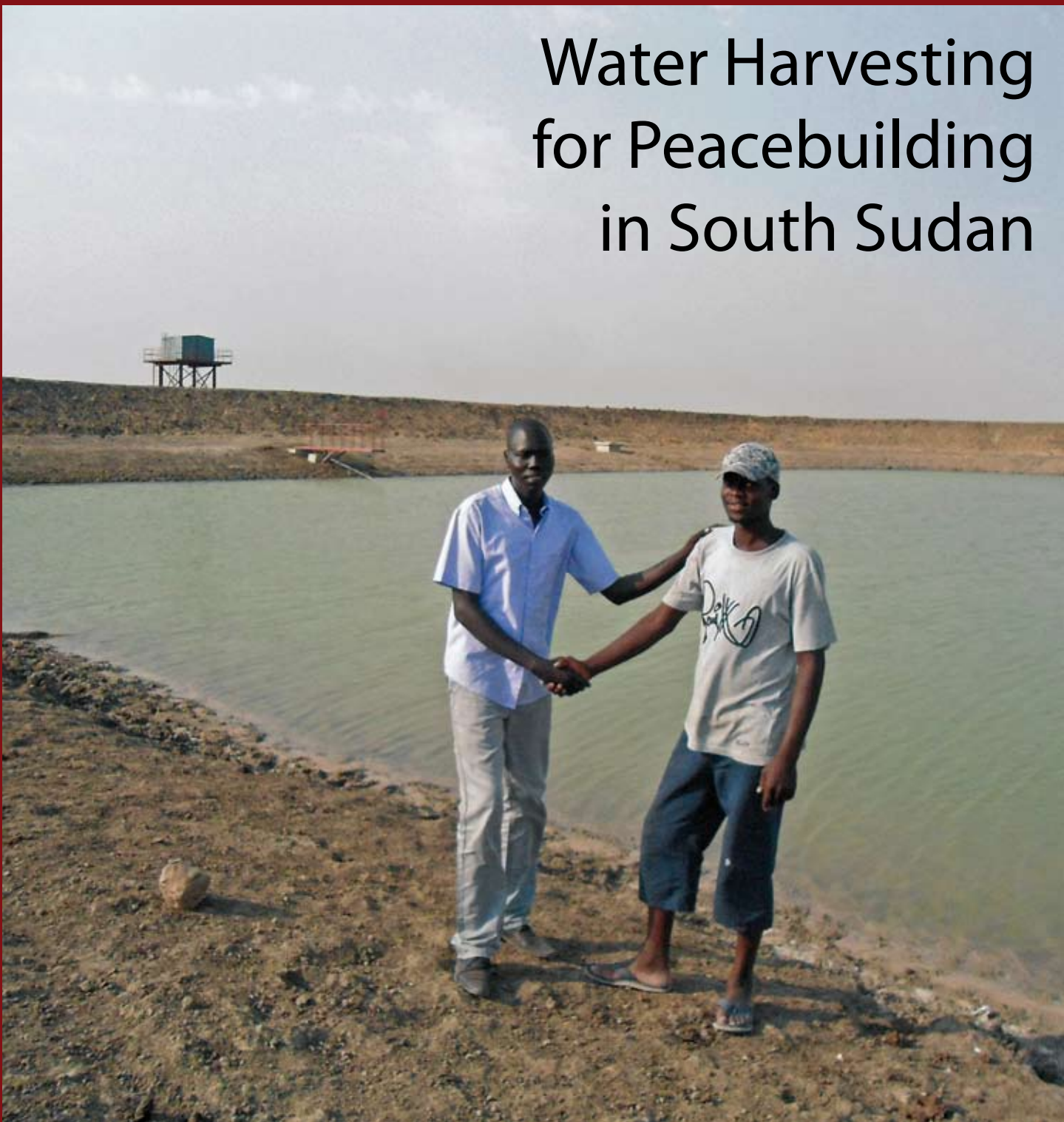




Ministry of Electricity, Dams, Irrigation and Water Resources

Water Harvesting for Peacebuilding in South Sudan



An Assessment of Livestock Water Harvesting Structures
in Eastern Equatoria, Western Equatoria, and Lakes States



