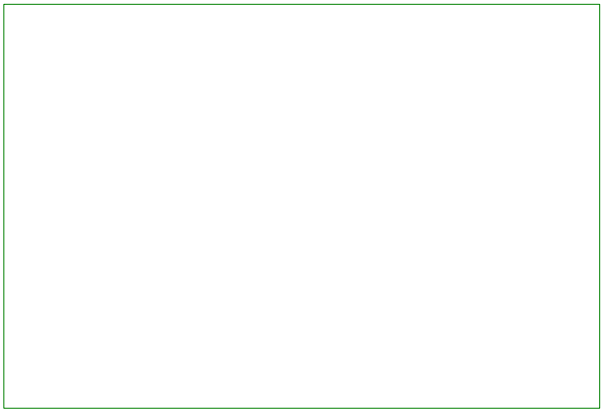
IUCN Eastern Africa Programme

Somali Natural Resources Management Programme

TOWARDS ENVIRONMENTALLY SOUND WATER PROJECTS IN SOMALIA

Introduction to EIA



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The World Conservation Union

An Introduction to EIA

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Development and the Environment

In Somalia, where the economy depends on the state of the natural resource base, a well-managed environment is the most important ingredient for national development. Thus development and the environment must go hand-in-hand.

The development of water resources is a critical component of this much-needed development, and a well-managed environment is vital for maintenance of those water resources. But water projects also affect *the environment, because of:*

- *the semi-arid or arid nature of Somalia; and*
- *the predominantly pastoral nature of the Somali economy and land-use*

1. In these conditions, pastoral production systems and the natural environment are constantly in danger. For example:

- *Groundwater is typically recharged from run-off flowing in water courses, so low rainfall means* ***low recharge of groundwater****.*
- *Evaporation rates are very high, and infiltration rates are low, so surface run-off rates are high. The result is that* ***infiltration and surface water resources depend mainly on soils and vegetation cover.***
- *Another problem is that* ***people and livestock often share the same water source.*** *Indeed, livestock needs may take priority;*
- *Both* ***grazing and water may be shared between different groups****;*
- ***Users of a single water source may come from far and wide****.*

2. For reasons such as these, opening up a new water resource can have undesirable impacts, for example:

- *Rangelands which were traditionally unused during certain seasons because of a lack of water may now be subjected to use throughout the year, preventing regular recovery of the vegetation which used to survive;*
- *The area around the newly established water resource may suffer from overgrazing;*
- *Permanent human settlement may be encouraged near the water resource, which may result in land being cultivated, thereby reducing the amount of rangeland available.*

3. But water projects are necessary, so how can these problems be avoided?

By careful planning. And to assist you, there is an important planning technique, known as Environmental Impact Assessment (EIA). As you prepare your project, you will find that EIA is very useful in helping to ensure that your project achieves its objectives without running into such problems. It will help you foresee long-term impacts, which may not be immediately obvious, and will help you to choose the type and design of project which will work out best.

The aim of this booklet is to provide you with the basic information you will need to make good use of EIA.

Introduction to EIA

1. What is EIA?

EIA is a method of forecasting the likely environmental impacts of a project before implementation begins, so that adjustments may be made, if necessary, to ensure that the environmental impacts will be avoided or minimised.

The European Commission defines EIA as 'the identification, description and assessment of the direct and indirect effects of a project on: human beings, fauna and flora, soil, water, air, climate and the landscape, the interaction of these factors, and on material assets and the cultural heritage.(Directive 85/337/EEC)

2. What sorts of projects need EIA?

EIA should be applied to all *water projects. If there are no impacts expected which are likely to require an in-depth study, this will become clear in the 'Screening' stage.*

The sort of project, which would definitely require mitigative measures to be planned and implemented, would be, for example:

- *A borehole intended to extract water from a source which is already providing water to other users, or where the demand might in due course exceed the supply;*
- *A shallow well in a region where the pressure on other resources is already high (such as demand for woodfuel or fodder);*
- *A bally or berkad where there is malaria.*

3. What are the benefits of EIA?

The most obvious benefits are good management of the environment, which in the long run will benefit the community, the project and the nation as a whole. But in addition, EIA often helps to make specific improvements to projects, by:

