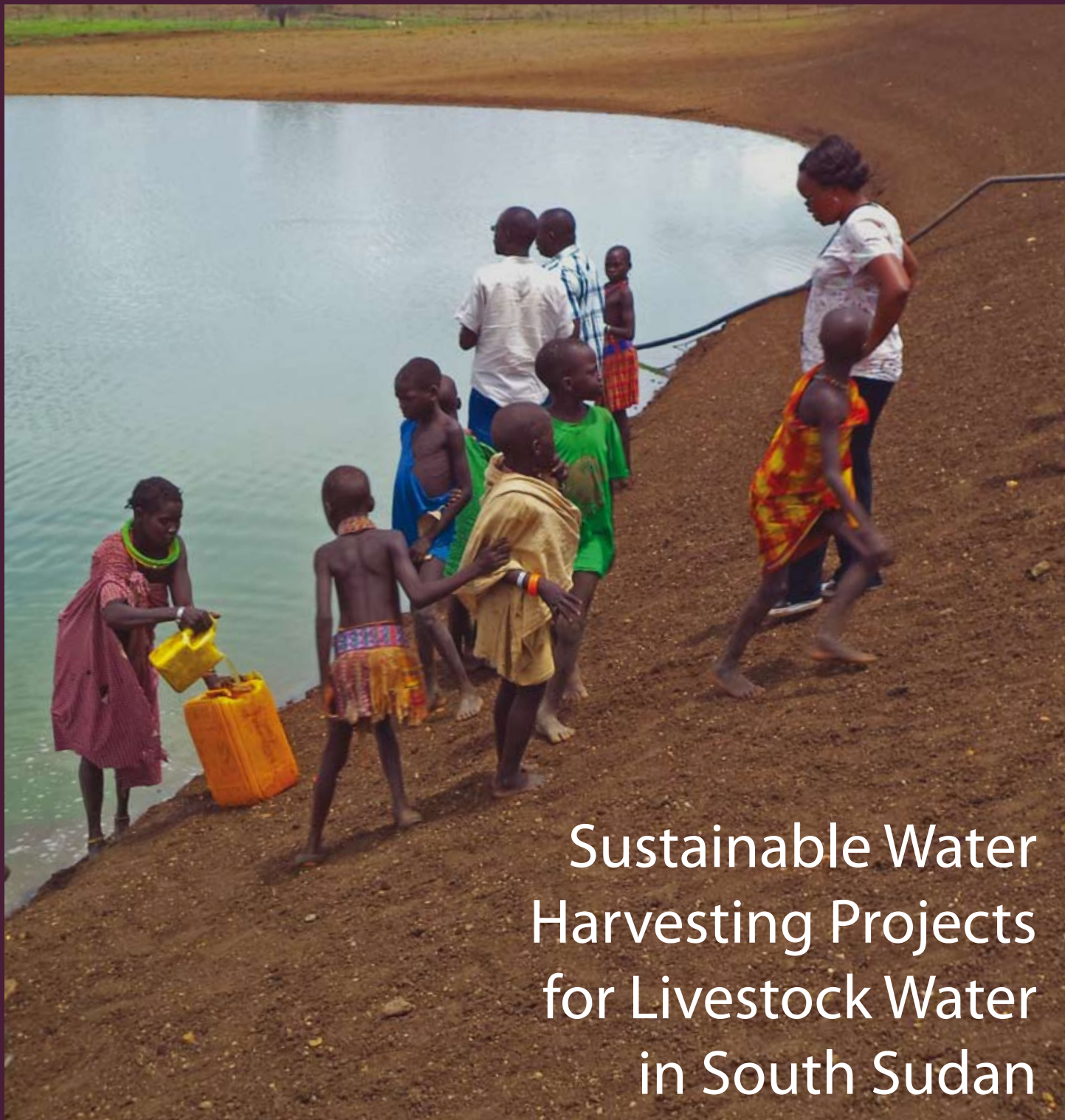




Ministry of Electricity, Dams, Irrigation and Water Resources



Sustainable Water Harvesting Projects for Livestock Water in South Sudan

Guidelines on Environmental and Socio-Economic Assessment (ESEA)



Food and Agriculture
Organization of the
United Nations



First published in April 2015 by the United Nations Environment Programme
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Design and layout: Matija Potocnik



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Acknowledgements

These guidelines were prepared by Mr. Ephraim Alamerew, based in Ethiopia. The guidelines are based on findings from the author's recent study published as: *Preliminary Environmental and Socioeconomic Assessment of Selected Water Harvesting Structures in South Sudan*. In addition to the field observations and information gathered during the assessment in South Sudan, a range of literature sources related to best practices and lessons learned on water harvesting and peacebuilding initiatives in neighbouring countries were used to inform the guidelines. The guidelines have further benefitted from several reviewers, whose constructive comments have substantially enriched its content and helped shape the final report.

The author would like to thank Mr. Arshad Khan, UNEP South Sudan office, for his continual support and guidance during the assignment and Mr. Brendan Bromwich for his technical review. The author would also like to thank the participants of the training workshop for government partners on planning and implementation of water harvesting interventions, organized by FAO and UNEP in October 2014, Juba for their feedback.

Acronyms and abbreviations

CB	Community-based
CEAP	Community Environmental Action Planning management
CIDA	Canadian International Development Agency
DRR	Disaster Risk Reduction
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ESEA	Environmental and Socioeconomic Assessment
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization of the United Nations
IA	Impact Assessment
SWOT	Strengths, Weaknesses, Opportunities and Threats
IAIA	International Association for Impact Assessment
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
OECD	Organisation for Economic Co-operation and Development
PAR	Participatory Action Research
PESEA	Preliminary Environmental and Socioeconomic Assessment
UN	United Nations
UNDESA	UN Department of Economic and Social Affairs
UNEP	United Nations Environment Programme
UNHCR	United Nations High Commissioner for Refugees
UNU	United Nations University
WCED	World Commission on Environment and Development
WH	Water Harvesting

1 Introduction

1.1 Rationale and purpose of the guidelines

Water harvesting (WH) projects do not depend on good engineering and technology alone. Environmental impacts and socioeconomic considerations are equally important, and need to be addressed through the entire process of development interventions.

An environmental evaluation of a widespread WH pond construction program in Ethiopia, for instance, found that little attention was paid to the environmental consequences. As a result, the construction of ponds in susceptible areas increased incidences of malaria (Landell Mills 2004).

Likewise, socioeconomic issues need attention when introducing any WH system into a community. For example, people in drier environments have developed their own priorities for sustaining their livelihoods through centuries of surviving under the harsh environmental conditions. It would be important therefore to take adequate consideration of their values, perceptions, attitudes, and preferences rather than trying to impose prescribed solutions on them.

These guidelines build on experience and techniques from across the Sub-Saharan region and are an extension of the first stage of this project, as reported in the 2014 *Preliminary Environmental and Socioeconomic Assessment (PESEA) of Selected Water Harvesting Structures in South Sudan*, a joint initiative of the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Environment Programme (UNEP). Providing WH structures (for example, haffirs, artificial ponds to store rainwater) can improve the livelihoods of pastoral communities that face the challenges of a marginal environment with highly variable rainfall. However, appropriate socioeconomic and environmental considerations are needed in their planning, construction, and operational phases in order to avoid undesirable consequences that may undermine social stability or environmental sustainability.

Some well-intended WH projects have exacerbated rather than mitigated risks for pastoralists. To prevent

this, one of the main challenges is to adapt to the seasonality and variability inherent in pastoralist production systems. If, for example, a series of water points are built to enhance wet-season grazing, an unintended impact might be that the water leads to concentration of livestock populations and overgrazing, which would undermine the availability of other natural resources. The negative social and environmental impacts would affect different livelihood groups in different ways.

It is vital therefore that any development initiative be based on adequate understanding of such dynamics, including conflict dynamics and their links to competing uses of natural resources. Acquiring relevant information on the potentials, capacities, and functions of natural systems together with the prevailing cultural characteristics, livelihoods, and attitudes of affected people are among the vital socioeconomic and environmental aspects that constitute effective planning to ensure sustainable interventions.

These guidelines provide the essential environmental and socioeconomic assessment tools that planners and practitioners need to identify and integrate environmental and socioeconomic considerations into their development plans and implementation of WH projects. The latter might include a diversity of WH systems such as haffirs, other types of excavated ponds, or earthen microdams for livestock watering and other purposes. In short, users of these guidelines will be able to:

- Identify the most important environmental and socioeconomic aspects that need consideration in the planning and implementation of WH systems;
- Articulate general and specific constraints resulting from inadequate consideration of environmental and socioeconomic factors;
- Augment their existing conceptual knowledge and practical skills in environmental and socioeconomic dimensions to effectively facilitate participatory planning and implementation of WH systems in a manner that ensures sustainable development (i.e., socially acceptable, environmentally sound, and economically viable and equitable).

1.2 The guidelines' scope, target users, and approach

These guidelines focus on the environmental and socioeconomic assessment (ESEA) of WH structures for livestock in general and specifically on excavated open ponds, including haffirs. These are surface water storage facilities, which constitute a subgroup under macro-catchment water harvesting systems.

The information contained in these guidelines can serve technical managers and professionals involved with the planning of projects and preparation of technical designs for haffir construction initiatives in South Sudan. These professionals could be engineers, environmentalists, or social scientists with government agencies and development partners in the country who are in a position to implement these guidelines and design environmentally and socioeconomically sound WH projects.

