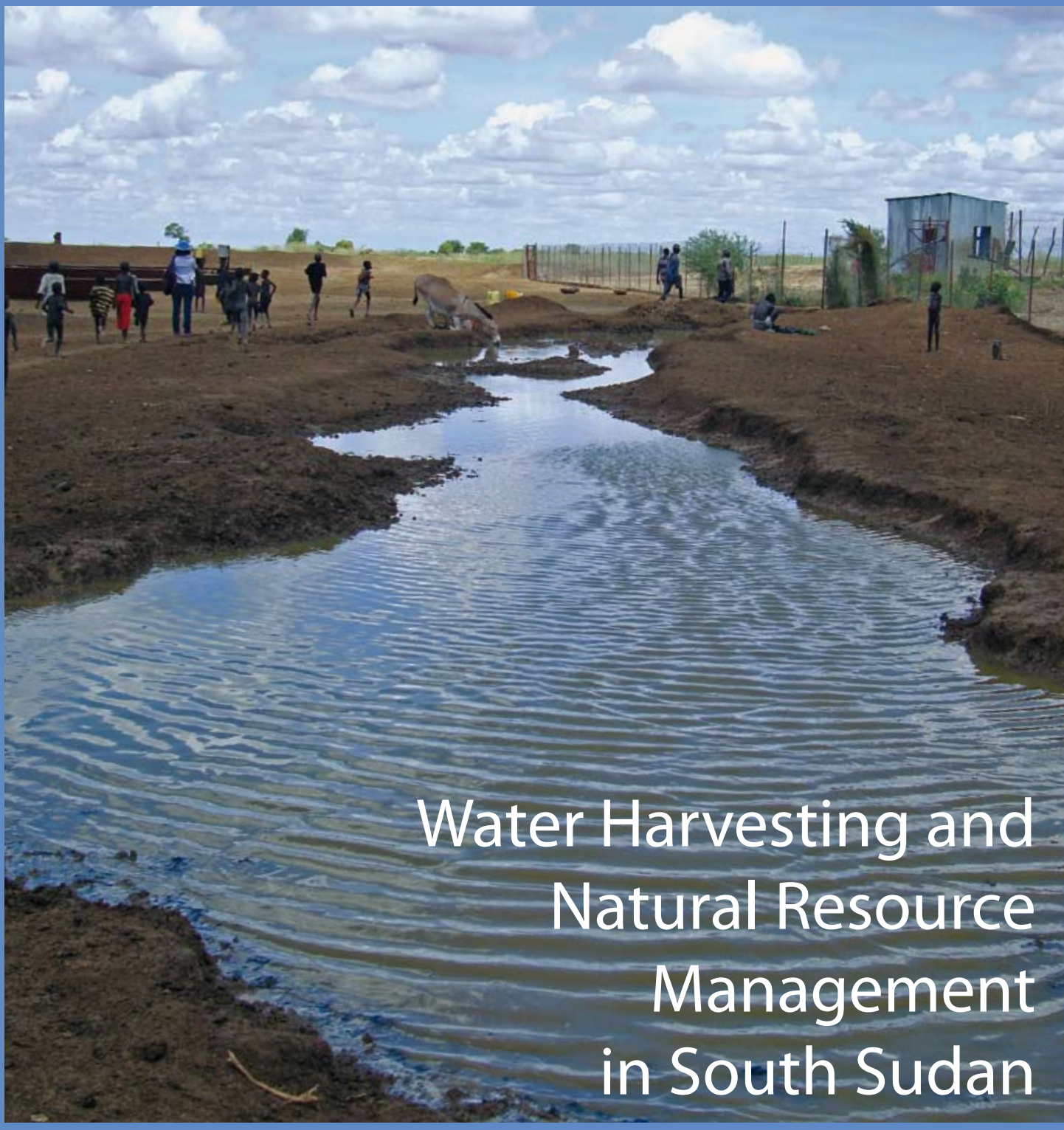
Ministry of Electricity, Dams, Irrigation and Water Resources