- *making them more environmentally sustainable;*
- *facilitating participation and acceptance by all stakeholders including the local communities;*
- *reducing the time required for the go-ahead decision;*
- *reducing project costs in the long-term.*

4. Will EIA obstruct the project?

In most cases, the EIA helps to facilitate the project; it does not obstruct it. Through the EIA process, agreement can usually be reached on modifying a project to the satisfaction of all concerned, in order for it to proceed. Only in rare cases, where the negative environmental impacts would be unavoidable and would outweigh the advantages of the project, is it found necessary to abandon a proposed project. In the long-run, such projects would typically have run into trouble anyway.

5. When should the EIA be conducted?

The earlier EIA can be carried out, the better. If an EIA can be conducted when the project concept is developed, then there will be an opportunity to make changes to basic aspects of the project, such as the technology and location, before much money has been spent on design work.

6. Who should conduct the EIA?

Arranging to have an EIA conducted is usually the responsibility of the project proponent. It may be conducted by project partner, or by consultants. But regardless of who takes overall charge of conducting the EIA, the process should involve all the project stakeholders. Note, however, that not all the stages shown in the diagram on page 7 are conducted by the EIA team. The EIA team usually handles the Scoping*, and the* EIA Study*.*

7. How many people are involved in conducting an EIA?

The minimum number should be two, in the case of a small project. Since a mixture of disciplines is required, with some discussion, it is best not to rely on one person alone. In the case of large projects, the number could reach five or six, or even more if the project is a multi-purpose one.

8. How long does it take to conduct an EIA of a water resource development project?

An EIA carried out very early, at 'project concept' stage, takes less time than one conducted after the detailed design has been completed. Known as a 'reconnaissance-level' study, the early EIA is designed to check out a project concept without worrying about a lot of detail. Such an EIA usually takes 2-3 weeks for a small project or 1-2 months for a large project.

A full, 'feasibility-level' EIA, conducted in detail after the feasibility study has been completed, would typically take 3-4 weeks for a small project or 4-6 months for a large project.

9. If professional consultants need to be hired, how much would the EIA cost?

Most EIAs at full, feasibility level, cost less than 5% of the capital cost of the project. In the case of very large projects, it usually costs less than 1%. The savings accrued from a project operating smoothly in its environment, usually exceed these costs in due course.

10. I am planning to commission an EIA. How do I judge if the proposal is acceptable?

There are three basic issues to check on the team leader, the team, and their proposed methodology. Useful tips are as follows:

The Team Leader:

- *The overall success of the EIA will depend mainly on him, or her.*
- *The discipline in which the Team Leader is qualified is not very important, so long as it is environment-related. More important is experience: the Team Leader* must *have experience of conducting EIAs previously.*
- *You must meet the Team Leader to ensure that he or she is good at communicating, working with others and organising teamwork.*
- *Check that there is at least one satisfied client who has employed the Team leader previously in this capacity.*
- *The Team Leader should have worked previously with at least 50% of the team members.*

The Team:

- *Members of the team should be qualified in the main disciplines with which the EIA will be concerned. However, experience is often more important than post-graduate academic qualifications.*
- *Since inter-disciplinary linkages are very important, at least 50% of the team members should have worked together before.*

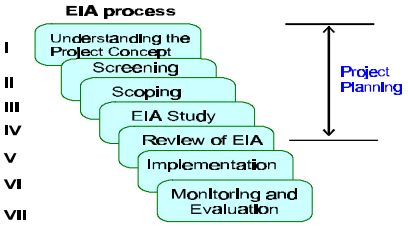
The Methodology:

- *Since the major shortcoming in EIA is failure to adequately predict inter-sectoral impacts, the main requirement is that the proposal should demonstrate that the team will work together, and not as individuals.*
- *The methodology should demonstrate that the team members would all understand the project fully before starting work, regardless of their discipline.*
- *The proposal should demonstrate that the team is aware that what is required is a management document to facilitate a decision, not a scientific paper.*
- *If the EIA is a brief, 'Reconnaissance-level' EIA, then it may rely largely on published data. If it is a full, 'Feasibility-level' EIA, then it will require primary data collected in the field. In this case, expect more than half of the budget to be spent on data collection.*
- *The proposal should demonstrate that there will be adequate involvement of the stakeholders, especially in the data collection and impact assessment stages.*
- *If possible, get the consultants to accept a member of the project staff or associated technical person as an assistant on the EIA team.*