The guidelines provide users with a useful and practical approach to carry out an ESEA of a WH project. The uniqueness of the ESEA process encouraged in these guidelines, compared to a conventional environmental assessment (EA), is its community-based and participatory nature, allowing an integrative and holistic approach to the entire course of action in the process. This approach to an ESEA, as practiced in many East African countries, has proven to be a beneficial tool for addressing social, economic, and environmental or ecological issues concurrently. The added component is called community environmental action planning (CEAP) and has become known for its empowering of affected communities right from the beginning of the EA process. The conceptual basis and practical methodology of the CEAP approach is described at length in Section 4.

1.3 Structure of the guidelines

The ESEA guidelines are laid out in the following manner:

1. Section 1 provides introductory notes about the guidelines about their purpose, scope, intended users, and structure.
2. Section 2 provides an overview of the conditions of existing WH structures in South Sudan, including the key findings of the *Preliminary Environmental and Socio-Economic Assessment (PESEA) of Selected Water Harvesting Structures in South Sudan* and requirements for sustainable WH projects.
3. In Section 3 users will find an overview of concepts, practical issues, and alternative approaches to ESEA. It provides essential aspects of ESEA, including definitions and major elements, challenges and limitations with their applications of the conventional EA approach, and available options for implementation of ESEA and other environmental management functions.
4. Section 4 is devoted to introducing an emerging participatory ESEA approach and process—Community Environmental Action Planning (CEAP). This section presents concepts and practices of CEAP with an overview of its background, application process, principles, and values. It describes the tools used for conducting CEAP and other participatory appraisal techniques when undertaking ESEA, as well as steps in developing participatory environmental action plans with community members' direct involvement. This section also links the CEAP approach and process to the preparation of the ESEA report and subsequent follow-up and management aspects of ESEA recommendations.

2 Practical Environmental and Socio-Economic Aspects of Water Harvesting projects in South Sudan

2.1 Major findings of the preliminary assessment

These guidelines are based on findings published as *Preliminary Environmental and Socio-Economic Assessment (PESEA) of Selected Water Harvesting Structures in South Sudan* (PESEA). In addition to the field-level observations and information gathered during the assessment in three South Sudanese states, a range of literature sources have been used for conceptual descriptions and guidelines related to socioeconomic and environmental aspects, as provided in the references. The guidelines are further enriched from review of best practices and lessons learned on water harvesting and peacebuilding initiatives in some neighboring countries. The major findings of the PESEA include:

- The current socioeconomic situation in South Sudan signifies the importance of water development for the country's large population of livestock, provided that water development inter-

ventions, including constructions of WH structures such as haffirs, are undertaken as part of an integrated and strategic approach to improvement of pastoralists' livelihoods.

- Some pilot projects, supported by governments and the international community, have constructed haffirs for livestock consumption as a means to mitigate the conflicts arising from dry-season water demand. But the effectiveness of reducing conflict through addressing the need for water alone, rather than supporting the livelihoods of cattle herders, has little chance of success.
- While limited access to natural resources or to migratory routes undermines pastoralists' livelihoods, well-being, and security, such issues need to be addressed in a holistic way. Strategic and integrated approach towards addressing the underlying causes of the limitation itself, would be more worthwhile than focusing on a single element such as livestock water.



Figure 1. Unprotected water barrier at Nakrumai, Eastern Equatoria State



Figure 2. Stagnant water around the haffir at Lokoges, Eastern Equatoria State—a likely health risk

- While WH projects have, for the most part, had beneficial impacts on the existing environmental and socioeconomic settings of the target areas, there have also been some occasions when adverse results occur due to the lack of attention to the breadth of challenges facing different groups.
- WH projects can have both direct and indirect impacts on natural resources. Direct impacts could include depletion of freshwater resources; bacteriological, chemical, and physical degradation in the quality of water stored in haffirs; creation of stagnant water near water points, troughs, and other system facilities. Indirect impacts include land and ecosystem degradation caused by concentration of too many livestock around the haffirs, such as soil erosion and localized grazing pressure.
- Indirect impacts are also important. Most critically, there is a need to ensure that provision of water does not mean that large numbers of cattle are drawn to the region, causing local overgrazing. This is one of the major risks associated with the provision of water points and is the reason why a holistic approach to water, rangeland, and livestock is needed. Seasonality is an importance consideration. In the wet season the rangeland will be more lush and can support a larger herd—but increasing water supply on this basis may mean the land is overgrazed in the dry season.
- Maintaining water quality in the haffir is important. There is a need to keep livestock from entering the water. Fencing is an important means of doing so; however, fencing needs maintenance. Also, erosion control on gullies that feed the haffir is needed in order to minimize the sediment flowing into the haffir.
- Implementation of an environmental impact assessment (EIA) prior to haffir construction in South Sudan has been patchy. Improved adherence to existing practice and guidelines and policies is needed, and for this a widespread augmentation of capacity inside and outside government is required.
- While some implementing agencies were coordinating with relevant sector agencies of local governments and the target communities in the planning and implementation of haffir construction, others built haffirs without adequate attention to requisite aspects of participatory planning, including sharing of information and documentations, site selection, monitoring, and follow-up of the haffirs' operation and management.

- Traditional practice plays an important role in issues relating to land in South Sudanese law. This has particular significance where projects have an impact on land use.
- Poor arrangements for management and utilization of haffirs—such as inadequate provisions for operation and maintenance services (lacking capacity, spare parts, finance, monitoring, and follow-up), coupled with inadequate haffir storage capacities to effectively serve the target demands—are likely to have significant impacts on the services and sustainability of haffir projects.
- Nearly all visited sites had broken electromechanical components, which question the appropriateness of that technology for water abstractions.
- The existing institutional structures and management systems for the WH structures, including the Natural Resources Management Committees (NRMCS) and the relevant sector offices of the local governments, did not play meaningful roles in ensuring effective utilization and sustainability

of haffirs, owing to their inadequately defined roles, limited capacities, and lack of adequate support from state and national governments.

2.2 Requirements for sustainable WH projects

Given that *even the best solutions have no permanent value without sustainability*, recommendations of the PESEA have underscored the importance of considering how environmental and socio-economic aspects affect the sustainability of WH schemes in South Sudan. Those environmental and socioeconomic aspects are:

- **Environmental sustainability.** All WH projects will have environmental impacts, mostly beneficial, but some can be negative. The project design, construction, and operational stages should aim to minimize negative impacts. Environmental sustainability is then concerned with ensuring that in the long term any negative impacts that occur do not exceed the capacity of, or endanger functionality and services of, the local ecosystem. In order to ensure environmental sustainability,



Figure 3. A defunct diesel generator intended to power the water at Lokoges, Eastern Equatoria State



Figure 4. A haffir that never collected water because of inappropriate site selection, at Cieubet, Lake State

relevant analyses need to ensure that a holistic view is taken of (1) the biophysical environment and its processes; (2) possible impacts on a series of environmental factors including the fauna and flora, soils, water, air and climatic factors, the landscape, and the interrelationship between the latter factors; and (3) the extent of impact on the existing ecosystem components and what kind of strategy would counter such threats.

- **Socioeconomic sustainability.** For sustainable WH systems under community management, projects need to be planned within the confines of acceptable social and economic norms to ensure that these standards are properly

defined and given due consideration during project planning. To this end, the design, implementation, and operational management of such projects need to be informed by results of socioeconomic assessments.

- **Linkages and Interactions of the socioeconomic and biophysical environments.** An essential consideration when addressing the sustainability requirements of WH projects is to understand the strength and diversity of the direct linkages between social and biophysical impacts. The conceptual and technical grounds signifying these linkages are discussed in the subsequent sections.

3 ESEA concepts and alternative approaches

This section provides an overview of an ESEA of a development project: what it is, why it is important, and the major elements constituting an ESEA. The section then describes the challenges of applying EA in developing countries due to institutional and structural limitations, thus requiring alternative approaches. It is important to note, however, that the basic principles and ultimate purpose of EA/ESEA remain the same irrespective of the variations in approaches used and processes followed to achieve them.

EA and ESEA are considered together here. The essential distinction between them is merely that ESEA places a greater emphasis on the socio-economic issues, rather than them being different processes altogether.

3.1 Introduction to ESEA

3.1.1 Concepts and terminologies

Environmental Assessment (EA) is both a tool and a process to assist in planning, environmental integration, and decision making. It defines an initiative's environmental dimensions (biophysical, cultural, socioeconomic) and identifies measures needed to prevent the initiative / project from causing ecological damage and generating social costs. An environmental assessment is specific to the initiative and its site, and must consider all components and phases of the initiative (CIDA 2005).

Environmental and Socioeconomic Assessment (ESEA) places a more explicit consideration on social and economic impacts of development proposals. We are increasingly understanding the interdependence of environmental, social, and economic development as well as the linkages between environmental resources and conflict (see, for example, IAIA 2009). For the same reasons as the latter and the discussions in the subsequent paragraphs, these guidelines will use the term ESEA to describe assessments in relation to WH projects towards ensuring their sustainability.

EAs of natural resource management initiatives, including land and water, touch on the key element of sustainability— the balancing of present and

future social, economic, and environmental needs to provide the best possible collective returns to society. Examination of the full range of social and ecological impacts of a proposed action, therefore, requires a holistic approach, which includes analyses of the effects on the ecological system constituting both environments: the natural (biophysical) and socioeconomic (people and their livelihoods). It is also believed that, if undertaken separately, assessment of the biophysical and socioeconomic aspects will not reveal the full scope of interactive effects within a socioeconomic system (e.g., a pastoral system). Hence the generic term “environmental and socioeconomic assessment” has long been proposed for the study of the full range of ecological and socioeconomic consequences of the introduction of a new technology, project, or program. This approach also connotes with UNEP's Integrated Impact Assessment (IEA) (UNEP 2004; UNEP-DEWA 2006; AfDB 2003; and Akpofure/UNEP n.d.), which suggested a more comprehensive understanding of how poor people depend on, interact with, and use their environment is much needed. On the whole, the latter sources point to demographic, cultural, and institutional factors as important variables in the nexus between poverty and environmental degradation. Other relevant studies (e.g., Ochola et al. 2010) also agree on the dynamic complexity as well as context- and resource-specificity of the linkages between NRM and poverty. The latter also underpins that understanding these links requires integrated, interdisciplinary, multi-sectoral, multi-institutional, and multi-stakeholder perspectives.

Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987). The concept is extended to ensure that use of resources does not undermine the livelihoods of other groups who use them at the same time as well as generations in the future.

3.1.2 Purpose of ESEA

The purpose of the environmental and socioeconomic assessment process is (1) to support the goals of environmental and socioeconomic protection and sustainable development; (2) to integrate environmental and socioeconomic protection and economic

decisions at the earliest stages of planning an activity, (3) to predict environmental, social, economic, and cultural consequences of a proposed activity and to assess plans to mitigate any adverse impacts resulting from the proposed activity; and (4) to provide for the involvement of both the public and government agencies in the review of proposed activities.

3.1.3 Elements of EA

EA as a planning tool gives the environment (i.e., biophysical and human) a central place in decision making by clearly evaluating the environmental and socioeconomic consequences of a proposed activity before action is taken. While the conceptual basis for EAs in developed and developing countries is the same, a formal EA for infrastructure projects in developed countries needs to be modified to include participatory approaches—in this case for community-based projects such as WH systems.

Guiding principles

Several organizations have developed guiding principles for EA. These principles, as applied in

developed countries, are *relevance, issue-based, interdisciplinary, participatory, transparency, practical, and efficiency* (Sadler 1996; UNEP 2003; UNEP 2004; UNEP-DEWA 2006; and IAIA 1999).

Stages and steps for undertaking EA

There is, generally speaking, a broadly accepted sequence of activities for undertaking an EA, which most of the developed countries and international development agencies have adopted. These steps are described in Box 1.

Conditions necessary for effective EA

Effective environmental assessment requires specific conditions to be met. These include institutions and organizations (e.g., policy, legislative, regulatory); clearly defined objectives; human resources skilled in EA processes; and information and research infrastructures to provide baseline data on the existing environmental and socioeconomic conditions. These requisite aspects of EA are often mutually reinforcing and interdependent (UNEP 2006; IUCN and World Bank 1997).

Box 1. Generic Steps in the EA Process

- Screening is deciding whether there is a need for an EA and, if there is, its appropriate form. Such a decision may be based on a legal list of activities for which EA is mandatory or on a case-by-case assessment.
- Scoping identifies the significant environmental impacts that should be studied in detail, selecting the key alternatives to be analyzed and compared during the EA, developing a public consultation and participation plan, and defining the composition of the EA team.
- Prediction and evaluation of expected environmental impacts identifies not only the causes of impacts (such as emissions and discharges) but also their effects on environmental components (water, air, soil, landscape, and ecosystems), as well as interactions between these elements. Not only the physical magnitude, but also the significance of all these impacts should be determined. is the heart of EA
- Developing mitigation measures is aimed at reducing negative impacts. Mitigation means prevention or reduction of impacts or compensating for the damage to the environment, and may involve siting, choice of production or pollution control technology, and off-site protective or compensatory measures.
- Environmental and socioeconomic impact statement (EIS) is simply the EA report submitted to the competent government authorities in order to facilitate informed decision making and to communicate the information about the planned activity and its environmental and socioeconomic impacts to affected parties.
- Consultation and public participation are conducted in the EA process to allow all affected parties and the general public to forward their comments to the developer and authorities.
- EIS review is conducted by a special independent commission or directly by environmental authorities in order to ensure that the EIS is of sufficient quality to be used in decision making. Affected parties and the general public often have a right to participate in such review.
- Using EA findings in decision making incorporates environmental and socioeconomic factors, alongside technical and economic ones.
- EA follow-up ensures that the actual impacts do not significantly deviate from predictions and that mitigation measures are implemented as prescribed by the EA report.

Source: OECD (EAP Task Force) 2003. *Linkages between Environmental Assessment and Environmental Permitting in the Context of the Regulatory Reform in EECCA Countries*. Presented at the EECCA regional expert meeting in Moscow, 11 Apr. 2003. www.oecd.org/env/outreach/26732367.pdf.

3.1.4 Practicality and effectiveness of existing EA models in Sub-Saharan Africa

Conventional EA approaches are more suited for developed countries with high levels of institutional capacity in government and large numbers of consultants to undertake the work. Developing countries, particularly in Africa, fall short of meeting the required conditions for effective EA (see, for example, CEAA 1998; IUCN and World Bank 1997; World Bank 1996 and 1991). Most countries in Sub-Saharan Africa have limited technical experience and inadequate institutional capacity. This applies especially to the situation in South Sudan.

3.2 A participatory approach to EA

3.2.1 Why participatory approaches?

The conventional environmental management approaches, including EA and its various instruments, are criticized by many scholars as a technocentric state legacy that mainly focuses on acute problems and not on the larger political, economic, and social context—that is, that the people who have the potential to implement the solution, and will benefit the most from it, are often left out of the EA process. There is an increasing realization that the conventional EA approach cannot adequately understand the highly complex, dynamic, and often unpredictable natural resource management systems¹ and lack the capacity to facilitate the active participation of resource-dependent user communities.

On the other hand, most WH projects are intended to provide access to livestock water among pastoral communities with marginal and highly vulnerable dryland ecosystems. In those areas, there is little understanding of the challenges from not only the difficult environmental settings that limit an effective EA process, but also from the lack of data and documentation on the state of the environmental and socioeconomic dynamics. Unless it includes the local communities through interactive and participatory process, any effort to acquire the required information and data needed for conducting an EA would be ineffectual. Conducting an assessment of WH projects therefore calls for a more practical

approach that enables adequate understanding of the environmental and socioeconomic settings. This can be achieved by adapting the conventional EA procedures and tools but adding to it a more inclusive, participatory, less costly, and community-based approach.

3.2.2 Advantages of a participatory approach to EA

Participatory approaches to environmental assessment are designed to address critical issues of environmental management at the human-nature interface in a more inclusive, collaborative, and integrated way. As such, they provide an alternative to ensure sustainable environmental management through community-based approaches, which enable understanding of the highly complex, dynamic, and often unpredictable interaction of the biophysical and human environment in a holistic manner. In developing countries especially, these approaches represent an effort to engage marginalized peoples in decision making that directly affects them, while at the same time enhancing the conservation of natural areas and the welfare of local communities.²

Community-based approaches to EA provide a venue for heterogeneous groups to participate in the assessment of proposed initiatives. This process involves a variety of stakeholders meeting around a common interest to discuss issues that are related to their lives and often their livelihoods. Several case studies from diverse livelihood systems in developing countries show that meaningful public participation in this discussion often leads to greater understanding and less conflict among the involved groups.³

3.2.3 Community Environmental Action Planning: A participatory approach

While there is a range of experiences with inclusive approaches, some have proven more relevant in dealing with pastoralist communities and more adaptable to an EA. Community Environmental Action Planning (CEAP) is the most widely applied approach in most of the eastern African countries with diverse community settings including pastoralists. The CEAP approach to the EA process has proven to be an integrative and holistic tool for addressing social, economic, and environmental

or ecological issues concurrently through a truly participatory process. This approach constitutes a major strength of CEAP in that it seeks to achieve the integration that lies at the core of sustainable development.

Because of its ease of applicability and its widespread use in the eastern Africa sub-region, as well as its being initiated mainly to serve natural resource management and environmental management needs of local communities (pastoralists in particular), the CEAP approach has been selected to guide the ESEA process on WH projects in South

Sudan. An overview of CEAP principles and processes is provided in Section 4.

Environmentalists and those concerned with conflict reduction are not the only advocates for community-based approaches with pastoralists. Disaster risk reduction (DRR) and adaptation to climate change are other driving concerns for enhancing participatory approaches to water and rangeland management. With this in mind, a key part of a project to enhance the management of water harvesting structures would be to ensure that DRR and climate adaptation strategies are also reflected.

4 Community Environmental Action Planning (CEAP)

4.1 CEAP concepts and practices: An overview

4.1.1 Background

The CEAP approach⁴ was initiated by the International Union for the Conservation of Nature (IUCN) around 1997 with an NRM project in Somaliland; the approach was later used for environmental management projects in Tanzania in 1999. Since 2004, IUCN has further developed and used CEAP through partnerships with the United Nations High Commissioner for Refugees (UNHCR) and Irish Aid.

In the refugee context, the approach has been labelled Community Environmental Action Management Planning (CEMP); it has been used in Uganda, Tanzania, Kenya, Sudan, Ethiopia, and most recently Rwanda. CEMP has been used in refugee-hosting areas to improve local governance over land, land use, and natural resources management by communities (both hosts and refugees). The acronyms CEMP and CEAP thereafter have been used interchangeably in Kenya, Sudan, Uganda, Ethiopia and Djibouti (IUCN 2011).

The CEAP approach was introduced for refugee camps in eastern Sudan to reduce tension between refugee and host communities in natural resource management (NRM). The program uses a structured collective process of assessment, decision making, and planning of NRM for the common benefit of all participants (UNEP 2013). These processes include participatory rural appraisals, community mapping, and vision-building exercises to reach an understanding of what the common good actually is. The program then looks toward the structured and monitored implementation of a joint plan to achieve the benefits that have been envisaged during the consultation process. Mobile CEAPs are grounded in an enhanced understanding of existing community capacities and true collaboration. There, CEAPs support pastoralists to adapt to and mitigate the impacts of these challenges through sustainable NRM as well as incorporating climate change adaptation (ProAct Network 2012). The

integrated approach that CEAPs promote in NRM looks beyond present environmental problems, addressing livelihood needs and engaging with some of the broader socioeconomic and political concerns that directly affect these communities. In doing so, however, the unique nature of the pastoral context demands that the CEAP process itself also adapts.