Food and Agriculture
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United Nations



United Nations Peacebuilding Support Office

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- Technical Assessment Report prepared by Eshetu Abate Legesse, Water Resources Assessment Consultant - FAO South Sudan
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- Natural Resources Management Assessment Report prepared by Wani James Henry, Natural Resources Management Specialist - FAO South Sudan
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Acronyms

CIDA	Canadian International Development Agency
CPA	Comprehensive Peace Agreement
DFID	United Kingdom's Department for International Development
EES	Eastern Equatoria State
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus group discussion
GIZ IS	German International Cooperation International Services
GTZ	Former German Technical Cooperation
HOA	Horn of Africa
MDTF	Multi-Donor Trust Fund
MEDIWR	Ministry of Electricity, Dams, Irrigation and Water Resources
MOE	Ministry of Environment
MWRI	Ministry of Water Resources and Irrigation
NGO	Non-governmental Organization
NRMC	Natural Resources Management Committee
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PBF	United Nations Peacebuilding Fund
PBSP	Peace Building Strategic Plan
RSS	Republic of South Sudan
SEAGA	Socio-economic and Gender Analysis
SSDP	South Sudan Development Plan
SSRF	South Sudan Recovery Fund
SSTC	South Sudan Transitional Constitution
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNHAS	United Nations Humanitarian Air Service
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
USD	United States Dollar
WASH	Water, Sanitation and Hygiene
WES	Western Equatoria State
WFP	World Food Programme
WH	Water harvesting
WHO	World Health Organization

Executive summary

The initial sites selected for the assessment were located in Jonglei, Lakes and Eastern Equatoria States. As a result of the on-going conflict in South Sudan, with Jonglei State being one of the most affected states, the assessment could not be conducted there and was shifted to Western Equatoria State (WES). WES was selected because of its biophysical and agro-ecological distinctness from Eastern Equatoria and Lakes States, thus enabling a better understanding of livestock water harvesting (WH) in the Green Belt livelihoods zones. Conflict over water resources is common in the selected areas, particularly during the dry season when water scarcity often forces people to migrate.

The states and counties visited during the assessment included: Cueibet and Rumbek Centre Counties in Lakes State; Yambio County in Western Equatoria; and Kaopeta North and Kapoeta East Counties in Eastern Equatoria State. The locations and WH sites visited are listed in Table 1. The WH sites in WES are not included in the table as the facilities were not for livestock watering but were for fish harvesting purposes.

Major findings

- Dry season livestock watering in South Sudan is carried out through both natural and man-made means. The natural sources are perennial rivers/streams, swamps (locally known as *toic*) and ponds. Man-made sources are community ponds, roadside dugout pits, rock catchments, water barrier and *haffirs* (ponds). The natural sources currently provide more water than the man-made facilities, which are technically limited in terms of functionality and sustainability.
- Of the man-made WH structures that have been implemented, some, like the *haffirs* in Jonglei, were preceded by feasibility studies whereas other, like the *haffirs* in Lakes State, were carried out without feasibility studies.
- Those *haffirs* without feasibility studies were found to have fundamental design problems related to sizing, location and lack of components.
- There is a lack of harmonization among the stakeholders with regard to the designs of *haffirs*, particularly with regard to type, size, number of components and minimum standards.
- The current standard designs for 30 000 m³ and 40 000 m³ capacity *haffirs* need revision as these facilities are experiencing problems relating to water abstraction, siltation basin, number of cattle troughs as well as type and size of power supply.
- There is a need for more technical expertise in operating *haffirs* by management committees/operators.
- There is no clear division of responsibilities for allocating the budget for operation and maintenance activities.
- There is a lack of awareness of the different roles and priorities of the women, men, girls and boys who are involved in the design and management of the existing WH facilities.
- The initial community mobilization and consultations to create awareness of the construction of WH structures only involved community leaders, who for cultural reasons, were all men.
- Planning did not involve a gender analysis or gender-sensitive feasibility studies to inform type, design, size and cost of WH structures. Thus, women were not consulted in the selection of sites or design of the *haffirs*.
- *Haffirs* are often the only source of water for domestic use and are located in remote areas. It is common for women and girls to walk 5-7 km to collect water. These daily trips expose them to physical harm and are potential sources of conflict. Furthermore, the journey takes a significant amount of time, which could otherwise be used for other productive activities.
- Some *haffirs* have no provisions for domestic water collection; households sharing the source with livestock presents a contamination and disease risk.