11. When the EIA report has been issued, how can I judge if it is adequate and should be adopted?

This is covered in Stage V: Review *in this booklet.*

The EIA process involves the following 7 key stages:



Stage I: Understanding the Project Concept

A camel drinking from one of many shallow wells at Dhaboolaq, an area of traditional shallow wells based on a wadi reservoir. The development of improved wells may raise questions of environmental impact. An EIA would help to determine negative or positive impacts of the development.

This is the first stage in an EIA and the project-planning phase. It involves an understanding of a proposed project within the overall development strategy for a sector, region or for Somalia as a whole.

All stakeholders need to understand and evaluate:

- *the historical and background information on the project;*
- *community information;*
- *the UNDOS database and other major sources of data in Somalia;*
- *whether there is sufficient information available, to predict the consequences of the project on the environment;*
- *the objectives of the project and whether they meet the needs of the intended beneficiaries; and*
- *the different components and stages of the project.*

The output of this stage should be a short project brief which will be an input to the screening phase.

Stage II: Screening

Screening determines **the extent *(level of detail)*** to which an EIA is required.
Screening should be undertaken and agreed upon by the authorities responsible for the environment and water and the implementing agency or aid agency concerned.

Under the European Commission's EIA guidelines, the project will be classified as either Category A, or B, or C. Pages 32 and 33 of ***the*** **EIA Manual and Guidelines for the Somali Water** S**ector** *tells you which types of project fall into which category.*

- ***Category A projects*** *will not need an EIA. They are typically small-scale and may not involve physical intervention. Examples: A short-term training course; the construction of one berkad.*

- ***Category B projects*** *will need a partial EIA. They are typically medium-scale, involving some physical intervention. Example: Construction of twelve berkads.*

- ***Category C projects*** *will need a full EIA. They are typically medium-to-large scale projects, and may be in, or close to, environmentally sensitive areas.*

Different agencies have different Screening criteria and categories. It will be necessary to check with the guidelines that are to be used, before allocating the project to a category, and before commissioning the EIA.

The output of the stage will be an agreement on the Category assigned to the project.

Stage III: Scoping

Scoping should be done by the person responsible for the EIA; the project manager and his/her team of multi-disciplinary experts. Scoping is a unique term used for EIA and identifies the following:

- *the major relevant environmental issues;*
- *how issues will be addressed;*
- *sets the boundaries of the baseline data collection for each sector in terms of:*
  - *geographical area to be covered, and in what detail;*
  - *seasons and years to be covered*
  - *accuracy of the data to be collected.*
- *who should be involved;*
- *whether external expertise is required;*
- *what input is required by each person;*
- *what further information is required;*

- *how EIA fits into the Project Planning Cycle; and*
- *the logistical and practical requirements of the study.*

Scoping *should ensure that all major stakeholders at all levels are contacted and their opinion sought on the expected environmental impacts of the proposed development.*

It is important to seek the opinion of all communities concerned as they often have some of the most detailed information available. In addition, reference should be made to the UNDOS and other databases.

The output is a Scoping Report, which covers the issues listed above. *It should also contain a list of people contacted, with a summary of their viewpoints. This will help to ensure that all views are taken into consideration and that a balanced assessment can be made. The Scoping Report will set the boundaries, approach and priorities of the EIA study itself, so it is very important that the process is not treated lightly.*

Example: A proposal to construct 12 Berkads in Hedinta

An NGO A wishes to construct 12 Berkads in Hedinta to improve water supply and small-scale farming in the region. They approach the authorities responsible for Environment and Water who both in principle give the go-ahead for the project, but ask them why they have identified Hedinta as their chosen area and inform them that they must undertake an EIA.