The CEAP approach applied by the Darfur Development and Reconstruction Agency (DRA) has been reported to be a low-cost, user-friendly, and appropriate way of engaging communities, government agencies, nongovernmental organizations (NGO) and other interested stakeholders in coming together to discuss issues and to plan for a better future for Darfuri communities and their environment (UNEP 2014).

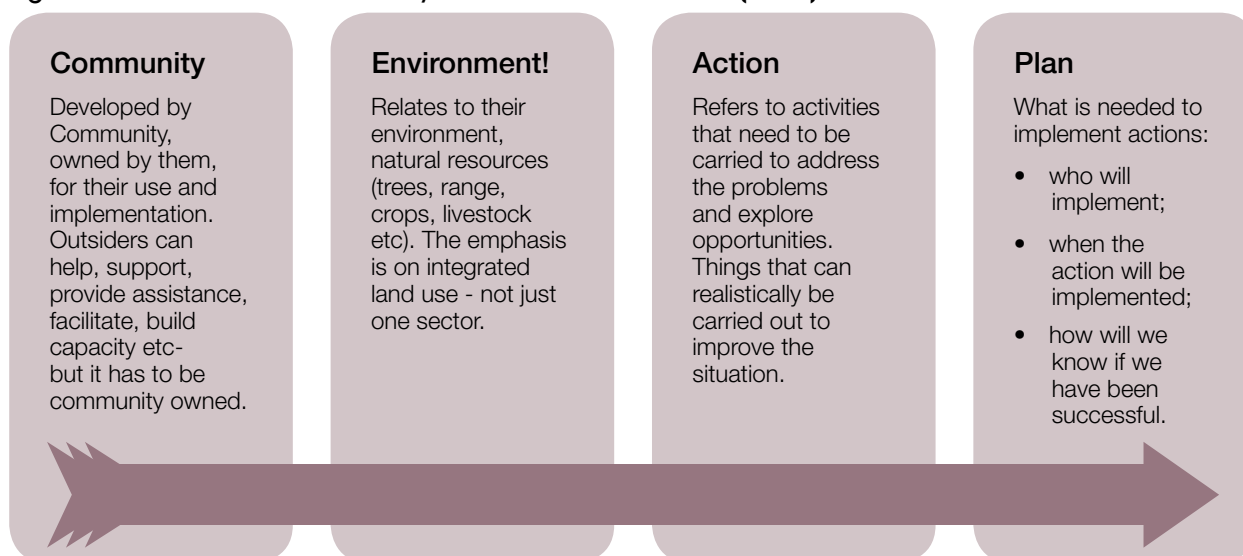
The assessment on the CEMP in eastern Sudan indicates that CEAP is an important contribution toward enhanced environmental management, particularly because people have greater commitment to caring for their environment. There is sufficient evidence that CEAP processes have contributed positively to the level of awareness and involvement of local communities in natural resource management. People's livelihoods have improved and ecosystems appear to be more sustainably managed or are healing through restoration (Gaafar et al. 2009).

4.1.2 Introduction to CEAP

The CEAP process

CEAP is an approach and a process, rather than a one-off planning event, and it focuses initially on a few key elements. Below is a brief introduction to CEAP followed by the steps that are typically followed (see Box 3) depending on the extent of the target area and objectives. A set of tools, each with instructions for use, is also described. It is important to note that these tools are flexible and should be adapted to the particular situation and intended purpose.

Figure 5: Elements of a Community Environment Action Plan (CEAP)



Source: IUCN, 2011

Starting the CEAP process

Creating an initial understanding among the participants is the first step in the CEAP process. Facilitators give a brief introduction on what community environment action planning means, why it is needed, what process and activities it involves, and how the outputs are generated and used. This helps participants understand their role in the process from both individual and group points of view. It also helps them start focusing on environmental planning from a community view point.

Elements of CEAP

The entire CEAP process has four elements: community, environment, action, and plan. A simple definition of CEAP using these main elements is provided in Figure 5.

Instructions for use

Divide the participants into small groups (three or four people, though the groups can be larger), and have them answer the following questions:

- What do we mean by “community environment action plan”?
- What broad issues should we expect in a CEAP?
- Who should be involved in drafting, implementing, and follow-up? Why do we need a CEAP?

Allow about 30 minutes in groups for this exercise, then have presentations made to the larger group in order to gain agreement from the group on their understanding of CEAP. Also refer after group work.

4.1.3 CEAP principles and values

CEAP is based on a set of values and principles that enables local people to assume ownership and accountability for activities. Since success depends on attitude and behaviour, these values are critical to effective participatory planning. Some of the key principles and values to be adhered during the CEAP process are as outlined in Box 2 (see next page).

Box 2. Key Principles and Values to be observed in the CEAP process

Key Principles

- Involve all relevant stakeholders including marginalized groups within the community.
- Create local ownership by ensuring the process is understood by all stakeholders.
- Develop a common vision based on consensus by all relevant stakeholders.
- Be aware of policies and laws that might impact on the process positively and negatively. Aim to strengthen existing policies.
- Use and build on existing structures and institutions, e.g., appropriate government structures.
- Be sensitive to the community's seasonal and daily calendar.
- Seek to enhance traditional natural resource management systems by building on local indigenous knowledge.
- Encourage active community participation and ownership.
- The process should promote the culture of learning by doing.
- Ensure the process is empowering and devolves power to the people.
- The process should aim at providing added value to the community by responding to natural resource management and livelihoods.
- Use a phased approach— scoping, planning, and implementation.
- The process should be adaptive.
- Be able to incorporate quick actions for quick benefits.

Values

- Practice fairness with all stakeholders.
- Have respect for others by being tolerant to other people and their views.
- Be open, transparent, and credible.
- Be sensitive to culture and gender.
- Be simple yet professional.
- Have fun in the process.
- Be humble.
- Be committed to the completion of the planning phase.
- Take responsibility for furthering the process.

Source: IUCN, 2011

4.2 Conducting CEAP

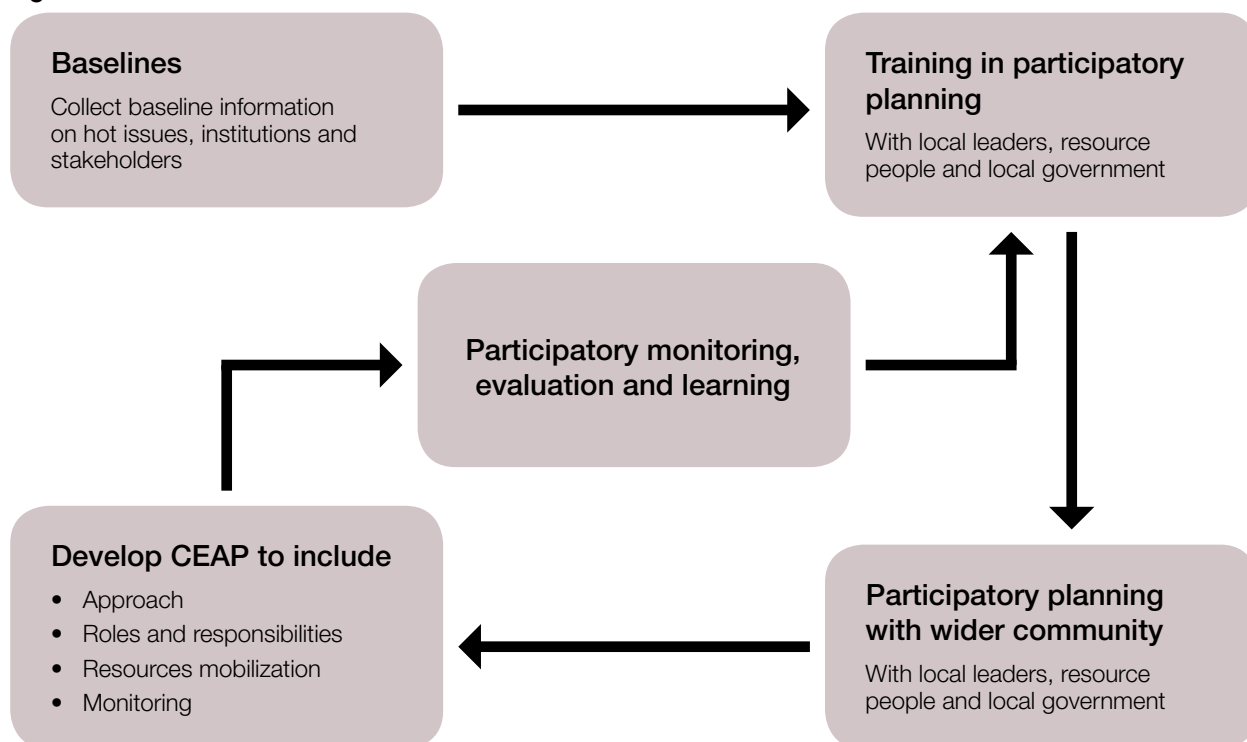
There are several steps that are typically followed in the CEAP process. These are summarized in Box 3 and Figure 6.

Box 3. Summary of steps in CEAP

- Collect baseline information among the target community. (Train community facilitators in undertaking baselines and actions using participatory processes/tools.)
- Collect and Collate scientific information as a backup to the baseline.
- Conduct a stakeholder analysis to identify key stakeholders who can influence or can be influenced by the process. (Involve government, community, and civil society organizations.)
- Conduct a mapping exercise to identify the current situation and map the desired future vision.
- Identify positive and negative environmental issues and reach a consensus with stakeholders.
- Develop a CEAP using the information collected. It should include:
 - The approach of achieving the vision,
 - Commitments, roles and responsibilities,
 - Resource mobilization,
 - M and E.
- Develop strategies for quick action activities, and others for inclusion in the development frameworks.

