way of improving EIA application in many countries (Wood, 2003), and the implementation of EIA in developing countries is of particular interest (Kakonge, 1999; Modak and Biswas, 1999; Lee and George, 2000; SAIEA, 2003). This study utilises Wood's (2003) evaluation criteria with slight modification to incorporate the experience of developing countries on what constitutes effective EIA, principally with respect to the institutional aspects of EIA systems (Box 1).

Wood's (2003) criteria represent a notably comprehensive and independent approach to EIA system evaluation. They are open-ended, allow a descriptive evaluation, and have been employed to undertake an international comparison of the effectiveness of several EIA systems, including those of the USA, California, the UK, the Netherlands, Canada, the

Commonwealth of Australia, Western Australia, and New Zealand (Wood, 1999a; 2003). In addition, they were used in a developing country context to assess the extent to which the South African EIA system meets internationally recognised good EIA practice (Wood, 1999b). With some modifications, the criteria have been used to undertake a comparative review of the EIA systems of three other developing countries: Egypt; Turkey; and Tunisia (Ahmad and Wood, 2002).

Based on these criteria, the NEAPGM and the DEP were reviewed. Certain relevant documents, such as annual reports on EA (DoE, 2002), the NEMP-E, the country assessment report on SD (GoE, 2002) and the impact assessment report for the Eritrean Emergency Reconstruction Program (T Consult, 2001) were also sourced to obtain information on the institutional aspects of the EIA system and process in Eritrea. However, because of the limited amount of literature on the national EIA system and the scarcity of documents, a number of semi-structured interviews were also conducted with key stakeholders from international agencies, Government and agency officials, researchers and private consultants. In addition, informal discussions with people from different institutions were held.

Institutional aspects of EIA in Eritrea

Policy development

The first important institutional aspect to facilitate the use of EIA as a decision-making tool is the

Box 1. EIA system evaluation criteria adopted for this study

1. Institutional aspect of EIA system

- 1.1 Does a clearly documented environmental policy at national, regional and local levels exist?
- 1.2 Is there an institution or body mandated with environmental matters and are responsibilities for EIA administration clearly specified?
- 1.3 Is the EIA system based on clear and specific legal provisions?
- 1.4 Are there adequate resources to carry out meaningful EIA?

2. EIA process

- 2.1 Must screening of actions for environmental significance take place?
- 2.2 Must scoping of the environmental impacts of actions take place and specific guidelines be produced?
- 2.3 Are there enough guidelines prepared to assist during the EIA study (prediction and evaluation)?
- 2.4 Must mitigation of action impacts be considered at the various stages of the EIA process?
- 2.5 Must EIA reports meet prescribed content requirements and do checks to prevent the release of inadequate EIA reports exist?
- 2.6 Must EIA reports be publicly reviewed and the proponent respond to the points raised?
- 2.7 Must the findings of EIA reports and the review be a central determinant of the decision on the action?
- 2.8 Must monitoring of action and post-auditing take place?

3. Other features of EIA system

- 3.1 Must the relevant environmental impacts of all significant actions be assessed?
- 3.2 Must evidence of the consideration, by the proponent, of the environmental impacts of reasonable alternative actions be demonstrated in the EIA process?
- 3.3 Must consultation and participation take place prior to, and following, EIA report publication?
- 3.4 Must the EIA system be monitored and, if necessary, be amended to incorporate feedback from experience?
- 3.5 Are the financial costs and time requirements of the EIA system acceptable to those involved and are they believed to be outweighed by discernible environmental benefits?
- 3.6 Does the EIA system apply to significant programmes, plans and policies, as well as to projects?

Source: After Wood (2003)

presence of national policy that reflects the goals of development and environment (Ahmad and Sammy, 1985). Eritrea has developed five documents (Table 1) that reflect the country's national strategies for SD. In addition, the *Constitution of Eritrea* provides the basis for SD in the country (Article 8 and 21). Article 8 (3) in particular, stipulates that (GoE, 1997: 8):

In the interest of present and future generations, the State shall be responsible for managing all land, water, air and natural resources and for ensuring their management in a balanced and sustainable manner; and for creating the right conditions to secure the participation of the people in safeguarding the environment.

Article 16 of the *Macro Policy* of Eritrea (GoE, 1994a) and the guidelines of the Eritrean Investment Centre (GoE, 1994b) also require impact assessment of a project as part of the project proposal. The NEMP-E, in particular, is intended as a blueprint for the protection of environmental resources and for the promotion of SD (GoE, 1995a). It is aimed at the remediation of harmful practice, planning for sustainable and rational use of resources, and the protection and permanent conservation of certain habitats for Eritrea's indigenous flora and fauna and historical heritage. It also sets out a number of projects and programs to be implemented over the next ten to 15 years.

The NEMP-E recognises the importance of EA and stipulates a programme to establish legal requirements and procedures for carrying out EAs for new developments within the country. It also requires that legislation for EA should be enacted under an environmental act. Such a national policy, therefore, provides a framework within which the EIA process can be conducted. For more precise and focused environmental management, however, the NEMP-E needs to be supplemented by regional and local EMPs. Furthermore, periodic revision of the policy documents, particularly the NEMP-E, is crucial to evaluate the extent of its implementation and provide for amendment on the basis of experience.