*Organisation A explains that they have collected historical data (community information, geology, soils, rainfall, water supply, food and cash crop data over the last 5 years) to show that an improvement in water supply could result in a potential doubling of the crops within two years (**project brief**).*

The Environment and Water authorities assign the project to Category B. The project manager and the EIA team hold meetings with key officers from the authorities responsible for Water, Environment and Agriculture, all relevant NGOs, private organisations and communities in and around Hedinta, to launch the Scoping process. Meetings are held on the proposed project site whenever possible. The discussions address the project and all aspects of its expected interaction with the biophysical and socioeconomic environment. Agreement is finally reached on all key the points required, and a Scoping Report is produced which defines how the EIA should proceed.

Stage IV: The EIA Study

The study comprises seven major tasks:

Collecting baseline data
Identifying positive and negative impacts
Identifying the causes of negative impacts
Proposing solutions/mitigation measures for negative impacts
Identifying opportunities from positive impacts
Proposing support measures for positive impacts
Writing the report

12. Collecting Data

This task may be the most time-consuming stage of the EIA study, depending on how much data is already available. A baseline data collection plan must be drawn up, following the specifications set out in the Scoping Report. These specifications will direct the data collection team to the topics and areas prioritised by the environmental issues, which the Scoping discussion groups expect to be significant.

At all times during the data collection phase, it must be borne in mind that the purpose of the baseline is to define the environment as it is now, before project implementation, so that the nature and extent of likely change can be clearly established. There is no point in collecting data for the sake of it.

Any published data to be used in the impact assessment exercise should be verified by cross-checking with sample data.

As far as possible, the team members who conduct this exercise should avoid confining the structure to a sector format (ie flora, fauna, etc). Wherever possible, the ecosystems *should be described, which link the various components of the environment (such as maintenance of wetlands Þ aquaflora Þ economic production and water treatment Þ socioeconomic welfare and health Þ agricultural productivity Þ sustainable land use Þ maintenance of wetlands)*

13. Identifying expected positive and negative impacts

This task can be started by naming all project sources of impacts e.g. water consumption, water quality, construction jobs etc. The sources of impacts should be matched with a list of areas where impacts might be felt e.g. communities using the same water for drinking and agricultural purposes. This is often done by using a checklist as illustrated at the end of this section.

For further information on how to use the checklist reference should be made to pages 15 to 21 of the ***EIA Manual and Guidelines for the Somali Water Sector, IUCN, 1997****. Other methods for identifying the positive and negative impacts of a project include matrices, networks, overlays, models and simulations etc.*

The checklist:

a) summarises impacts
b) provides a quick and visual indication of positive & negative impacts
c) provides an indication of the significance of impacts.

However, the checklist is only to prompt the team members doing the impact assessment. They should be directed primarily by the issues raised in the scoping report, and should carefully consider the likely impacts of all project phases: Construction, Commissioning, operations and De-commissioning at the end of the project, if appropriate.

14. Identifying causes of negative impacts

Identifying the cause of a problem rather than the symptom means that the most appropriate solution or mitigation measure can be found. Examples include trampling caused by livestock, or lowering of the groundwater table by over-pumping etc.

An existing berkad in Hedinta. Note the exposed surface (cause), which may lead to high evaporation and poor bacteriological quality (symptom).

Solutions could include reducing the surface area by constructing deeper berkads and the construction of covers.

ENVIRONMENTAL IMPACT ASSESSMENT CHECKLIST

TYPE OF SUPPLY : Groundwater: borehole/shallow well/spring/groundwater

dam surface water: berkad/balley/other _____

NAME OF SUPPLY: __ 12 proposed berkads at Hedinta _____

NAME OF ASSESSOR: ___ Mohammed Ali _____

DATE OF ASSESSMENT: ____ April 2000 _____

MAGNITUDE OF IMPACT

++ major positive impact
+ minor positive impact
0 zero/negligible impact
-minor negative impact
- - major negative impact
? unknown or doubtful

