Report of Participatory Rural Appraisal (PRA) in the W4Ls target Counties of Lakes State, South Sudan
16th September – 3rd October 2014

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2. **ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>-</th>
<th>Description</th>
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<tbody>
<tr>
<td>AFIS</td>
<td>-</td>
<td>Agriculture and Food Information System</td>
</tr>
<tr>
<td>CBO</td>
<td>-</td>
<td>Community-Based Organisations</td>
</tr>
<tr>
<td>EIA</td>
<td>-</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>FAO</td>
<td>-</td>
<td>Food and Agricultural Organisation</td>
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<tr>
<td>HH</td>
<td>-</td>
<td>Households</td>
</tr>
<tr>
<td>LS</td>
<td>-</td>
<td>Lakes State</td>
</tr>
<tr>
<td>NEAT</td>
<td>-</td>
<td>The National Effort for Agricultural Transformation</td>
</tr>
<tr>
<td>NGOs</td>
<td>-</td>
<td>Non-Governmental Organisations</td>
</tr>
<tr>
<td>PRA</td>
<td>-</td>
<td>Participatory Rural Appraisal</td>
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<tr>
<td>RRA</td>
<td>-</td>
<td>Rapid Rural Appraisal</td>
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<tr>
<td>W4Ls</td>
<td>-</td>
<td>Water for Lakes</td>
</tr>
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</table>
3. EXECUTIVE SUMMARY

This is a report of Participatory Rural Appraisal (PRA) that was carried out in the five counties of Lakes State (LS) covered by the Water for Lakes (W4L) programme, to generate data needed to develop a detailed implementation plan for the programme. The use of PRA tools and techniques was intended to lay the foundation for ownership of the project by beneficiaries and key implementing stakeholders like the state government line ministries and local Community-Based Organisations (CBOs). This is expected to translate into a more efficient and effective use of project resources, and to create the basis for sustainability.

South Sudan has seven livelihood zones\(^1\), three of which fall within the boundaries of Lakes State i.e. the Iron Stone Plateau, Western Flood Plains and Nile and Sobat Rivers. Land use, and consequently livelihoods, are inextricably linked to these zones. Households in all the three zones rely on cattle rearing, crop production, fishing, wild food collection and trade, with various combinations of these elements making up specific household economies depending on the ecological zone. The Western Flood Plains cover parts of Rumbek North, Anerial, Yirol East, Yirol West, Rumbek East and Rumbek Centre. This zone is predominantly agro-pastoral, although there is potential for productive investment in commercial agriculture along the seasonal rivers. Fish processing and marketing has a huge potential in this zone. The Ironstone Plateau Zone passes through Wulu, Cueibet, Rumbek East and Rumbek Centre. This zone basically coincides with the geological boundary between basement hard rock and the sedimentary deposits, and covers Wulu completely and the southerwestern fringes of Cueibet, Rumbek East, Rumbek Centre and Yirol West. This zone is more agricultural than agro-pastoral, and productive investments in this zone can be in the areas of rain-fed commercial agriculture, shea butter production and irrigation of high value crops like oil seeds, non-traditional vegetables and fruits. The Nile and Sobat River Zone is distinct from the two other zones in that livelihoods are far more dependent on the rivers, which harbours fish and wild plants. The main productive investment here can be in developing the fishing sector, e.g. providing inputs, fish processing and market linkages.

Lakes State lacks dependable and all-year-round access to water for humans and production, despite abundant water resources in the form of rain water and several seasonal rivers that drain through the state. Limited access to water for production affects both livestock and agricultural productivity in that livestock have to move from one place to another, sometimes three to four times a year, and rain-fed crop production is highly vulnerable to weather vagaries. The effects on production are compounded by other constraints that directly affect productivity like limited access to inputs and advisory services.

Proposed investment areas in water for livestock, agriculture and fisheries production include:

- **Multiple-use watering facilities around homesteads:** water yards from deep wells that are installed with solar powered pumps. It is recommended that a detailed Environmental Impact Assessment (EIA) should be undertaken before such a facility is installed so as to assess the potential effects on socio-economic, political and natural environment.

- **Watering facilities in dry seasonal grazing areas:** especially in the early dry season grazing areas around Biling and Lolok in Rumbek East. In these areas the water dries up around January/February forcing the herders to move to grazing areas with permanent water sources. The main constraint in these areas at this time of the year is usually water shortage, and not pasture. Again, the proposal is for solar-powered water yards. The issues related to the security and maintenance of the facilities when pastoralists return home or move to new grazing grounds needs to be examined in detailed in discussions with livestock herders.