- EES *haffirs* lack proper committee management. Communities use the *haffirs* to provide water to livestock during the rainy season but herders are forced to migrate in search of water during the dry season. This inevitably leads to conflict.
- *Haffirs* have management committees in place but their roles and responsibilities are not well defined.
- Although female representation in the committees is 30 percent, men dominate the decision-making processes and leadership positions. There is strong resistance towards women's membership and voice in the committees.
- There is very little capacity building of the committee members. The only instance was in Lokoges *haffir* in EES where three elders (all men) were trained in pump operation.
- There are gaps in capacity relating to understanding of water, natural resources and environmental management by all committee members, men and women alike.
- There are no formal directives on the management of *haffirs* at the state or community levels.
- No gender awareness or peacebuilding and conflict reduction trainings were conducted. Nor were there any exchange visits to expose committee members to other successful community-based water management initiatives.
- Widespread overgrazing has resulted in degraded land and reduced grazing areas.
- There have been high levels of siltation, soil erosion and vegetation burning.

Conclusion

The assessment has shown that *haffirs* serve both human and livestock water needs, particularly in EES where surface water is a serious problem. Access to traditional grazing land and water remain fundamental challenge to peacebuilding and livelihood development in the assessment areas. The inequitable distribution and lack of access to water will remain a driving force behind poverty, hunger and conflict among these communities. Poor farming practices and overstocking has set into motion a cycle of environmental degradation, which will ultimately lower productivity and increase vulnerability. Soil erosion and infertility, damaged watersheds, floods and a host of other disasters have frequently undermined communities, threatening their health, livelihoods and security. Action is required to ensure that natural resources are used in a sustainable manner and that communities are guaranteed access to water and natural resources to ensure their livelihood security.

Recommendations

Existing WH facilities are affected by a range of problems associated with initial design, construction, operation and maintenance, all of which affect their sustainability as described in the previous sections. As such, all stakeholders including the national/state/local governments need to:

- consider the rehabilitation of existing water points/facilities before constructing new structures;
- consider management, operation and maintenance from the very beginning of any WH project;
- have a sound understanding of the socio-economic and political contexts that influence the selection of areas around WH structures;
- include environmental and socio-economic assessments as major components of the feasibility assessment in order to determine the likely effects of the project on the target communities;
- ensure adequate storage capacity by carefully estimating demand levels and accounting for water losses and unforeseen variations in seasonal rainfall;
- select sites with adequate consideration of equity, optimal inter-spacing with other related facilities (i.e. avoid overstocking) and environmental and socio-economic effects;

- apply participatory planning by including all key stakeholders in the entire process from inception and site selection to implementation and management;
- explore alternative WH options other than *haffirs*;
- evaluate the existing standard designs of *haffirs* and ensure that they meet the needs and capacity of users;
- integrate the design and development of livestock watering with other pastoral and natural resources management and development interventions;
- consider seasonal variability in South Sudan for planning, construction and implementation of WH facilities;
- establish proper supervision and monitoring mechanisms with clearly defined responsibilities at the national/state/county levels before starting any construction;
- promote water use service fees (in cash or in kind) where possible;
- establish a simple business plan for operation and maintenance of WH facilities;
- do not promote technologies that the users are not able to maintain;
- establish/strengthen trained and equipped management committees for the facilities and for the broader management of natural resources;
- promote community co-management approach to monitor vegetation and grazing pressure;
- continue peacebuilding efforts in South Sudan on the part of water sector development partners;
- agree on common approaches/guidelines for development/financing to ensure the sustainability of WH facilities;
- provide alternative livelihood options for the communities in order to reduce dependence on fuel wood and charcoal production for income generation; and
- focus water policies on the sustainable management of WH facilities, taking into account not just on the provision of water but also gender. The government and local stakeholders (including men and women) should be key actors in the sustainable management of WH facilities.

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