	Impacts on or caused by:	***Change from the present situation Y/N***	***How will the environment be affected? Describe changes/impacts that may occur.***	***Magnitude of impact***	***Linkages between impacts ****
	PHYSICAL ENVIRONMENT				
1 *a* *b* *c* *d* *e*	*Ground water* • *Quality* - *Physiochemical* - *Bacteriological* • *Quantity (availability, fluctuations, water table depth)* • *Aquifer capacity (depletion, replenishment)* • *Saline intrusion*	*N*			
2 *a* *b* *c*	*Surface water* • *Quality* - *Physiochemical* - *Bacteriological* • *Quantity (availability, adequacy, fluctuations)*	*Y*	*Reasonable (less muddy than balley) water quality. Poor bacterialogical quality & reliable quantity.*	*+* *- -* *+*	
3	*Leakage/seepage*	*N*	*(not if berkads are constructed well)*		
4	*Ponding*	*N*			
5	*Siltation*	*Y*	*Potential for siltation dependent on sites*	*-*	
6	*Evaporation*	*Y*	*Evaporation significant*	*--*	
7 *a* *b*	*Soil* - *erosion (due to construction)* - *stability*	*Y*	*If sited poorly erosion can result. Furthermore, berkads can collapse*	*--*	
8	*Air pollution (dust etc)*		*Dust blows onto surface*	*-*	
9	*Noise pollution (due to construction, pumps)*	*N*			
10	*Suitability of site location*	*Y*	*Depends upon sites*	*+/-*	
	BIOLOGICAL ENVIRONMENT				
11 *a* *b*	*Forests/woodland* - *improvement or degradation* - *utilisation of woody species (e.g. fencing, firewood)*	*Y*	*Can result in deforestation or improvement.*	*-/+*	
12	*Vegetation (clearing for construction of intervention)*	*Y*	*Limited removal of vegetation*	*-*	
13	*Wildlife*	*Y*	*Open water will attract wildlife*	*+*	
14 *a* *b*	*Aquatic ecosystems* - *condition (improvement, degradation, depletion)* - *ecology (animals, plants)*	*Y*	*Water will attract and improve ecosystems*	*+*	
15 *a* *b*	*Wetland ecosystems* - *condition (improvement, degradation, drainage)* - *ecology (animals and plants)* -	*N*			

	Impacts on or caused by:	Change from the present situation Y/N	How will the environment be affected? Describe changes/impacts that may occur.	Magnitude of impact	Linkages between impacts *
16	Introduction of disease vectors (creation of vector habitats)	Y	Anopheles malaria carrying mosquito	--	
17	Suitability of site location	Y	Site dependent	+/-	
	PRODUCTION SYSTEMS Sustainability of land use changes (e.g. ranching to farming)				
18	Agriculture	Y			
a	- agricultural productivity		Increase in crops of all types. Potential for irrigation. More land under crops. Potential for sheet erosion	++	
b	- changes in agricultural practices (irrigation etc)			++	
c	- increase in land under cultivation			++	
d	- erosion (due to agricultural mal-practices)			-	
19	Livestock	Y			
a	- livestock production		Increase in livestock production. Movement can be improved or restricted. Over-grazing, erosion & changes in husbandry can result.	++	
b	- livestock movement			+	
c	- overgrazing (range degradation, settled areas, etc)			-	
d	- erosion (trampling, access routes)			-	
e	- changes in traditional livestock husbandry			-	
	SOCIO-ECONOMIC & SOCIO-CULTURAL ENVIRONMENT				
20	Water usage patterns	Y			
a	- utilisation of available water		With improved water supply, less time is required for water collection and there is more time for livestock and farming.	++	
b	- distance to source			++	
c	- utilisation of saved time			++	
d	- changes in traditional water management practices (use of watering points, rights, transport, storage)			+	
21	Public health	Y			
a	- water related diseases		Malaria and other water related diseases can be transmitted. Potential to improve sanitation. Solid waste a problem.	--	
b	- sanitation/hygiene			+	
c	- solid waste disposal			0	
23	Food security	Y	Crops all year round – improved security	+ +	
24	Nutrition	Y	Varied crops and better supply	+	
25	Settlement/Sedentarisation	Y			
a	- in-migration to existing settlements		Improved water can attract more people which will increase pressure on all resources	-	
b	- sedentarisation in rangelands			-	
c	- community set up (cohesion, separation)			+	
d	- fencing off of land for private utilisation			-	
e	- access roads to water points			--	
26	Income generating opportunities	Y			
a	- agricultural products		Income generating opportunities significantly improved	++	
b	- livestock products (milk, meat, ghee, hides, skins)			++	
c	- sale of water			+	
d	- employment on project			+	
27	Traditional attitudes to drought preparedness	N			
28	Security/conflict	N			
29	Safety of intervention structures (dam walls, deep ponds)	Y	Unsafe – people & animals can drown	--	
30	Sites of cultural/historic importance	N			
31	Suitability of site location	Y	Site dependent	+/-	