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\(^1\) SSCSCE & FEWSNET (2006), “Southern Sudan Livelihood Profiles”. 

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• **Addressing other production constraints:** improving security and institutional capacities to manage livestock diseases is essential if investments in water for livestock are to lead to increased livestock productivity. Similarly, addressing problems associated with agricultural inputs, market access and extension services are critical if agricultural production is to be increased.

  • **Investing in commercial agriculture:** the main focus for commercial agriculture should be the smallholder producers who rely on rainfall for production. Small scale irrigation of high value crops can be piloted with organised groups that have been supported before by NGOs. Individual entrepreneurs who have the resources and business acumen for commercial production can also be supported so that they can serve as models for other farmers, let alone ensuring that local markets have constant supplies of fresh fruits and vegetables.

  • **Maintenance costs for water facilities:** it was clear in all meetings and discussions that the maintenance costs for water facilities would be borne by the users. A clear management/business plan on how this will be realised should be worked out with the communities.

  • **Investments in the fisheries:** a more focussed market analysis of the fish business potential in the target counties needs to be undertaken. Measures to improve physical and economic access to fishing gears and other inputs should be studied in collaboration with NGOs, fishers groups and local businesses dealing in fish inputs.

Organisational assessment and planning was undertaken with three organised groups specified in the original ToR. At least two of the three groups are viable entry points for introducing water facilities for production. Gok Akon evolved as a membership cooperative group more than ten years ago and has since grown into a vibrant organisation. Makernhom women’s group is a product of an NGO development project that ended two years ago, but members have continued to function. A third group, Akan Bang, was also a creation of the same NGO project, but has since withered away and at the time of the assessment they had no economic activity.

The following recommendations are based on consultations with the members of the two groups, the NGOs currently working with these groups and former staff members of the Women for Women project that ended two years ago:

  • **Organisational development support:** this is needed to nurture the groups and provide them with the skills and knowledge needed to plan and implement activities.

  • **Mechanisms for working with groups:** there is a need for a structure within the W4L programme to work with organised groups. Two options are proposed, firstly, sub-contract activities of working with organised groups to a service NGO, and secondly, recruit field-level national staff to work with organised groups. A mix of the two is probably better, i.e. sub-contracting the service of working with organised groups to an NGO, and then hiring a national staff to oversee the activities of the NGO.

  • **Organised groups in other counties:** the project should develop a strategy for identifying interest groups in all the counties that are targeted by the project so that this becomes a means for delivering services.

  • **Support to Gok Akon:** this group has the institutional capacity to use a water yard facility for productive use and they are also able to meet maintenance costs. Gok Akon is both a cooperative organisation as well as service-providing NGO working with WFP to deliver relief food supplies. Any longer-term support to the group should be clear on whether they function as a service providing NGO or member-based cooperative organisation.

  • **Makernhom Women group:** the current members of Makernhom, numbering more than 100, are already involved in commercial production, using their own resources and the skills that they acquired during the Women for Women project that ended two years ago. They should be supported with a water yard (they already have a water pump and tank) so that they can revive their small scale vegetable irrigation activities.

Finally, the PRA external consultant has trained a core team of four staff from within the W4L’s programme and the state line ministries. This team should continue to consult with the communities during project implementation so as to build on what has already been started. A simple guide and study tools have been included as an appendix to this report.
4. **INTRODUCTION**

4.1. **Background**

The Republic of South Sudan, only independent since July 2011, faces huge humanitarian and development challenges, arising from decades of neglect by the government in Khartoum, and a civil war that left social and economic infrastructures in ruins. The country faces perennial food insecurity despite a huge natural resource base, including oil, arable land, water and ample livestock. This situation has deteriorated in the last 10 months following the escalation in internal conflicts in December 2013. The Water for Lakes (W4L) programme was designed to contribute to reversing this scenario in Lakes State (LS) by using water as an entry point. SNV Netherlands Development Organisation was commissioned to undertake an assessment in the five counties of the programme using Participatory Rural Appraisal (PRA) tools and techniques. The data generated will be used to develop a detailed implementation plan for the project. This is the report of the PRA processes and findings.