Water Harvesting and Natural Resource Management in South Sudan

TECHNICAL GUIDELINES

Food and Agriculture Organization of the United Nations

UNEP

PBSO
United Nations Peacebuilding Support Office

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Executive summary

The struggle over natural resources, particularly pasture and water during the dry season, is a critical issue in many pastoral production areas of South Sudan and is one of the major causes of conflict between pastoral and farming communities in the country. In order to address such conflicts associated with use of and access to pasture and water, the Government of South Sudan and the international community has been financing the construction of *hafirs* in order to provide water for livestock during the dry season.

However, in addressing the problem of water scarcity through the construction of water harvesting structures, the Government of South Sudan has focused on the physical designs and technical aspects of the *hafirs* with less emphasis on natural resource issues around these structures.

In order to understand water harvesting interventions in the context of sustainable natural resource use and management, conflict resolution and policy framework in South Sudan, The Food and Agriculture Organization of the United Nations (FAO) and the United Nations Environment Programme (UNEP) have embarked on a joint project entitled "Assessment of water harvesting structures for sustainable livelihoods and peacebuilding in South Sudan". The project has been financed by the Peacebuilding Fund (PBF) for South Sudan.

A natural resource assessment and analysis was conducted to inform the Government's and development partners' understanding of sustainable natural resources use and management. The assessment also looked at the institutional arrangements required for management of the *hafirs* and conflict associated with access to and use of natural resources around the *hafirs*. The findings of the natural resource assessment and analysis will be used as a reference for future construction and operation of water harvesting structures.

It is imperative to note the importance of increasing the community's understanding of natural resource issues right from the design stage. Establishing inclusive Natural Resource Management Committees (NRMCs) from the village up to the county levels with by-laws detailing the scope of work at different levels will greatly help in promoting sustainable use and management of natural resources.

The NRMCs should also be provided with trainings on how to manage natural resources and establish a clear channel of communication for operation and use of *hafirs* with local governments for better management of natural resources.

These guidelines constitute a reference document for the mainstreaming of sustainable natural resource management strategies in water harvesting structures in South Sudan for organizations investing in and implementing water harvesting projects for livestock and human consumption.

Acknowledgements

These guidelines are the product of the work of many individuals, and so there are many to thank. I am very grateful to South Sudan Peacebuilding Fund for providing financial support to conduct this first-ever "Assessment of water harvesting structures for sustainable livelihoods and peace building in South Sudan" which has resulted into the development of these guidelines.

I would like to recognize the guidance and assistance provided by FAO colleagues: Said Ali-Chief Technical Advisor, Abigail Wathome, Gender Officer - FAO Juba, Michael Odhiambo, Land Tenure Consultant and Andreas Thulstrup, Natural Resources Management Officer (Energy) Climate, Energy and Tenure in Rome

Special thanks are due to central, state and local-level government civil servants and the administrative staffs in Lakes and Eastern Equatoria States for their cooperation and support during field data collection. The Ministry of Electricity, Dams, Irrigation and Water Resources and FAO–South Sudan provided key administrative and technical support during the planning and implementation stages.

I would like to acknowledge the enthusiasm and wonderful participation of all the local government officials in all the selected states for their timely responses and active participation in the meetings/discussions that led to the compilation of these guidelines which constitute a reference document for the mainstreaming of sustainable natural resource management strategies in water harvesting structures in South Sudan.

Thanks are also due to all the field assistants involved in the assessment who assisted in conducting community meetings and for their contributions to the field preparations, community mobilization, field data collection and the drafting of the technical report. Lastly, my gratitude to Mr. AbdalMonium Osman-FAO South Sudan for his input and support in reviewing the draft the guidelines.