15. Propose solutions/mitigation measures for negative impacts

When the adverse impacts have been identified, possible measures to address them should be explored. The efficacy and cost of these measures should also be assessed. Options can be proposed to prevent, reduce, remedy or compensate various impacts. Possible mitigation measures include:

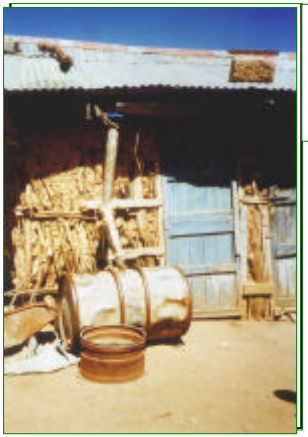
Changing:
- *project sites*
- *routes*
- *processes*
- *locations*
- *engineering designs*
- *raw materials*
- *operating methods*
- *timing etc*

Introducing:
- *pollution control*
- *waste treatment*
- *monitoring process to be established*
- *special social services*
- *phased implementation*
- *landscaping*
- *personnel training*
- *public education etc*

Compensating & Offering:
- *restoration of damaged resources*
- *money to affected persons, concessions or other issues*
- *off-site programmes to enhance some other aspects of the environment or quality of life*

16. Identifying opportunities from positive impacts

Many of the positive impacts identified will be found in the project objectives, while others will be unintentional and may only be realised once the checklist has been completed. For example, improved water supply may provide opportunities for improved health, hygiene and sanitation in addition, to a variety of income generating opportunities.



Rain water harvesting in Geedbalad. Water supply projects provide opportunities for awareness training in rain water harvesting, sanitation, hygiene, etc.

17. Propose support measures for positive impacts

This proposes ways of maximising the benefits from the positive impacts. Examples include provision of improved seed varieties, small-scale irrigation, mixed cropping and the training required for these activities.

Examples of possible mitigation measures to address potential environmental impacts

Potential Negative Impact	***Possible Mitigating Measures***
Degradation of pasture in the immediate area as a result of an increase in number of livestock visiting the area	*Plans for control of access to be developed by local community and management structure to implement plan be established.* *Pasture quality to be monitored.*
Increased pressure on remaining accessible rangeland due to the extension of irrigated farming in the area.	*Areas for cultivation to be discussed as part of local land-use planning process.* *Monitoring process to be established.*
A reduction in tree resources in the area as a result of increased permanent settlement	*Community discussion to determine appropriate measures to be taken in collaboration with local authorities.* *Tree nursery establishment and planting programme implemented.* *Monitoring to be established locally.*
Development of erosion gulleys through heavy use of livestock trails to access water	*Local discussion and planning of the management of access routes.* *Periodic monitoring.*
Solid waste may accumulate in the area	*The management of waste to be discussed locally with appropriate plans made and measures taken.*
There may be an increase in water-borne diseases of humans and/or livestock	*Promote boiling of drinking water and other measures to improve hygiene.* *Introduction of fish into berkads to control the* Anopheles *larvae.* *Discuss feasibility of covering the water source to reduce bacteriological contamination, reduce evaporation and protect from dust.*

Environmental impact and potential mitigation often require discussion and planning to address wider socio-economic and natural resource management issues. The active participation of the communities is fundamental for the proposed mitigation measures to be effective. This will be made easier in the context of an active local land-use planning process, which includes all stakeholders. In addition participation by specialists in other sectors may be necessary.

18. Report

The report should bring together all the findings and recommendations in a concise and logical manner. **The report is compiled by the individual(s) hired to do the EIA.**

In many countries, the final EIA report (output) is called the Environmental Impact Statement (EIS).