Legal basis for EIA

One of the mechanisms whereby environmental policy is implemented is through legislation. However, the current EIA system in Eritrea is on a voluntary basis, as there is no national legislation that requires compulsory EIA. For this reason, most projects for which an EIA has been undertaken are those funded by international development agencies, such as the World Bank. A few sectors, such as petroleum and mining, however, are subject to legislation that requires EIA. Article 11(5) of the "Revised regulations on petroleum operation, Legal

Table 1. National policy documents for sustainable development in Eritrea

Policy document	Year
Macro Policy	1994
National Environmental Management Plan for Eritrea (NEMP-E)	1995
National Biodiversity Strategy and Action Plan (NBSP)	2000
Economic Growth and Poverty Reduction Strategy (PRS)	2001
National Action Programme to Combat Desertification and Mitigate the Effect of Drought (NAP)	2002

Notice no 45/2000" (GoE, 2000) and Article 43 (2) (f) of the "Mining proclamation no 68/1995" as well as Article 5 (1) (j) of "Mining operations regulation, Legal Notice no 19/1995" require the applicant to prepare an EIA report before a licence is granted (GoE, 1995b).

However, besides stating the purpose of the report and listing the activities that need to be included, the legislation is not prescriptive regarding content and process. Furthermore, at the time of writing, no single full EIA had been undertaken for a mining project. Apparently this is because there has not been a project sufficiently large to warrant an EIA (Mebrahtu, 2003).

A *Draft Environmental Proclamation* has already been developed (GoE, 1996) and is expected to be enacted in the near future. Articles 32 and 33 of this proclamation give a framework for EIA preparation and post-EIA auditing, respectively. These articles stipulate the legal requirement of EIA for all projects, the powers of the Minister, the responsibility of the proponent and the institutional responsibilities of the Department of Environment and other Government agencies. In addition, the proclamation contains articles with general application.

Article 23 provides a mechanism for conflict resolution including the right of appeal against a decision of the Minister or Council to the High Court. The proclamation also includes a provision to ensure compliance, specifically, Article 60, which provides a framework for sanctions regarding offences related to EIA. In addition, Article 66 empowers the Minister to issue regulations.

However, although the proclamation could be a reasonable start for a legally based EIA system in the country, its provisions are inadequate. Key areas have not been addressed, including: the specific lists of activities that are subject to EIA; the different steps in the EIA process; and time limitations. Furthermore, the DEP has been in a draft state for a decade. Thus, to translate the policy into action, a statutory basis for EIA needs to be established immediately. Although this could commence through the ratification of the DEP, it would be better to amend the DEP to address deficiencies before doing so.

Responsibility for EIA administration

Lee and George (2000) argue that, in developing countries, for implementation of EIA to be effective, a strong institution mandated with overseeing environmental issues needs to have been established. In Eritrea, the Department of Environment (DoE) under the Ministry of Land, Water and Environment (MLWE) was formed in 1997 for this purpose. The DoE oversees the implementation and monitoring of EIA through its Monitoring and Evaluation Unit, under the Environmental Management/Inspection Division.

The NEAPGM indicates that during the EIA process responsibilities for certain activities, such as screening, the preparation of terms of reference (TOR), completion of an environmental evaluation questionnaire (EEQ), and carrying out public consultation are shared between the proponent and relevant Government agencies. The DoE's role is to: co-ordinate the process; give advice when required; ensure the coverage and the completeness of the EIA report; make the final decision for environmental clearance; and monitor the effectiveness of the EA process.

The proposed DEP, however, seems to decentralise EIA administration by empowering the Minister of MLWE to authorise any Government institution to develop sector-specific EIA procedures and guidelines, and to undertake EIAs and issue an environmental clearance permit for any project within its jurisdiction (Article 32 (2)). Article 33(3) also provides for authorisation of any public institution by the Minister to undertake post-EIA auditing for projects under its jurisdiction. Nevertheless, the proclamation empowers the DoE to supervise all EIA undertakings, review all EIAs, and carry out a periodic audit of each project to ensure that mitigation measures are implemented (Article 33 (4)).

In cases where the line ministry is the proponent as well as the monitoring agency, it might be difficult to obtain full compliance. The proclamation seems to address this by empowering the DoE to carry out all necessary sectoral monitoring, inspection and enforcement, when the line ministry does not adequately monitor compliance with environmental quality standards in its sector (Article 49 (3)).

However, provisions to empower sectoral ministries to develop EIA procedures and guidelines may lead to duplication and multiple standards. To minimise this risk, it is recommended that all guidelines, procedures and standards be developed within the framework of the NEAPGM. Furthermore, the current institutional strength of the DoE, particularly in the area of EIAs, is weak, mainly because of the lack of a legal mandate that empowers the DoE to monitor activities and prosecute those who fail to comply. A further institutional limitation is the lack of adequate skilled personnel. Thus, training of DoE staff in managing and reviewing EIAs and in making meaningful judgments on EISs, is required as an urgent priority.