Abbreviations and acronyms

FAO . . . . . Food and Agriculture Organization of the United Nations

UNEP. . . . . United Nations Environment Programme

NRMC. . . . . Natural Resource Management Committee

PBF . . . . . Peacebuilding Fund

UN . . . . . United Nations

PRA. . . . . Participatory rural appraisal

1 Background

Conflicts over natural resources, particularly competition over access to traditional grazing lands and water rights, remain fundamental challenges to peace and stability in South Sudan. Various approaches and strategies are required to manage and resolve conflicts depending on the sources of the problem. The Government of South Sudan and the international community have been investing in livestock water provision (e.g. *hafirs*) for several years as a means to mitigate the conflicts arising from dry season water demand.

In order to better understand the effectiveness of water harvesting interventions in livelihoods improvement and conflict reduction and to contribute to policy discourse on water harvesting in South Sudan, the Food and Agriculture Organization of the United Nations (FAO), in collaboration with the United Nations Environment Programme (UNEP), has embarked on a joint project entitled "Assessment of water harvesting structures for sustainable livelihoods and peacebuilding in South Sudan". The project has been financed by the Peacebuilding Fund (PBF) for South Sudan.[1]

A natural resource assessment and analysis was conducted to inform the Government's and development partners' understanding of sustainable natural resource use and management so as to propose strategies and guidelines for sustainable resource management. The assessment also looked at the institutional arrangements required for management of the *hafirs* and conflict associated with access to and use of natural resources around the *hafirs*. The findings of the natural resources assessment and analysis will be used as a reference for future construction of *hafirs* and sustainable management of natural resources around them.

1.1 Implementation of the Assessment

For three weeks during April and May 2014, a joint six-person team from the United Nations (UN) and the Government of South Sudan conducted a multi-disciplinary assessment of selected water harvesting structures in Lakes, Western Equatoria, and Eastern Equatoria States. The team included experts specialized in technical/engineering, environmental, socio-economic, gender and natural resource management aspects of water harvesting.

1.2 Key Findings of the Natural Resources Assessment

- There is high level of overgrazing around the *hafirs*, resulting in degraded land and shrinking of grazing areas.

- The cycle of slash-and-burn agricultural practices has accelerated with the high density of livestock around the *hafirs*. This is done to encourage re-sprouting of pasture and in most cases has left the soils susceptible to erosion around the *hafirs*.

- In Lakes State, insecurity has made some parts of the grazing areas inaccessible, thus limiting the communities' ability to cope with droughts and other climate-related disasters by limiting mobility.

- There was a high level of unmanaged extraction of woodland resources for charcoal, firewood and building/fencing materials in the areas visited.

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- The *hafirs* visited have management committees but with no clearly defined terms of reference. Members of the existing committees have not received any training in natural resource management.

- It is very important to increase the communities' understanding of natural resource issues from the initial design stage rather than limiting their participation to the selection of suitable sites for construction of the *hafir*s.

- Pastoralist communities in the areas surveyed live in isolated and underdeveloped pockets. These areas are often conflict prone, food insecure, and associated with high levels of vulnerability.

In general, the assessment has shown that *hafirs* provide water for both human and livestock consumption, particularly in Eastern Equatoria where the lack of surface water is a serious problem. It was observed that there was a big technical and administrative capacity gap in tackling issues of natural resource management. The overcrowding of livestock around *hafirs* has resulted in the shrinking of grazing areas and, subsequently, in massive soil erosions.

1.3 Guideline Development

This set of guidelines is intended to offer direction on how to consider natural resource issues leading up to and following *hafir* construction. The guidelines are expected to address some of the natural resource issues identified during the assessment and avoid future natural resource degradation.

These guidelines were produced based on discussions with key stakeholders involved in *hafir* design and use as well as policy makers. Additional information for the development of these guidelines came from literature review and secondary data associated with water harvesting structures. The materials collected were from the three states of Eastern Equatoria, Western Equatoria and Lakes where field missions were held for a period of three weeks.