The statement should include the following sections:

1. **Executive summary***: summarises the EIA of the project in a brief statement and is often only one page long.*
2. **Introduction:** *sets the scene for the potential project and may include the Terms of Reference.*
3. **Project description***: describes the potential project in phases. For example "construction", "operation" and "decommissioning" and specifically what each phase involves. This section should also include information from stages I – III: the project concept, the screening category (for the EU A,B or C) and how scoping was undertaken. This section may be one to two pages long, but depends on the project.*
4. **Baseline environment:** *can be divided into two sections*; the bio-physical and socio-economic environments*. In each section details should be provided on relevant components of the overall environment. For example the bio-physical environment could include information on climate, topography, geology, soils, hydrology and flora and fauna. The socio-economic environment could include information on population, income generation, land use (agriculture, livestock horticulture), sites of historical / archaeological / cultural significance etc.*

   The more comprehensive this section is, the easier the rest of the report becomes. However, even if the biophysical section is presented separately from the socio-economic section for convenience, it is important to have a section on the linkages between the various sectors, in terms of the eco-systems. This will enable the likely environmental impacts to be assessed satisfactorily.
5. **Impacts:** *describes both positive and negative impacts, direct and indirect ones and whether they occur over the short or long term. The checklists are normally included in this chapter. Impacts are generally divided into construction, operation and decommissioning phases of the project.*
6. **Mitigation and support measures:** *recommends appropriate mitigation and support measures for potential negative impacts, giving an indication of costs where possible.*
7. **Monitoring:** *outlines monitoring indicators, who should do the monitoring, how often it should be done and any institutional requirements.*
8. **Conclusion:** *summarises the findings of the EIA and clearly states whether or not the project should go ahead. The conclusion should be a concise statement and is typically less than one page.*

Stage V: The EIA Review

The review should be done by an office in the authority responsibility for the environment within a specified time-frame (about one month). However, it can also be done by a donor, their designated agent or a consultant

The review should:

- Request a presentation by the Team Leader with his team, of the findings and recommendations.
- Include the seconded Technical Assistant in the Review.
- Check if the planned methodology was followed. Useful tips are:
  - *Did the team really go to the field to collect the data and predict the impacts?*
    - Check on reports of meetings with the communities;
    - Check that there are photographs in the report illustrating the findings;
    - Get information from the Technical Assistant;
  - *Did the team work together?*
    - Check if individual team members are aware of the overall findings as well as their own component.
    - Check on the schedule of field trips
    - get information from the Technical Assistant
  - *Was primary data collected where necessary, to a satisfactory standard?*
    - Question the team about how and where the data was collected.
    - Request that the report show the compatibility of published and collected data.
    - Check if the temporal and spatial boundaries of the Baseline as specified in the Scoping stage were covered.
    - Check whether the data would have changed if it had been collected in a different season or in a drier or wetter year.
  - *Were the community and other stakeholders involved in the EIA process?*
    - Check if this aspect is covered at all key stages in the report.
    - Check on the length of time spent with the community and stakeholders.
    - Request a meeting with stakeholders.
  - *Examine the EIA report for completeness. Useful tips are:*
    - *Check if the data collected covered the planned issues identified in the* Scoping *stage.*
    - *If the chapters of the EIA report are sector-based, check if there is a section explaining cross-sectoral impacts (for example the potential effect of loss of land on crop or livestock production, and the effect of this production loss on household income and pressure on land, and the effect of these on further land-clearing and tree-cutting, and the effect of these on animal habitats and soil erosion, etc?) If not, request that it be written and presented.*

- *Check that the sectors and potential issues in the Stage IV checklist have been covered.*
- *Check that the recommended mitigating and support measures have all been costed.*
- *Check that impact prediction has been completed for the construction phase as well as the operations phase, and also for the commissioning phase in the case of a facility such as a large dam.*

- *Depending on the scope and size of the project, call a public hearing for a presentation and discussion of the EIA findings.*
- *Assess whether the implementing agency and beneficiaries have sufficient capacity (resources, training and expertise) to implement the mitigation and support measures.*
- *Determine whether further environmental work is necessary.*

The output from this stage should be a letter giving the go-ahead, a request for more environmental information, or a rejection of the proposed project clearly stating the reasons.