Resource adequacy

The most challenging issue in the implementation of an effective EIA system in Eritrea is the lack of multi-disciplinary local experts. The DoE is working with a limited staff complement and, at the time of the study, some regions did not have a departmental representative. Most of the EIAs that have been carried out in the country have been undertaken by foreign experts. There are very few local EIA experts and those who are available are professionals with specific expertise (for instance, engineering, geology), often with limited knowledge of environmental management.

Another important resource for EIAs is environmental data and information. Although the DoE is custodian of some data and information regarding issues such as biodiversity, in many cases, data are not available. If data do exist, they are within different sectors and are not readily accessible. Recently, the DoE has initiated the collection of environmental data from the different ministries.

Moreover, the DEP tries to address this issue by empowering the Director General of DoE to establish and maintain a co-ordination system and information-exchange network with specific environmental focal points. The focal points need to be located in each line ministry, the concerned private sector and international environmental institutions so as to facilitate and harmonise EIA procedures and environmental clearance requirements of projects (Article 16 (2) (d)). This, however, has not yet been established.

To limit the shortage of environmental data and information in the country, information sharing among different sectoral ministries within the country and data synthesis from similar projects within the country, or from other countries with similar climate and other conditions, is required. Furthermore, continuing training in EIA for Government officials, consultants, and research and educational institutions is necessary to establish an effective EIA system.

EIA process

Screening

The screening approach in Eritrea involves the use of both lists and thresholds to identify whether an EIA is required and, if so, whether an environmental evaluation (EE)¹ or a full EIA is appropriate. Based on the type, size, location and mode of operation, the NEAPGM assigns projects into Category A (require full EIA), Category B (require only EE), or Category C (do not require EA). Projects that do not appear in the list are considered to be Category B projects.

There is also provision for discretionary evaluation during the screening process. For example, the relevant authority could, if justified, increase an original screening category from Category C to B.

The rationale for such screening is that it allows simple environmental clearance mechanisms without compromising the effectiveness of EIA for larger and more complex ones, and without creating unnecessary delays for small, potentially low-impact projects. Screening is undertaken by the relevant Government authority responsible for regulation, development, implementation, management, and/or supervision of a particular project. This is so that the screening decision is taken quickly and efficiently, as near to the point of project origin and as early in the project cycle as possible.

The NEAPGM provides clear and simple screening procedures and guidelines. However, tools such as maps of environmentally sensitive areas (ESAs) that facilitate and strengthen the screening process are not available and the list of projects needs to be completed and reviewed. The screening process allows consultation with the line ministry responsible for ESAs or relevant institutions, but provision for right of appeal against the screening decision has not been considered.

Since the initial implementation of EIA in 1999 until mid-2002, 155 projects have been subjected to screening, of which 87 were Category B projects, 67 were Category C and only one was Category A (Table 2). Informal review of certain reports by the researcher and discussion with interviewees found that there were cases where Category A projects were screened as Category B projects. This indicates that the current screening practice is not fully based on the provisions of the NEAPGM. Thus, if the current screening process is to be implemented effectively, the provisions in the NEAPGM need to be incorporated into legislation and the guidelines applied consistently.

Scoping

Scoping is the first stage of the EIA for Category A projects. The NEAPGM stipulates that scoping should take place as early as possible in the project cycle. The proponent is responsible for the scoping process but needs to agree with relevant Government agencies in preparing the TOR. The advantage of such an approach is that it allows the developers (and their consultants) to identify all the potential

significant impacts of their proposals (with which they are more familiar than anyone else) and it minimises the burden on Government authorities to define the scope of the assessment.

The success of such an approach, however, depends on the integrity of the proponent and their consultants. To minimise this potential danger, therefore, the EIA system should consider: provisions for a thorough discussion between the proponent and the relevant Government authority; release of the TOR (to the public) for comment; and submission of more information about the project by the proponent, if there is a request from the relevant authority or the public.

The NEAPGM provides a scoping checklist and sets a clear procedure for project scoping. In addition, consultation with stakeholders and the incorporation of their opinions and concerns into the list of potentially significant impacts, as well as project alternatives, is required. This is important in that it might eliminate those issues generally agreed as being of little or no significance and increases transparency. The scoping process also requires a completed project scoping report, which must contain a record of the scoping process undertaken, including the details of stakeholders, record of site visits and so on, for public record. Furthermore, it is intended that this documentation be used as a reference during the review process. Nevertheless, to establish a well practised scoping process, legal promulgation of the provisions in the NEAPGM as regulations is essential.

The EIA study

To assist the EIA study team, the NEAPGM provides a checklist of project activities and environmental attributes and features that may be impacted. This helps the team identify and highlight the specific project activities and predict their potential impact on the environment. During the assessment of impact significance, the methods to be employed are left open to the study teams, but need to be discussed fully during the scoping process. This avoids unnecessary expense by limiting the sophistication of the methods to the scope of the EIA (Modak and Biswas, 1999).