4.2. **Overview of Lakes State**

Lakes State occupies approximately 40,000 km² within the Greater Bahr el Ghazal region, and is bordered by Unity, Warrap, Jonglei and Western and Central Equatoria States. It has eight administrative counties, namely, Cueibet, Rumbek North, Rumbek Central, Rumbek East, Yirol West,
Yirol East, Awerial and Wulu (Map 1.1). Lakes State’s population from the 2008 census is 695,730 (Table 1.1. below), and current estimates place the population at just over one million². The dominant ethnic group is Dinka, although Wulu County is predominantly occupied by the Jur Bel ethnic group. Eighty percent of the population are agro-pastoralists, rearing an estimated 1.1 million heads of cattle³, 1.4 million goats and 1.3 million sheep⁴. Fishing and the collection of wild fruits provide important supplementary sources of incomes and food for households (HHs).

**Table 1.1: Lakes State (LS) Population by County, 2008 Census**

<table>
<thead>
<tr>
<th>County</th>
<th>Men</th>
<th>Women</th>
<th>Total Pop</th>
<th># of HHs</th>
<th>HH Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumbek Centre</td>
<td>83,159</td>
<td>70,391</td>
<td>153,550</td>
<td>16,817</td>
<td>9.10</td>
</tr>
<tr>
<td>Rumbek East</td>
<td>65,725</td>
<td>57,107</td>
<td>122,832</td>
<td>15,514</td>
<td>7.90</td>
</tr>
<tr>
<td>Rumbek North</td>
<td>24,395</td>
<td>19,015</td>
<td>43,410</td>
<td>4,953</td>
<td>8.80</td>
</tr>
<tr>
<td>Cueibet</td>
<td>60,188</td>
<td>57,567</td>
<td>117,755</td>
<td>17,283</td>
<td>6.80</td>
</tr>
<tr>
<td>Yirol East</td>
<td>33,977</td>
<td>33,425</td>
<td>67,402</td>
<td>8,972</td>
<td>7.50</td>
</tr>
<tr>
<td>Yirol West</td>
<td>53,835</td>
<td>49,355</td>
<td>103,190</td>
<td>14,786</td>
<td>7.00</td>
</tr>
<tr>
<td>Awerial</td>
<td>23,273</td>
<td>23,768</td>
<td>47,041</td>
<td>7,481</td>
<td>6.30</td>
</tr>
<tr>
<td>Wulu</td>
<td>21,447</td>
<td>19,103</td>
<td>40,550</td>
<td>6,517</td>
<td>6.20</td>
</tr>
<tr>
<td>Total Pop (LS)</td>
<td>365,999</td>
<td>329,731</td>
<td>695,730</td>
<td>92,323</td>
<td>7.50</td>
</tr>
</tbody>
</table>

There are no significant differences in the social, economic and political conditions in the eight counties of LS. A brief summary of the conditions and livelihoods in the eight counties is provided below.

* a) **Rumbek Centre**
   The population of Rumbek Centre is 153,550⁵, living in six payams: Rumbek Town; Matangai; Among-piny; Mayom; Jiir; and, Malek. It is the most populous county, the main centre for social and economic services, and seat of the state government. It is inhabited by diverse ethnic groups as well as foreign workers and business people, but the dominant local ethnic group is the Dinka Agar.

   The communities are subsistence agro-pastoralists, with the main crops being sorghum, millet, sesame and groundnuts. Some households have started to grow maize and beans, but this is still limited. There is limited fishing, mostly in Among-Piny payam during the wet season.

* b) **Rumbek North**
   Rumbek North County is composed of six payams: Maper; Alor; Malueth; Madol; Mayen; and, Wurieng. It is the second least populated county in the state, with a total population of 44,410. Most parts of the county become inaccessible in the rainy season due to flooding. At the time of this study, most of the population (and administrative staff) had been displaced by floods and were residing in Rumbek Centre. Rumbek North is considered the richest in livestock, but also produces various crops.

* c) **Rumbek East**
   Rumbek East has a population of 122,832 and eight payams: Mathiang; Maleng-Agok; Cueicok; Paloc, Akot; Atiaba; Pacong; and, Aduel. The main economic activities are cattle herding and farming. There is some trade in essential goods and fishing along local rivers, mainly for household consumption. The county is primarily inhabited by the Dinka Agar tribes. Services are poor across and access to markets for agricultural produce is a serious challenge to local farmers.