Source: IUCN, 2011

Figure 6. CEAP Process Flow Chart



Source: IUCN, 2011

4.2.1 Mapping the present situation

Mapping exercises are an easy and friendly way to discuss such issues as who does what and where, and what problems exist. Depending on time and resources, different groups in the village—men, women, different stakeholder groups (e.g., pastoralists and non-pastoralists)—can draw their maps. However, **at least two groups should do their maps separately—men and women—because women often access and use different natural resources than men.**

Instructions for mapping

1. Divide participants into at least two groups (men and women). Depending on numbers and time, more groups may do this exercise—more than one women's or men's group, or separate groups for youth, pastoralists, and other land users.
2. Each group should make a map of the village lands as they are now, including all the area that belongs to the village.
3. Mark the borders of the village—for example, its boundary with the next village.
4. Mark all the natural resources—water, farmland, grazing lands, forests, livestock.
5. Mark rivers and roads.

6. Because the emphasis of this work is on the environment, do not mark in all the houses, schools, and other buildings. Just mark a few houses to show where the village is (see Figure 7 for an example);
7. Members of each group discuss the map among themselves.
8. Allow one to two hours for this task.
9. Each group shares its maps with the other groups in plenary.

Note on CEAP maps

- Everyone in each group should participate in discussions, drawing, and presentation.
- Maps should contain title, key and north-south line, boundaries, and names of authors.
- Focus maps on environment and landscape, not just the village. It is in the landscape where water, grazing, farms, forests, and livestock are located.
- Use the maps as a basis for discussion on good things, problems, issues, and potential activities that may be needed.
- At the village level it is likely that there will be men's and women's maps, depending on the culture.

Figure 7. Current map of Mafasa Landscape, Sudan



Source: IUCN, 2011

Figure 8. Participatory mapping of resources, users, access and management by a community member in pastoral areas (Ethiopia)

Source: Flintan and Cullis, 2010



Figure 9. Participatory mapping of resources by male participants of the CEAP process (using markers, rulers and flip chart), Eastern Sudan

Source: IUCN, 2011

Notes:

- Figures 8 and 9 show alternative ways of drawing the community resource maps.
- As shown in Figure 8, the various features are first drawn on the ground using sticks by one or two community members (while the others watch and assist verbally) and another community member marks the boundaries using colored sand.
- Where there are literate community members, maps can be drawn on flip charts using markers and rulers (to mark relative scales) etc.

4.2.2 Visioning maps

After the different groups have presented their maps of the current situation, they can start to think about their vision for their landscapes and environment for the future (for example, in 5-10 year's time). Participants can think about how they would like their lives, land, and environment to be.

Vision mapping is a fun way to look to the desired future, and provides a good basis for discussion about why a community wants that vision, how they will actually achieve their vision, what needs to be put in place, and the problems and opportunities they may face.

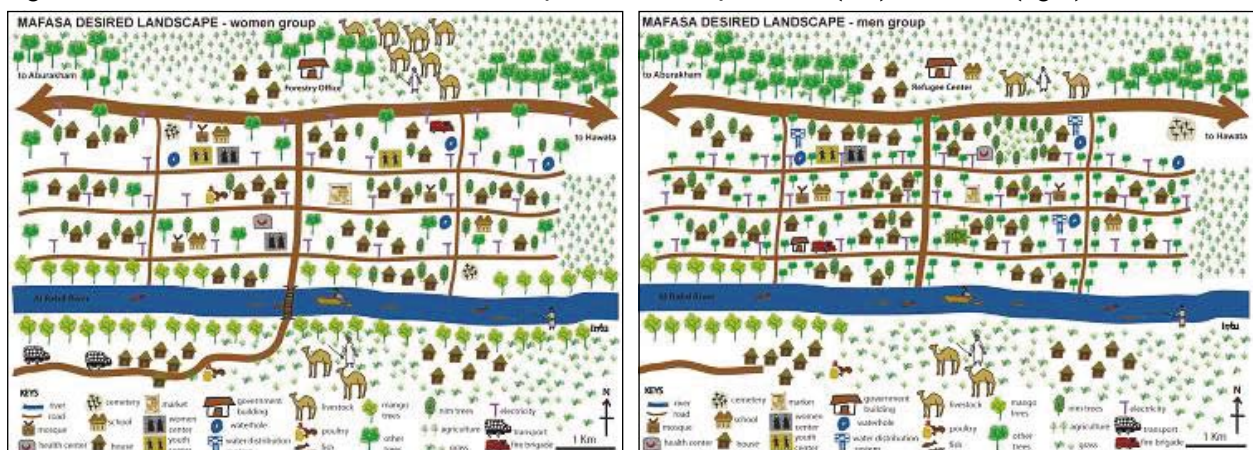
The combination of these two maps (the present situation and the vision) provides the foundation for CEAP. It is the basis for discussing problems and opportunities, for doing more detailed stakeholder and resource-use analysis, identifying activities that need to be implemented, and starting to look at issues relating to institutions, rules, and regulations, and how the landscapes are actually managed.

While the maps by themselves are important, *it is the discussions about the maps and how to get to the vision that is most important*. In addition such maps can, with time, be used to agree more definitely and identify where all the resources are using GPS.

Instructions for use

1. Use the same groups as for present situation map.
2. Participants should imagine and dream what they would like their village lands to look like in some agreed future (say 5-10 years time). This is the vision (or desired future) map.
3. Make a new map but use the same basis as for the present situation map.
4. Draw on the vision for the future and what the village lands will look like in 5-10 years.
5. Mark in the borders of the village (for example, boundary with the next village), and locate all the natural resources—water, farm land, grazing lands, forests—and rivers and roads.
6. Do not mark in all the houses and schools, because the emphasis of this work is on the environment. Just mark in a few houses to show where the village is.
7. Group members discuss the map among themselves.
8. Allow between 1-2 hours for this work.
9. At the end, share the maps with the larger group

Figure 10. Desired vision for Mafasa landscape in Sudan by women (left) and men (right)



Source: IUCN, 2011

4.2.3 Opportunities and problems in the landscape

The mapping exercise provides an easy way to start discussing the problems and opportunities in the village and landscape area. These now need to be discussed and analyzed in more detail. The analysis and discussion provides an opportunity to start to think about short- and long-term solutions, which can then form part of the action plan. Where possible, Table 1 should be completed by both male and female members based on their experiences.

Instructions for use

1. As the groups worked on their maps, they probably discussed the opportunities that existed and the challenges faced in your village area.
2. Each group should discuss those opportunities and challenges in more detail, perhaps making notes on the sheet provided in Table 1.
3. Allow at least one hour for this exercise.
4. Then, using Table 1, write the "challenges and opportunities" on the flip charts provided.

4.2.4 Resource use and stakeholder analysis

The CEAP process has now identified the important resources and where they are found in the village landscape, together with some of the opportunities and challenges. The next step is to understand who uses these different resources, and why. This is

an introductory part of stakeholder analysis, which coupled with a resource-use analysis will in understanding the problems and opportunities in more detail. Table 2 should be filled by participants with examples from the field exercise.

Instructions for use

1. So far participants have done present-situation and vision maps for the villages. We have also discussed and agreed on some of the opportunities and challenges. Now we need to better understand the stakeholders at the village level and the resources they use.
2. Discuss in the group as to who the different stakeholders are who have an interest in or use the natural resources, environment etc. in your village.
3. Be as definite as you can (for example, do not say "community," but you could say the women, or pastoralists, or livestock keepers, or traders).
4. Discuss what interest (or stake) they have, and mark this on the map (use a number or letter) to show the important areas in the village where use of this resource is important.
5. Make sure you do not mix up resources (e.g., water, trees,) with uses (land use, fuel wood).
6. Why do they have an interest in this resource, and what opportunities/challenges are there related to this.
7. Allow at least one hour for this work.
8. Have group presentation of the results.

Table 1. Opportunities and Challenges Matrix

Name of village: _____	
Opportunities - Men	Opportunities - Women
Challenges - Men	Challenges - Women

Table 2. Examples of Resources and Users of Resources

Village	Resources	Who uses?	Why?	Problems and opportunities

4.3 Use of other participatory methods with CEAP

4.3.1 Complementary tools that can be used in the CEAP process

There are a number of participatory tools that can be used in the process of participatory planning, but these tools are seldom used in CEAP. However, facilitators should be aware of the range of available tools and methods so that they can be used when an opportunity presents itself. Facilitators should be able to choose the appropriate ones depending on the context, and the tools should also be adapted to the particular site, area, situation, or community. Box 4 describes some of these tools with a brief explanation on their application.

4.3.2 Use of participatory appraisal techniques for ESEA

Together with the participatory tools described above, other participatory techniques can complement the CEAP process in carrying out an effective ESEA. Some of the participatory inquiry tools that have been described under CEAP could be repeated, but that is not expected to make a difference in the use of those tools. While CEAP is believed to be a more organized and focused instrument to deliver an adequate ESEA process, it is also possible to use participatory appraisal techniques without strictly following the CEAP process.