However, the NEAPGM is silent on how the evaluation of significance of impact should take place besides mentioning the need to evaluate alternatives summarised in the form of a table or matrix. To help EIA practitioners undertake an objective assessment and maintain transparency, as well as to reduce the subjectivity of decision-making, quantitative, or at least explicit, methods of assessing the significance of impacts should be adapted or established. Where this is not possible, guidelines for impact significance evaluation should be prepared.

To mitigate impacts, the NEAPGM requires an EMP, which must include: a list of impacts for which mitigation is proposed; responsibility for

Table 2. Annual trends in project screening, 1999–mid-2002

Project category	Year				Total
	1999	2000	2001	mid-2002	
Category C	-	17	15	35	67
Category B	7	16	48	16	87
Category A	1	0	0	0	1
Total	8	33	63	51	155

Source: DoE (2002)

implementation of each mitigation activity; the time-frame over which the mitigation will be implemented; the spatial extent to which the mitigation will be implemented and over which its impacts will be effective; and an estimated cost of the mitigation measures. Furthermore, the NEAPGM mentions that mitigation should be considered during the different stages of EIA, from scoping through to EIA review, monitoring and post-auditing. Mitigation is thus emphasised in the Eritrean EIA system.

Documentation

For Category B projects, the NEAPGM requires the production of an environmental evaluation report (EER). The EER comprises the questionnaire response, completed by the relevant Government agency and proponent, and other relevant information. For Category A projects, however, a comprehensive environmental impact statement (EIS), which describes consideration of alternatives for proposed actions, the affected environment and the assessment of impact significance, is required. There is a provision for a brief, clear and non-technical executive summary of the report. To make the report locally accessible, the NEAPGM requires the executive summary to be translated into the local languages.

The NEAPGM provides a guideline on formulating the structure and content of EISs, though adherence is not mandatory. In addition, there is the provision that the EIS should contain a draft EMP, which must include all types of activities that might be proposed in mitigation for different impacts of the project. To help with the preparation of the EMP, the NEAPGM provides guidance concerning the minimum content of an EMP.

An EIS report has to be completed by a multidisciplinary team co-ordinated by the proponent. For reasons of clarification and request of additional information, the proponent is required to include the list of names of those who are involved in the different components of the study, including qualifications/field of expertise, professional affiliations, current position, contribution to the overall study and report, and contact details.

Review

The NEAPGM states that the two final outputs of the EIA study, the EIS and EMP, are required to undergo review before the final decision for environmental clearance is given. The review process has two components: an adequacy review and an impact review. First the DoE checks the adequacy of the coverage and completeness of the report against a set of criteria. Then an Impact Review Committee (IRC) co-ordinated by the DoE, reviews the technical information about impacts and mitigation contained in the report. This is to arrive at a recommendation regarding environmental clearance

and project approval, taking into consideration the alternatives and/or the need for improved design, mitigation, compensation and so on. The composition of the IRC includes representatives of regional administration, Government agencies identified as stakeholders in the scoping process, the proponent and the implementing Government agency, a qualified social/development expert and a qualified professional to assess the soundness of the project proposal and its mitigation activities.

As in the scoping stage, the review stage also provides a chance for all stakeholders and any other interested public parties to comment on the reports, although some parts may be considered confidential and could be withheld at the discretion of the DoE. To assist with the review process, the NEAPGM provides procedural steps for both adequacy and impact reviews. It also provides time limits for the review process. A sample form for guidance during the adequacy review is provided, which stipulates that the TOR prepared during the scoping process must be the basis for the impact review.

Decision-making

Based on the review of the EIS and EMP by the IRC, the DoE makes a decision for environmental clearance (EC) of the proposal. Decisions for EC can be:

- Unconditional: EC is automatically granted as no potential impacts requiring changes to the project were identified.
- Conditional: EC granted subject to incorporation of agreed additional mitigation measures into the final EMP.
- Postponed (environmental objections): for Category B projects, where significant potential negative impacts are identified or there is not enough knowledge about potential impacts, and consequently the project is referred for a full EIA. For Category A projects, approval is delayed until the project is extensively redesigned to eliminate existing environmental concerns.
- No environmental clearance: project should not be approved because of a lack of evidence that the significant adverse impacts can be mitigated adequately.

Figures extracted from the DoE report on the decisions for EC (Table 3) show that, out of 79 decisions granted for Category B projects, 62 were unconditional, and the rest (17) were conditional (DoE, 2002). For Category C projects (64 decisions), 28 were unconditional and 36 were conditional. No projects were rejected (no environmental clearance) or referred for a full EIA (environmental objection) (DoE, 2002). The same report shows three non-environmental clearance decisions, but again no indication is given of the category of the projects and no report of the decision is provided for Category A projects.