Stage VI: Project Implementation

When the go-ahead for the project has been given, implementation should be carried out in accordance with the proposed mitigation and support measures. The implementing agency must be made aware of the EIA report and monitoring (by the environmental agency, another concerned agency or consultant) must be carried out in accordance with the specified mitigation measures outlined in the EIA report. Past experience shows that this may be the weakest link in the EIA process.

The Contractor should be carrying out the works in accordance with the mitigation measures and this should be monitored.

Stage VII: Monitoring and Evaluation

Monitoring *EIA is essential to:*

- *Ensure the impacts do not exceed legal standards or guidelines;*
- *Check the implementation of mitigation measures as described in the EIA report; and*
- *Providing early warning of potential environmental damage.*

Key indicators should be selected for baseline, impact; and compliance monitoring and used to predict unforeseen effects, collect data and establish trends. The community, as the beneficiary, should guide and implement the monitoring programme. Examples of suitable monitoring indicators in Somalia for water resource projects could be changes in the areas of:

- *vegetation cover over specific time intervals (reduction/increase of grass cover, species present) within a certain distance of a newly developed water resource.*
- *Changes in land-use in the area, particularly the extent of land cultivated (farming practices, crops grown, periods when soil exposed).*
- *the extent of settlement in the area, accumulation of solid waste etc*
- *the occurrence of water transmitted/related diseases in the community, such as malaria, diarrhea and dysentery.*

At the micro/project level indicators may include:

- *the number of fish in a specific berkad. (The fish are used to control mosquito larvae, specifically the* Anopheles *mosquito which carries malaria.)*
- *total coliform readings from water samples in balleys, berkads or shallow wells. Again samples should be collected at the same time of year over a given time-frame.*
- *water levels, productivity (specific capacity in m^3/m/day and water quality (electrical conductivity, pH, dissolved oxygen, nitrates, iron, manganese, trace elements and total coliform etc) of boreholes.*

The output should be the selection of indicators that are easy to measure and assess and cover all, or most, project components.

Evaluation *should be used to* **review how effective the monitoring** *has been. It should indicate the efficiency, applicability and success of mitigation and support measures.* **The people involved in monitoring and evaluation could be the implementing agency, water engineers, clan elders and/or water users.**

The output of evaluation can be a report on how effective the monitoring has been*.*

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IUCN - Eastern Africa Regional Programme

IUCN established the Eastern Africa Regional Office (EARO) in Nairobi in 1986. EARO facilitates the implementation of the IUCN Programme in Sudan, Eritrea, Djibouti, Somalia, Kenya, Tanzania, Comoros, Seychelles, Uganda and Ethiopia. Through its technical group, established in the early 1990s, the IUCN Programme assists members and partners in the region with capacity building through the implementation of the programmes and projects, networking and technical advice. Specific areas of expertise include: protected areas, ecosystem management, biodiversity conservation, environmental planning and strategies, and support to environmental NGOs.

IUCN - Somali Natural Resources Management Programme (SNRMP)

Since 1996 IUCN has been providing support in the sustainable use and conservation of natural resources to European Community (EC) programmes in Somalia. This support has consisted of capacity building and training, assessments of natural resources and their utilisation, and the development of methodologies for appropriate interventions. IUCN's activities have been implemented in partnership with EC, local authorities and institutions and other implementing agencies.

This document is a report of a consultant contracted by IUCN under the SNRMP. It represents the findings, interpretations and recommendations of the consultant and does not necessarily reflect those of IUCN or its partner institutions.

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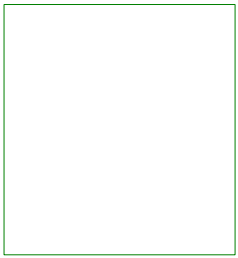

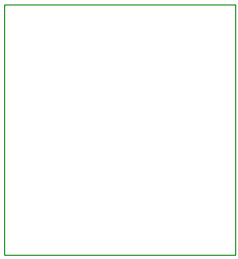

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