The term “participatory appraisal” covers a number of approaches and techniques to define, share, and analyze citizens’ knowledge, concerns,

Box 4. Complementary CEAP Tools

- **Stakeholder analysis** introduces and sets the stage for negotiation in the CEAP process by describing who the main stakeholders are.
- **Strengths, Weaknesses, Opportunities, and Threats (SWOT)** analysis may be used in any decision-making situation when a desired end-state (objective) has been defined.
- **Risk analysis** identifies the most vulnerable groups in a community and explores what local capacities can be used to enhance the resilience of the community.
- **Capacity Assessments (CA)**⁵ involves capturing the status of existing capacities available or gaps to be filled (e.g., literacy levels, skills, facilities, organizations, institutions/institutional mechanisms) within the affected community and the relevant local government agencies.
- **Visioning** is similar to scenario planning. The objective is to make problem and solution visual—“show, don’t tell.”
- **Livelihood analysis** is often an iterative process that involves several steps ranging from site selection to participatory monitoring and evaluation
- **Action planning matrix** See Table 6.
- **Focus group discussions** involve groups of 8-10 people gathered to discuss topical issues of interest with the discussion being guided by a facilitator/moderator. The aim is to encourage participants to talk with each other rather than answer questions directly.
- **Transect walks** consist of a walk and a diagram recording the walk and what was observed along the way.
- **Power relations analysis**
- **Gender analysis** is a process for redressing inequalities and inequities.
- **Trends of historical events/time line** is a history of major events in the recollected life of a community, such as important incidents, developments, disasters, and achievements.
- **Rapid environment appraisal** -is used for preliminary scoping.
- **Institutional analysis**
- **Resource mapping**
- **Natural resource listing and mapping**
- **Seasonal calendar**
- **Social mapping and analysis**
- **Problem tree/root cause analysis** provides a schematic and participatory means of exploring immediate and indirect causes of environmental issues.
- **Baseline surveys** include collection of scientific data.
- **Village resource mapping**

Source: IUCN, 2011

and perceptions. NGOs and Participatory Action Research (PAR) practitioners often use these techniques in planning initiatives or research issues.

The techniques can also be used to conduct an effective ESEA through an interactive participatory process. The use of participatory appraisal techniques for ESEA has a unique advantage of empowering local communities affected by a development initiative to contribute to and influence decisions about that initiative and to fit it within their cultural practices and value systems. It is also meant to enhance the sense of ownership among community members and their subsequent willingness to take responsibilities in the implementation and management of intended initiatives—for example, haffirs or other types of WH schemes.

Participatory appraisals in an ESEA should ensure representation of all social groups within the community. This approach recognizes the importance of local community members' support and involvement. In fact, the appraisals are not an end in themselves; they empower people and allow everyone in the community to participate in the process one way or another. In the process, they can introduce and strengthen dialogue, feedback, transparency, and partnerships, as well as build the capacities of community members to plan, implement, monitor, and evaluate activities.

Some of the participatory appraisal techniques and tools used for ESEAs are described in Table 4. As always, these and other tools need to be adapted to the specific initiative, local needs, ideas, resources, and context, including their conformity and appropriateness with respect to relevant national policies and legislations, where necessary.

Facilitators may design their preferred set of participatory enquiry tools by selecting appropriate combinations of the participatory appraisal techniques and, if needed, make modifications for a

more effective generation of information and data needed for a particular initiative. The modifications essentially involve drawing the specific tools needed for an initiative of interest. For instance, in an ESEA conducted for a WH scheme (e.g., a haffir) to provide livestock water in a pastoral community, the participatory tools to be used and enquiry checklists prepared for the appraisal need to emphasize getting as much information as possible on the existing situations, gaps, and likely implications of the WH scheme. This information includes:

- Existing trends and likely changes following development of livestock water sources from WH schemes, particularly in reducing or increasing inter-communal conflicts;
- Possible consequences of a WH scheme in causing localized overgrazing, prospects for sustainable services, and community management of the WH schemes (i.e., institutional arrangements and capacity gaps within the community and supporting agencies of the local government, service fees, and capacitating needs);
- The need to consider complementary interventions (e.g., rangeland improvement and management, advocacy support for policy legislation, or veterinary services;
- Opportunities to optimize benefits and ensure sustainability of services from the schemes;
- Anticipation of other adverse impacts (objective or subjective) the initiative might cause on the existing environment (biophysical and socio-economic settings);
- Mitigation measures needed to reverse potential adverse impacts, their time frame, and the bodies responsible for implementing them;
- Follow-up and monitoring on agreed actions.

Table 4. Examples of participatory appraisal techniques and their application in conducting ESEA

Participatory techniques/tools	Description/examples	Application/uses
Use of secondary sources of information/data	Documents (e.g., studies, legislation, etc), aerial photographs, maps, census	To describe major environmental issues during meetings and discussions, as well as major components of the environment, such as soils, vegetation, water resources, and minerals, including the types, local names, characteristics, , abundance, uses, and distribution.
Various types of meetings, enquiries, and semi- structured interviews	Discussions with community members, special groups (e.g. seniors, women, youth, community and religious leaders), individuals, selected experts/key informants, interest groups	To determine socioeconomic activities, characteristics of the human and biophysical environment, state of the environment, concerns, an initiative's possible environmental effects, mitigation measures, and environmental follow-up program.
Participatory mapping	Schematic drawing of the biophysical environment and its characteristics, population density, natural resources, land use, ecosystems, landmarks, service institutions, environmental issues or hazards, environmental follow-up items	To better understand the environmental setting—e.g., land use, flood affected areas, runoff direction, topographic features, location for a structure.
Visual observations/ transects	Lines of predetermined length, based on a predetermined grid of the territory to be described, where matters are discussed and elements are mapped	To scope environmental issues and to survey the types of environments, vegetation, land-use management, problems, human settlements, changes to the environment.
Participatory ethno-biographies and other exercises with a historical stance	People recount historical changes affecting land use, resource availability, village's development, precipitation and the seasons, special events, economic activities, social and environmental issues, previous development initiatives	To highlight environmental issues; possible sources of conflict, their causes, and possible solutions; analysis of the actual environmental setting; better comprehension of environmental effects; select appropriate and contextually relevant mitigation measures; identify areas for future improvement.
Various participatory analyses and charting exercises and dialogues	Satisfaction-level matrix with regard to the environment, the good and bad, opportunities, threats and concerns, areas for improvement; exercises dealing with needs, priorities, solutions, ways of life, and environmental perceptions, ranking matrix and stakeholder analysis diagram	Reflections about an initiative's environmental effects, links with other development activities, and the state of the environment; trends in the quality and quantity of different resources, cause-effect relationships, mitigation measures, their follow-up. Also serves for /to elaborate on: action planning, gender division of labor, prioritization.
Exercising gender division of labor analysis	Women and men community members describing and analyzing information about which work is done by women, and which by men, including durations and frequency	Reveal the different uses of time in the community, and help clarify expectations about who will take on specific roles in an initiative. Also reveal land and income issues. Identify who will be most concerned by a certain activity and therefore should be more involved in its design and planning.
Exercises on present and future simulation and case studies with community members	Involves community members in drawing perceptions of their current situation, aspirations of future situation, and obstacles they will have to overcome.	To visually explain an initiative, its components, and effects; detect possible sources of conflict or controversy; help understand a problem and solutions; examine sites, alternatives, assess the advantages and disadvantages of carrying out the initiative.
↓etc	↓etc	↓etc

Source: adapted from CIDA, 2005

4.3.3 Synchronizing the participatory approach with key elements of EA

The participatory approach to EA, as discussed above, is meant to overcome the limitations with the formal EA process and to introduce the merits in the community-based (CB) approaches (e.g., inclusivity, flexibility, holistic, user-friendly) to effectively carry out EAs. Yet the use of participatory approaches to EA sticks to the basic components of an EA or strategic EA processes and only rely on legitimate participatory methods to facilitate meaningful community-level participation. In contrast to the conventional EA process that is often used for large projects, CB approaches to EA have “been adapted in innovative way to smaller, community-based projects that utilize natural resources for basic livelihood needs.” The various stages in the formal EA process—screening, scoping, prediction and evaluation of expected environmental impacts as well as developing mitigation measures—are pursued in the participatory approaches to EA. Part of the process also involves the generation of alternatives that allow a project, policy, or program to better reflect a community’s needs and interests. Some aspects of synchronizing of the participatory approach with key elements of EA are described in Table 5.

The only difference lies in using participatory techniques to generate information and, most importantly, empowering affected communities through their active participation in decision making on priorities, alternatives, and preferences as well as their ownership and leading role in implementing the agreed plans towards sustainable management of the environment. The Environmental and Socioeconomic Impact Statement (EIS), prepared following the participatory EA and endorsed by an assembly of all community members, can be used in decision making and subsequent follow-up by concerned government authorities.

4.4 Developing an environmental action plan

A range of information and data will be acquired through carrying out the CEAP process as described in Section 4.2, as well as through the use of other participatory methods and tools that can be used with the CEAP Process. The available information and results of the participatory exercises are organized in an orderly manner to provide references to the subsequent step—developing an environmental action plan, which marks the culmination of the CEAP process.

Table 5. Applications and uses of various participatory tools through the planning process

Examples of Participatory Techniques / Tools to be applied for EAs	Elements of Environmental Assessment (EA)					Initiative Formulation Stages				
	Scoping of issues	Determining methods	Gathering and analyzing information	Determining mitigation measures	Developing a follow-up and monitoring plan	Concept	Preliminary design	Detailed design	Implementation	Monitoring and evaluation
Community mapping	X		X			X				X
Transect walk	X		X			X				X
Historical time line	X		X			X			X	X
Present and future	X		X	X		X	X			X
Action planning		X	X	X	X			X	X	X
Gender division of labor	X		X				X			X
Level of satisfaction matrix	X	X	X				X			X
Ranking matrix		X		X			X	X		X
Stakeholder analysis diagram						X				

Source: CIDA, 2005

Following completion of the present-situation and vision maps, there is a discussion of the vision map. These are followed by analyses of opportunities and challenges for the environment and natural resources in the communities. Next, a timeline/historical trend, root cause, and, resource user analyses are also carried out. All these together provide enough information to start activity planning and make the first version of the community action plan. As part of a practical exercise for trainees, Table 6 is to be filled out by participants.