Table 3. Annual trend of decisions on environmental clearance, 1999–mid-2002

Decision type	Category A				Category B				Category C				Total
	1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002	
Unconditional	0	0	0	0	–	4	45	13	–	13	13	2	88
Conditional	0	0	0	0	–	11	3	3	–	2	1	33	53
Environmental objection	0	0	0	0	–	0	0	0	–	0	0	0	0
No environmental clearance	0	0	0	0	–	0	0	0	–	0	0	0	0
Total			0				79				64		141

Note: – no report on decision

Source : DoE (2002)

The final decision whether to approve or reject the project is undertaken by the approving authority (not the DoE). On this matter, section 5.19 of the NEAPGM stipulates that (DoE, 1999: 43):

Environmental clearance, or a failure to receive environmental clearance from the IRC, does not automatically mean that a project will, or will not, be approved and implemented. Environmental considerations are only one of a number of different factors influencing project approval.

This clearly indicates that in Eritrea the findings of the EIS and the review are not the central determinant of the decision on the action. Because of the overwhelming need for development, it is unusual for a project to be refused as a result of the EIA process.

Nevertheless, in cases where the recommendations of the IRC are overridden by the approving authority, the NEAPGM requires a public disclosure to that effect, together with a justification of its decision. Yet, if the role of EIA as a decision-making tool is to be achieved and SD in Eritrea is to be accomplished, the findings of the EIS and the review need to be established as the central determinant of the decision, and supported in legislation.

Monitoring and post-auditing

For Category A projects, monitoring is an important part of the EMP. For Category B projects, if the EER results in conditional environmental clearance, the recommendations make up an informal EMP and can be used as a basis for monitoring potential negative environmental impacts. Monitoring of the EMP implementation is part of the normal project cycle. For this reason, the proponent and managers are responsible for the day-to-day monitoring of environmental performance and prepare a report to be submitted to the DoE at agreed intervals. The EMP is required to contain details of:

- the Government agency responsible for monitoring and taking action in the event of non-compliance;

- the methodologies to be used for monitoring potential negative impacts;
- the effectiveness of mitigation; and
- procedures to be activated in the event that monitoring reveals a failure of mitigation and/or unacceptable negative impacts arising even with full mitigation.

The DoE is responsible for co-ordinating monitoring of mitigation activities and reviewing all monitoring reports. The DoE is also responsible for undertaking post-investment monitoring of a sub-set of all projects screened as Category C, in order to ensure that no significant impacts arise from these projects. Guidelines for the monitoring process and specific dates/intervals of the monitoring reports are not provided in the NEAPGM. The DEP, however, empowers the DoE to formulate and implement operating procedures that include provisions for monitoring environmental quality and post-EIA auditing (Article 48 (1) (b)).

Interviewees perceive the current monitoring practice to be weak. This is mainly because of the lack of appropriate experts or of a legal mandate to prosecute for non-compliance. The proposed DEP, however, tries to address the latter by empowering the line ministries to undertake inspection, enforcement and monitoring of compliance with environmental quality standards, and to conduct environmental audits in their respective sectors (Article 49 (1)). It also empowers the DoE to co-ordinate overall monitoring of environmental quality (Article 49 (2)) and to carry out all necessary sectoral monitoring, inspections and enforcement where a line ministry fails to monitor adequately (Article 49 (3)).

However, it is the proponent who is expected to monitor and record environmental impacts and consequences during the project commencement and implementation process and thereafter. Such an approach is highly dependent on the integrity of the proponent and, therefore, additionally requires independent evaluation. Furthermore, to make the monitoring and post-auditing process effective and standardised, national guidelines that apply to internal

and external monitoring and post-auditing processes are required. To develop a consistent monitoring and auditing system, the date/interval for submission of monitoring and auditing reports in relation to the project category, needs to be specified.

Other features of EIA

Coverage

In principle, the EIA system in Eritrea applies to all projects (both public and private) with potential significant negative environmental impacts. However, as a result of the lack of statutory mechanisms to enable the DoE to enforce EIA, not all projects are passing through an EIA process. Nevertheless, there are indications that the use of the NEAPGM by Government bodies is increasing, mainly because of pressure from international development funding agencies and local investment banks, which require EIA as part of the project appraisal (Teclेमariam, 2003).

Certain project types, such as full-scale mining or oil and gas production, which fall under other (sectoral) environmental impact guidelines or regulations and are covered by other legislation, need not pass through the procedure outlined in the NEAPGM. Such omissions reflect fragmentation of legislation and administration of the EIA system in the country and may result in increasing confusion and administrative difficulty.

The NEAPGM provides a broad definition of the environment, covering significant impacts on the biophysical environment, direct and indirect hazardous effects on human health, ecosystem integrity and the socio-cultural environment. The NEAPGM requires EIA for all activities that involve a change in land or water use, that result in the modification or expansion of an existing land or water use, or that result in the establishment of a new land use on previously unused land or water. However, it is confined to projects only, though it states that the definition of a project can be extended to cover plans, policies and programmes where appropriate.

The DEP requires EIA for both private and public projects. In addition, it provides the broad definition of environment and indicates that a project can include a plan or a programme. Unlike the NEAPGM, the DEP, however, lacks clarity on whether the EIA requirement is for new projects only or whether it includes projects under modification or expansion.

Consideration of alternatives

The NEAPGM requires the analysis of alternatives as part of the study in preparing the TOR for scoping. It stipulates a need for:

- a list of project alternatives;
- a list of project activities for each alternative, with any potential negative impacts;

- assessment of the area, scale, duration, frequency and probability of occurrence, of each alternative's potential negative impacts and the actions that might be taken to mitigate negative impacts;
- justification of the preferred alternative on the basis of environmental impacts, but paying attention to economic and engineering constraints and opportunities; and
- development of the draft EMP to mitigate negative impacts and to monitor the effectiveness of mitigation for the preferred alternative.

The NEAPGM requires assessment of significant environmental impacts for each of the different alternatives identified by the scoping exercise to be the main part of the EIS. It also gives advice on assessing the significant impacts by providing a checklist of project activities and environmental attributes. Nevertheless, to make a meaningful assessment of impacts, a legal test for evidence of consideration of the environmental impact of reasonable alternative actions is required. This can be done by enacting EIA regulations under the provision of Article 66 of the DEP.

Public participation and consultation (PPC)

One of the requirements during the preparation of a TOR is to ensure that appropriate consultation of stakeholders takes place during the study period. The NEAPGM requires that the TOR should clearly set out the extent of, and methodology for, public consultation throughout the assessment study and review. During the scoping stage in particular, the proponent and the relevant Government agency should agree on a list of stakeholders and the mechanisms by which they will be consulted. At completion of this phase, a scoping report for public record is required. To access local knowledge in the project location and potential impact zone, the NEAPGM mentions certain techniques such as interviews, questionnaires and PRA.

However, the emphasis is on consultation with key stakeholders rather than wide public participation. The NEAPGM defines a stakeholder as any person or group likely to be affected by a proposed project. This suggests that the consultation and participation process in Eritrea is limited to the affected parties, rather than including a formal provision for interested parties such as NGOs and the general public. Nevertheless, the NEAPGM also provides an opportunity for all stakeholders plus any other interested public parties to comment on the EIS and the draft EMP during the review stage.

The proposed DEP tries to incorporate PPC into legislation by providing a right to every person to have access to appropriate information thus ensuring conscious and effective participation (Article 8). Moreover, Article 30 stipulates that every person has freedom of access to any information related to the implementation of the provisions of the proclamation and other laws relating to the management of

the environment from the MLWE, the DoE, or any line ministry.

EIA system monitoring

In Eritrea, there is no formal requirement for EIA system monitoring. However, the NEAPGM acknowledges that understanding of the impact of current development activities on the environment is limited and, as a result, it requires the revision of the project screening list and the list of the ESA at regular intervals. In addition, if the post-investment monitoring of Category C projects indicates that a project is having significant environmental impact, then it is required to be added to the project screening list as Category B (or even A) when the list is next revised. The NEAPGM also mentions the need for monitoring of approved projects to gain knowledge from project implementation, which can be fed back into the EA process (via improved questionnaires for EE and improved scoping for full EIA).

Though it is not a legal requirement, copies of different documents, such as the scoping report, EIS, EMP and monitoring reports are required to be delivered to the DoE. In addition, annual reports of EA of projects are required to be submitted to the DoE. These would be very helpful in monitoring the EIA system. In reality, however, there is very little (if any) practical experience of system monitoring in the country. The main reason is the lack of adequate staff with appropriate expertise at the DoE and other Government agencies.

Furthermore, the border conflict with Ethiopia is cited as a principal factor (Tecleab, 2003). Thus, to strengthen the EIA system, the establishment of a section responsible for keeping copies of all EISs and other EIA documents, documenting the financial costs and time issues, and undertaking periodic review of the EIA system, is required.

Costs and benefits of EIA

The NEAPGM stipulates that the financial cost of EIA, including that of additional work completed by Government officials who contribute to the assessment (for instance, completion of public consultation), should be borne by the proponent. At this stage, the EIA costs of projects are met principally through external or donor funding, with very few examples of costs being met by Eritrean proponents. As a consequence, there is a general perception that the EIA process is cost-effective, although this is likely to be because the costs are borne externally. All the interviewees believe that it is too early to say that the EIA process in Eritrea has altered the behaviour of stakeholders.

Strategic environmental assessment

With the exception of very few plans and programmes (those funded by the World Bank), experience of SEA

in Eritrea is limited. Besides stating that the definition of a project can be extended to cover plans, policies and programmes, there is no mention of SEA in the NEAPGM. However, the strategies in the NEMP-E indicate the need for the application of EIA to policies, plans, and programmes, that is, project EIAs need to be supported and contextualised by SEA. Government plans, such as the mass returning of refugees from neighbouring countries, and Government policies, such as national military service (especially with respect to training camps), are more appropriate examples that require the application of SEA.