Instructions for use

1. Groups may wish to stay together and retain the members who did the mapping (for example men's and women's groups).
2. Decide on the actions that need to be done. At the end they might be prioritized.
3. Ask why this action needs to be done (relate it to the problems articulated).
4. What things (for example capacity, resources, land) are needed so that the action can be implemented?
5. Where will the action be carried out? Mark it on the map.
6. Who will implement the action? The answer should be definite, not just the "community."
7. If possible, identify some actions that can be implemented quickly (in the next few months) and do not cost too much.

8. Discuss, in detail, how these activities will be coordinated at the village level to make sure that by doing one activity (for example, expanding the area under cultivation) does not impact negatively on another (for example, natural forest management).
9. Allow 2 to 3 hours for this work.
10. Make plenary presentations to discuss the work plans.

4.5 Flexibility and mobility

Although the generic CEAP process was developed for a settled (non-nomadic) population, it is important to adapt to the challenge of working with a mix of mobile and sedentary populations. In doing so, there are important considerations:

- Ensure that you are working with and consulting with all the groups involved. If a group that is only present part of the year is excluded from the development of the CEAP, the process may exacerbate rather than mitigate a sense of unequal access to resources and therefore the risk of conflict.
- Emphasize understanding the seasonality of resource use and livelihoods. The situation may be very different in the wet and dry seasons. What are the periods of migration? What is the condition and situation of the herd when they are in this area? Seasonal calendars are an important part of any CEAP process, but particu-

Table 6. Sample action plan from Kordofan, Sudan

Village	Activity	Why?	What?	Where?	Who?
Ferik el Baghal	Clear fire lines in the rangelands	Protection of the rangelands and pasture from fires	Tractor and plough plus a recurrent budget	East and west of the village where rangelands are found	Herders, village committees, Range Department, native administrators, farmers unions, and agriculture department in the locality
Ferik el Baghal	Broadcasting range seeds (reseeding)	Increase diversity in the rangelands	Seeds, transport and funds	East and west of the village where rangelands are found	Herders, village committees, Range Department, native administrators, farmers unions, and agriculture department in the locality

Source: IUCN, 2011

larly so in working with rangelands and migrating herds. The vision mapping will also need to reflect the high degree of variability in resources and resource use across the seasons.

- Understand the wider context of migration. The scale of the environmental assessment needs to be determined carefully. The area it is focusing on needs to be understood within the wider range of the migration. If a community is away with its herd, a consultation at that time would not represent their views. The key way to understand this is to understand the livelihoods of the communities who come to the location. Where do they travel to and from? Why do they come to this area and what do they need while they are here? How does this relate to the needs and livelihood opportunities of other resident and nonresident groups?
- In some areas a significant factor will be the space for herds to move. Demarcation of migration routes and provision of water in those locations may be critical. In other areas the focus may be on grazing of pasture so a different livelihood use will mean different patterns in the use of natural resources, and different services need to be provided.
- Rangelands require specific attention in planning. The plan will need a wider scope than planning around a specific water point serving a village. This has been an area that has received significant attention in recent years in East Africa so specialist advice is available. The work of the Natural Resource Management Technical Working Group in Ethiopia, for example, is useful (Flintan and Cullis 2010).

It is important to note the opportunities afforded by interaction of different groups for trade and exchange. At the right time of year, for example, a herd can usefully browse crop residues and recycle nutrients to the fields. In all cases the context will define what action is needed and will also determine what components of the CEAP activities are most appropriate. Flexibility in approach is important in ensuring the work is fit for its intended purpose.

4.6 Monitoring and evaluation

Monitoring is an integral management tool to introduce continuous reflection into local planning.

If we do not identify problems and address them without delay, a problem can get bigger and can also prevent the achievement of overall goals.

A participatory monitoring process is used to:

- Check how far all stakeholders, including communities, implemented their plans;
- Learn from successes;
- Identify and address problems on time;
- Use the successes to learn how to do things better in the future.

Key questions for stakeholders to ask in participatory monitoring and learning:

- What activity was planned, when, and who was responsible?
- Why do we do this? What are the specific interests of stakeholders?
- How do we organize ourselves to do the work?
- How successful were we in doing the work?
- What went well? Why?
- What went wrong? Why?
- What next? How do we adapt to improve?

4.7 Key lessons and challenges of CEAP

4.7.1 Lessons

CEAP exercises over the years have yielded a range of lessons that can serve as pointers to improve new CEAP initiatives. Some of the key lessons include:

- Involving local governments in the design of CEAPs is a key success factor in supporting implementation and ensuring sustainability. Most important, CEAP helps governments institutionalize participatory processes in planning.
- For the CEAP process to be effective, it has to be facilitated in a way that identifies and addresses key underlying issues such as governance, tenure, and livelihoods, and it must allow community decisions to be made on the best approaches to attain their priorities.
- In a refugee setting, resource tenure issues can be partially solved by involving both refugee and host

communities in natural resource management and negotiations with government authorities.

- The devolution of resource management functions and power to the grassroots level increases the sense of value and ownership of the natural resources.
- Approaching resource management practices through livelihood enhancement interventions is a positive practice with multiplier effects on both conservation and livelihoods.
- CEAP requires regular contact and nurturing between facilitators and communities, especially in the beginning.
- It is important to find a balance between engaging people at the community level and involving local leaders so that the process is not hijacked or undermined by people who are not the key stakeholders.
- CEAP processes require time and patience in order to elicit the required results and benefits of the targeted stakeholders.
- It is important to find a balance between detailed scientific analysis and community baselines in order to justify actions to other stakeholders.
- The importance of quick actions for quick benefits has to be underscored in order to demonstrate the value of the CEAP and create motivation for the target communities. Thus it is important to enhance the capacity of CEAPs to identify and streamline benefits from natural resources into other economic benefits for the communities.
- More resources need to be dedicated to the implementation of CEAPs. Experience from the region shows that what is planned is ambitious compared to what is actually implemented. There are usually very high expectations during planning, but resources are limited.
- It is important to enhance the capacity of CEAPs to include adaptive planning and be able to respond to the impacts of population and environmental dynamics.

- It is important to integrate the environmental parts of the CEAP with other sectors such as health, education, water, and infrastructure so that the final document is holistic. Resources from donors in different sectors can be sought and utilized effectively to uplift the livelihoods of the community without compromising ecosystem integrity.

4.7.2 Challenges

Like any other development tool, CEAP is not without challenges. Although these challenges are far from affecting

the importance and practicality of CEAP, those who are just starting this approach should be aware of the challenges and be prepared for them. Some of the challenges:

- When planning for a CEAP it is important to accommodate the local calendar (rainy or harvesting season, festival times) and also find available dates with all the other involved stakeholders, including the facilitators.
- If funds are not included for implementation of a CEAP, community motivation may wane. Conversely, if funding is available, it is likely to boost the motivation of a community to implement action plans autonomously.
- There can be a mismatch between the long-term aspirations of CEAPs and the desire of donors to deliver short-term results, which may compromise the nature of support given to partners on the ground.
- Some communities are mobile, such as pastoralists and displaced communities, and can find it difficult to participate and commit to the process.
- Low capacities of communities to influence decisions regarding resource use, especially where there is conflict and competition with stakeholders who wield more political power, can become a challenge to the planning and implementation of CEAPs.
- Long-term sustainability of participation requires institutionalization of the practice into government processes, and it is usually advisable if a CEAP is conducted in partnership with government institutions.

4.8 Elements of an ESEA report

While the main focus of this publication is on the practicalities and benefits of the CEAP approach itself, it may also be necessary to produce a formal report at the end of the process. The report might be required by a funding agency, which has to demonstrate its own accountability. The agency may have a specific format for the report, or there may be enough flexibility to enable the report to reflect the process as undertaken. The CEAP document, produced in Section 4.3, can provide more information than needed to prepare the ESEA report. The reporting format described in Table 7 can be applied for the purpose.

Notwithstanding the variations, an EA/ESEA report needs to include the minimum set of elements to assist in planning, environmental integration, and decision making. The appropriate level of effort and detail in an EA depends on the nature, scope, and location of the initiative, as well as the statutory requirements imposed by national or regional governments or the requirements of donor agencies.

Accordingly, a typical ESEA report that can optimally serve most of the needs and expectation has to include the nine components listed in Table 7.

The South Sudan Law Society recommends a variation for private-sector investment:

1. Executive summary;
2. Policy, legislative, and legal framework;
3. Project description;
4. Baseline data;
5. Identification of impacts;
6. Analysis of alternatives;
7. Environmental management plan (Deng 2012).

The significant point is that there are some variations on requirements here, and it is important that the scope and format of the document is agreed upon in the project planning stage. As discussed above, the ideal for small projects is to use the CEAP methodology, but for larger investments an alternative solution may be needed.