Conclusion and recommendations

This study has reviewed the application of EIA in Eritrea with reference to international principles and procedures of EIA at both policy and practice levels. The current EIA system meets 11 of the 18 evaluation criteria at policy level (Table 4), partially meets three and fails to meet four. The major weaknesses relate to: the legal provisions for EIA; the adequacy of resources (human and environmental data/information); the centrality of EIA in decision-making; and the formal provision for SEAs of programmes, plans and policies. Furthermore, it is clear that the EIA system in the country is still in a formative stage, with attendant concerns regarding the extent to which EIA is being practiced.

The reasons for the limited application of EIA in Eritrea include: lack of environmental awareness of some Government officials and the general public; pressure for quick development (emergency development projects); financial problems relating to the cost of full EIA for locally owned projects; lack of expertise with EA skills in both sector ministries and the DoE; all of which are underpinned by the lack of a mandatory requirement for EIA. Furthermore, the border conflict with Ethiopia has greatly hindered the implementation of the EIA system in the country.

To strengthen the current EIA system in Eritrea, therefore, the following are urgent priorities: increasing environmental awareness; the establishment of continuing training in EIA for Government officials, consultants, research institutions, and educational institutions; and the implementation of a sound legal basis for EIA.

There are, however, also several reasons for optimism with respect to improving EIA practice in Eritrea. These include:

- the general increase in awareness of environmental issues (EA in particular) mainly because of the pressure from international development funding agencies and local investment banks, which require EIA as part of a project appraisal;
- the return from foreign countries of local people who have been taking higher degrees and training in environmental matters;
- the increasing number of local experts with the

Table 4. Performance of the Eritrea EIA system

Criteria	Criterion met	Comments
Institutional aspect of EIA system		
1. Does a clearly documented environmental policy at national, regional and local levels exist?	Partially	Policies are set at national level and are present. Regional and local environmental policies are absent. Policies are not always implemented within the planned time.
2. Is there an institution or body mandated with environmental matters and are responsibilities for EIA administration clearly specified?	Yes	A DoE within the MLWE does exist. Shared responsibilities between DoE and relevant authorities are also clearly specified. However, currently the institutional power and capacity of the department is weak.
3. Is the EIA system based on clear and specific legal provisions?	No	Currently the EIA system in Eritrea is on a voluntary basis. However a DEP with enabling legislation is under process.
4. Are there adequate resources to carry out meaningful EIA?	No	Lack of multidisciplinary local experts and scarcity of environmental data/information are among the most challenging issues for the implementation of EIA in the country.
EIA process		
5. Must screening of actions for environmental significance take place?	Yes	A simple screening approach that involves the use of both lists and thresholds is utilised.
6. Must scoping of the environmental impacts of actions take place and specific guidelines be produced?	Yes	TOR are prepared by the proponent in agreement with the relevant authority. A completed scoping report is also required for public record and as a reference during the review process.
7. Are there enough guidelines prepared to assist during the EIA study (prediction and evaluation)?	Partially	Guidelines that can help during screening, scoping and review do exist. However, guidelines for impact prediction and evaluation are not available.
8. Must mitigation of action impacts be considered at the various stages of the EIA process?	Yes	In principle there is an emphasis on mitigation. However, only limited experience exists.
9. Must EIA reports meet prescribed content requirements and do checks to prevent the release of inadequate EIA reports exist?	Yes	Minimum requirements for EISs and EMPs are provided but conformance with the structure is not mandatory. Nevertheless, the DoE does review the adequacy of the reports. However, there is only little institutional experience.
10. Must EIA reports be publicly reviewed and the proponent respond to the points raised?	Yes	All stakeholders plus any other interested parties are given a chance to comment on the EIA report and the draft EMP, but some parts of the report may be considered confidential and could be withheld at the discretion of DoE. Again, there is only little experience.
11. Must the findings of EIA reports and the review be a central determinant of the decision on the action?	No	Findings of EIA reports and the review serve for environmental clearance, but they are not the central determinant of the decision for the project. So far, not a single project has been rejected.
12. Must monitoring of action and post-auditing take place?	Yes	Monitoring is set as an important part of the EMP and provisions for inspection and post-auditing are given, but this is weakly practised.
Other features of EIA system		
13. Must the relevant environmental impacts of all significant actions be assessed?	Yes	The environment is broadly defined to include biophysical, social and cultural impacts. All projects (public and private) with significant environmental impact require EIA.
14. Must evidence of the consideration, by the proponent, of the environmental impacts of reasonable alternative actions be demonstrated in the EIA process?	Yes	Analysis of alternatives is considered during the preparation of the TOR (scoping report) and the EIS. In practice, however, it is weakly established.
15. Must consultation and participation take place prior to, and following, EIA report publication?	Yes	Consultation with different stakeholders is required during scoping and EIA preparation. All stakeholders and any other interested public parties are also given a chance to comment on the scoping report, on the EIS and the draft EMP during the review stage. However, only limited experience exists.
16. Must the EIA system be monitored and, if necessary, be amended to incorporate feedback from experience?	Partially	No formal EIA system monitoring exists. However, provisions such as periodic review of the project screening list, the list of ESAs; and the requirement for incorporation of feedback from monitoring experience, submission of scoping reports, EIS, EMP, and monitoring reports is noted. Again, this is weakly practised.
17. Are the financial costs and time requirements of the EIA system acceptable to those involved and are they believed to be outweighed by discernible environmental benefits?	Yes	At this stage costs are met by external donor funding agencies and appear to be acceptable.
18. Does the EIA system apply to significant programmes, plans and policies as well as to projects?	No	Experience of SEA is limited to a very few plans and programmes funded by the World Bank.

establishment of a new BSc degree in Land Resource and Environment at the University of Asmara (Eritrea) and the incorporation of EIA as one of the core courses;

- the formation of environmental units in different sector ministries and the publication of certain sector-specific EIA guidelines;

- the imminent ratification of the current DEP, which will make EA a legal requirement in the country;
- and finally, peace with Ethiopia will facilitate the implementation of the EIA system in Eritrea and will create opportunities for the country to share experiences with its neighbours.

Note

1. EE means the process by which the potential impact of a proposed project on the environment is determined, using primarily Eritrean resource and existing information (by filling in an environmental evaluation questionnaire). The results of the evaluation are contained in an environmental evaluation report.

References

- Ahmad, J Y and G K Sammy 1985. *Guidelines to Environmental Impact Assessment in Developing Countries*. London: Hodder and Stoughton.
- Ahmad, B and C Wood 2002. A comparative evaluation of EIA systems in Egypt, Turkey, and Tunisia. *Environmental Impact Assessment Review*, **22**, 213–234.
- DoE, Department of Environment 1999. *National Environmental Assessment Procedures and Guidelines*. Asmara: Government Printers.
- DoE, Department of Environment 2002. Annual reports on environmental assessment, Departmental internal document. Asmara: Government of Eritrea.
- GoE, Government of Eritrea 1994a. *Macro Policy*. Asmara: Government Printers.
- GoE, Government of Eritrea 1994b. Investment Proclamation no 59/1994. *Gazette of Eritrean Laws*.
- GoE, Government of Eritrea 1995a. *National Environmental Management Plan for Eritrea*. Asmara: Government Printers.
- GoE, Government of Eritrea 1995b. Mining proclamation no 68/1995, Legal Notice no 19/1995. *Gazette of Eritrean Laws*, 20 March.
- GoE, Government of Eritrea 1996. *Draft Environmental Proclamation*. Asmara: Government of Eritrea.
- GoE, Government of Eritrea 1997. *The Constitution of Eritrea*. Asmara: Government Printers.
- GoE, Government of Eritrea 2000. Revised regulations on petroleum operation, Legal Notice no 45/2000. *Gazette of Eritrean Laws*, 15 July.
- GoE, Government of Eritrea 2002. *Earth Summit II Rio + Ten, Country Assessment Report on Sustainable Development*. Asmara: Government Printers.
- Kakonge, J 1999. Environmental impact assessment in Africa. In *Handbook of Environmental Impact Assessment. Volume 2, Environmental Impact Assessment in Practice: Impact and Limitations*, ed. J Petts, pp. 168–182. London: Blackwell Science.
- Lee, N and C George eds. 2000. *Environmental Assessment in Developing and Transition Countries: Principles, Methods and Practice*. Chichester: John Wiley and Sons Ltd.
- Mebrahtu, Ogbazgi (2003). Personal communication with Mine Inspection Head, Department of Mines, Ministry of Energy and Mines. Asmara, 17 May.
- MoA, Ministry of Agriculture 2002. *National Action Program to Combat Desertification and Mitigate the Effect of Drought (NAP)*. Asmara: Government Printers.
- Modak, P and A K Biswas 1999. *Conducting Environmental Impact Assessment for Developing Countries*. Tokyo: United Nations University Press.
- Pool, D 1982. *Eritrea: Africa's Longest War*. London: Anti-Slavery Society.
- SAIEA, Southern African Institute for Environmental Assessment 2003. *Environmental impact assessment in southern Africa*. Windhoek: SAIEA.
- T Consult 2001. *Eritrea — Emergency Reconstruction Program: Environmental Assessment, Vol. 1*. Asmara: Ministry of Finance.
- Tecleab, Misgina (2003). Personal communication with Director General, Department of Environment, Ministry of Land, Water and Environment. 10 May.
- Teclemariam, Zego (2003). Personal communication with employee of T Consult (Pvt Ltd). 10 May.
- Wood, C 2003. *Environmental Impact Assessment: a Comparative Review*, 2nd edn. Harlow: Pearson Education Ltd.
- Wood, C 1999a. Comparative evaluation of environmental impact assessment systems. In *Handbook of Environmental Assessment: Volume 2, Environmental Impact Assessment in Practice, Impact and Limitations*, ed. J Petts, pp. 10–34. Oxford: Blackwell Science.
- Wood, C 1999b. Pastiche or postiche? environmental impact assessment in South Africa. *South African Geographical Journal*, **81**(1), 52–59.