Figure 11. A Water barrier at Nakuromai, Eastern Equatoria State—the embankment is exposed to erosion



Table 7. Typical EA report components and descriptions

EA report components:	Descriptions
Description of the initiative/ project	• Provision of background information about the project that is required to evaluate its potential impacts (type of initiative, components, technical specifications, phases, products, and activities that may have environmental implications)
1. Country legislation, policy / administrative aspects	• Applicable environmental and related policies, regulations, and permit requirements affecting the project • Consideration of EA laws, requirements, and regulations • Applicable donor ESMFs (Environmental and Social Management Framework) and requirements, international/regional conventions/accords on the environment • Other relevant background information as may be required to evaluate the potential impacts of the project
2. Description of the environment	• Establishment of existing environmental and socioeconomic settings (i.e., baseline data) before the project/initiative
3. Methodology	• Description of where and how the information was collected, presented, and interpreted for conducting the environmental assessment: • sources of information and references (e.g., documents and websites, government agencies, universities, local population, groups consulted, expertise of persons providing technical advice); • information gathering methods (e.g., field visits, surveys, literature review, technical analyses, and methods for ensuring public participation); who conducted, and was involved in, the assessment; • methods of assessing environmental effects and their significance
4. Analysis of environmental effects and their significance	• Description of all potential environmental and socioeconomic impacts and evaluation of their significance (the initiative's positive and adverse effects on the biophysical and human environments, the environment's effects on the initiative, cumulative effects, effects of potential accidents, and predicted effects)
5. Public participation and concerns	• Public concerns and expectations with respect to the initiative • Efforts made to engage the public and those affected by the initiative, to ensure social representation, and to promote sensitivity toward social and traditional values • Demographic characteristics of the participants (gender, age, ethnic group, socioeconomic group) • Controversial points raised, responses/subsequent actions to public concerns
6. Mitigation measures	• Identification of measures in order to prevent, minimize, or remedy significant adverse impacts to acceptable levels
7. Follow-up and monitoring	• Specification of monitoring, surveillance, and auditing activities during construction and operation stages of the project
8. Conclusion of the EA	• Summary and conclusions of the main findings of the above steps • Identification of preferred project configuration
• Appendices containing supporting technical information, description of methods used to collect and analyze data, list of references.	

Source: CIDA, 2005; UNEP, 2008

Endnotes

- 1 Following the description by Bryant and Wilson (1998), natural resource management is considered a part of environmental management.
- 2 For detailed discussion of these issues, alternative models and relevant case studies can be found in a number of sources, including Bryant and Wilson (1998), Sims and Deb (2009), Michaelidou et al. (2002), and Spaling (2003).
- 3 Also see case studies in Spaling and Vroom (2007), Sinclair et al. (2009), Neefjes (2001), Spaling and Vroom (2007), Sinclair et al. (2009).
- 4 The descriptions of the CEAP approach and its various elements including illustrations and procedural instructions are drawn from IUCN (2011).
- 5 Capacity Assessments (CA) involve capturing the status of existing capacities—available capacity or gaps to be filled (e.g., literacy levels, skills, facilities, organizations, institutions/institutional mechanisms) within the affected community and the relevant local government agencies supporting the initiative through institutional, regulatory, technical backstopping, or monitoring and follow up. There are different approaches to CA depending on the type of intervention, but the results (for similar interventions) are often the same, making it possible to draw a general setting of the available institutional and structural resources that provide information on (1) the appropriate type of technology and management system to opt for, and (2) what specific capacity building needs to be addressed in order to achieve the expected optimal competence levels required for managing the environment and outcome(s) of the anticipated development intervention(s). This leads to estimating the level of investment needed to achieve the desired results of the development initiative. In case of WH projects, the capacity building support often constitutes a major component of the development plans towards ensuring sustainability.

References

- Abaza, H., R. Bisset and B. Sadler. 2004. *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach*. United Nations Environment Programme (UNEP), 2004.
- AfDB (African Development Bank). 2003. *Integrated Environmental and Social Impact Assessment Guidelines*.
- Akpofure, E. A., and M. Ojile, (n.d.). *Social impact assessment: an interactive and participatory approach - Topic 13 of UNEP EIA Training Resource Manual Social Impact Assessment (Case studies from developing countries)*.
- Bryant, R.L., and G.A. Wilson. 1998. Rethinking environmental management. *Progress in Human Geography* 22 (3): 321-43.
- CEAA (Canadian Environmental Assessment Agency). 1998. *Recent Developments with National and International Environmental Impact Assessment Processes*. Proceedings of a policy forum held in conjunction with the International Association for Impact Assessment annual conference, New Orleans, USA, May 27, 1997 www.ceaa-acee.gc.ca/default.asp?lang=En&n=B4993348-1&printfullpage=true#TOClink.
- CIDA (Canadian International Development Agency). 2005. *Environment handbook for community development initiatives*. Second edition of the *Handbook on environmental assessment of non-governmental organizations and institutions programs and projects*. Gatineau: CIDA. www.acdi-cida.gc.ca/CIDAWEB/acdicida.nsf/En/JUD-47134825-NVT.
- Deng, D. 2012. *Handbook on Community Engagement*. Juba: South Sudan Law Society.
- Flintan, F., and A. Cullis, eds. 2010. Introductory guidelines to participatory rangeland management in Ethiopia. www.disasterriskreduction.net/fileadmin/user_upload/drought/docs/Guidelines%20to%20participatory%20rangeland%20management.pdf.
- Gaafar A, H. Sharawi, and B. Elasha. 2009. Assessment of Community Environmental Management Plan (CEMP) in Eastern Sudan.
- mokoro.co.uk/files/13/file/Iria/1985-SSLS-Handbook-on-Community-Engagement.pdf.
- IAIA (International Association for Impact Assessment). 1999. *Principles of environmental impact assessment best practice*.
- . 2009. What is Impact Assessment? www.iaia.org/publicdocuments/special-publications/What%20is%20IA_web.pdf
- IUCN (World Conservation Union). 2011. *Community Environmental Action Planning: A guide for practitioners*. Eastern and Southern Africa Regional Office (ESARO), Nairobi, Kenya.
- IUCN and the World Bank. 1997. *Expanding Environmental Assessment Capacity in Sub-Saharan Africa*: Discussion paper. www.ceaa-acee.gc.ca/default.asp?lang=En&n=B4993348-1&printfullpage=true#wsBCEC8B92.
- Landell Mills. 2004. *Evaluation of the Water Harvesting Schemes' Component of the EC Funded Programmes IFSP 1998 and IFSP 2000 in Tigray Regional State: Final Evaluation Report*. EU SCR Framework Contract, Ethiopia, May 2004.

- Michaelidou, M., D.J. Decker, and J.P. Lassoie. 2002. The interdependence of ecosystem and community viability: A theoretical framework to guide research and application. *Society and Natural Resources* 15:599–16.
- Neefjes, K. 2001. Learning from participatory environmental impact assessment of community-centred development: The Oxfam experience. In *Analytical Issues in Natural Resources Management*, B. Vira and R. Jeffery, eds. New York: Palgrave.
- Ochola, W. O., P. C. Sanginga and I. Bekalo, eds. 2010. *Managing natural resources for development in Africa: A resource book*. Co-published by University of Nairobi Press (UONP) in association with International Development Research Centre (IDRC), International Institute of Rural Reconstruction (IIRR), Regional Universities Forum for Capacity Building in Agriculture (RUFCA). First published in 2010 by UONP, Jomo Kenyatta Memorial Library, University of Nairobi; Nairobi, Kenya.
- OECD (Organisation for Economic Co-operation and Development). 2003. *Linkages between environmental assessment and environmental permitting in the context of the regulatory reform in EECCA countries*. Presented at the EECCA regional expert meeting, Moscow, April 11, 2003. Centre for co-operation with non-members, Environmental Directorate, Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP). www.oecd.org/env/outreach/26732367.pdf.
- ProAct Network. 2012. Community environmental action plans for pastoralist communities. www.proact-network.org/proactwebsite_3/images/Documents/Publications/ProAct_Policies/CommunityEnvironmentalActionPlansForPastoralistCommunities_EN.pdf.
- Sadler, B., 1996. Final report environmental assessment in a changing world: Evaluating practice to improve performance. International Study of the Effectiveness of Environmental Assessment. International Association for Impact Assessment.
- Sims, L., and A. K. Deb. 2009. Enabling a Voice for the Marginalized: Global examples of community-based approaches to natural resource management. *Environments* 36:3.
- Sinclair, A.J., L Sims and H. Spaling. 2009. Community-based strategic environmental assessment: Lessons from Costa Rica. *Environmental Impact Assessment Review* 29:147-56.
- Spaling, H. 2003. Innovations in environmental assessment of community-based projects in Africa. *The Canadian Geographer* 47 (2): 151–68.
- UNEP (United Nations Environment Programme). 2003. Africa Environment Information Network (AEIN): Framework for capacity building in integrated environmental assessments and reporting in Africa. Nairobi. www.unep.org/dewa/africa/docs/en/AEIN_framework_Document.pdf.
- . 2008. *Desalination resource and guidance manual for environmental impact assessments*. Regional Office for West Asia, Manama, and World Health Organization, Regional Office for the Eastern Mediterranean, Cairo.
- . 2013. *Governance for peace over natural resources: A review of transitions in environmental governance across Africa as a resource for peacebuilding and environmental management in Sudan*. <http://www.unep.org>.
- . 2014. *Putting it into practice: Selected case studies on CBNRM projects in Sudan*. Khartoum. http://www.unep.org/disastersandconflicts/Portals/155/countries/sudan/pdf/CBNRM_Case_Studies.pdf

- UNEP-DEWA. 2006. *Training Manual on Integrated Environmental Assessment and Reporting in Africa*. Division of Early Warning and Assessment (UNEP-DEWA).
- WCED (World Commission on Environment and Development). 1987. *Our Common Future*. New York: Oxford University Press.
- Wolmer, W., and I. Scoones. 2005. *Policy Processes in the Livestock Sector: Experiences from the African Union*. Africa Union, Inter-Africa Bureau for Animal Resources, Nairobi.
- World Bank. 1991. *Country Capacity to Conduct Environmental Assessments in Sub-Sahara Africa*, Environmental Assessment Working Paper No 1, African Technical Department, Washington, D. C.
- . 1996. *The Impact of Environmental Assessment: The World Bank's Experience (Second Environmental Assessment Review)*. Environment Department, Washington, D.C.



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