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² FAO, “Crop and Food Security Assessment in South Sudan”, February 2014.
⁵ All population figures in this document are based on the 2008 census unless stated otherwise.
The main crops are sorghum, millet groundnuts and sesame. Fishing in the seasonal rivers and swamps provide an important source of income and food, especially along Lake Nyibor and the swamps of Biling, Bar-Naam and Lolkou.

d) Cuelbet County
Cuelbet has a population of 117,755 living in nine payams: TiapTiap; Mayath; Cuelbet town; Abiriu; Citcok; Duony; Malou-Pec; Ngap; and Pagor. The county is considered to be the most agriculturally productive in LS. Business activities in this county are also vibrant because the county is traversed by the busy road to Wau in Western Bhar el Ghazal. The dominant ethnic group here is the Dinka Gok.

e) Yirol West
Yirol West County comprises of seven payams: Abang; Aluakluak; Anuol; Geng-Geng; Ghar (Gher); Mapourdit; and, Yirol Centre. It has a population of 103,190, and is one of the most commercialized counties with traders from outside South Sudan. There are relatively better infrastructures, such as health and education facilities, and roads leading to the town centre. However, roads connecting the payams are in bad condition. The county is bordered with water points allowing communities to take fishing as one of its main economic activities.

f) Yirol East
Yirol East, with a population of 67,402, has six payams: Adior, Lekakedu, Malek, Pagarau, Tinagau and Yali. The conditions of the roads are poor and the state experiences frequent food shortages arising from frequent prolonged droughts.

g) Wulu County
Wulu County is composed of four payams: Wulu, Domoloto, Makundi and Bhargel. It is the least populated county in Lakes State with a total population of 40,550. The area is primarily inhabited by the Jur Bel, a group traditionally composed of farmers and iron workers. They grow a wide variety of crops including groundnut and sorghum, in addition to beekeeping and fishing. Wulu is perhaps one of the most neglected counties in LS in terms of infrastructure. Roads connecting Rumbek town to Wulu are in a poor state and many parts are insecure.

h) Awerial County
Awerial is composed of eight payams: Abuoyong, Bun-Agok, Dor, Magok, Nile, Puluk, Alel I and Alel II. It is inhabited by the Dinka Atwot and has a population of 47,041. The main issues in Awerial County are inaccessibility and insecurity. The county headquarters are inaccessible, as are most payams.

4.3. Water for Lakes Programme (W4L): An Overview

The “Programme for the Water Sector between South Sudan and the Netherlands – Water for Lakes State (ProWaS/SSN-Lakes) is a collaboration between the Government of South Sudan and The Kingdom of The Netherlands. The programme aims “to stimulate economic development by unlocking the potential of integrated development and management of land and water resources for production in agriculture, livestock and fisheries”6. The programme has five interrelated components: Water for Livestock; Water for Agriculture; Water for Fish and Habitats; Water for People (Safe Water and Improved Sanitation); and capacity development for Integrated Water Resource Management (IWRM). This PRA study is intended to facilitate the various stakeholders, including beneficiaries, to participate in generating data that can help with planning activities.

4.4. Objectives of the PRA Assessment

The specific objectives of the assessment were to:

a. Assess and map the current land use in the target counties
b. Identify and map potential areas with water for:  

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- Livestock;
- Agriculture, both for subsistence and cash crop agriculture; and,
- Fisheries development.

c. Undertake an organisational assessment and participatory planning for organised groups, namely:
   - Gok Akon Multipurpose Cooperative in Rumbek East; and
   - Two women for women groups i.e. Makernhom and Akan Abang women’s groups.

d. Provide training on PRA techniques for selected staff from the W4Ls programme and staff of the state line ministries involved in W4Ls programme.

The expected outputs of the assessment are:
- Draft report based on the work done;
- Final report integrating relevant feedback received; and
- Procedural guide (two pages maximum) for conducting PRA assessments.

5. APPROACH AND METHODOLOGY

5.1. Conceptual Framework: Participatory Rural Appraisal (PRA)

PRA is a methodology for working with communities that incorporates the knowledge and opinions of rural communities in the planning and implementation of development projects. PRA, and its sister and predecessor Rapid Rural Appraisal (RRA), evolved as a result of dissatisfaction with traditional research and data collection methodologies that were considered extractive, insufficient and did not take into consideration the views and local knowledge of rural communities. PRA draws on from several sources and traditional methods for data collection, including: activist participatory research; agro-ecosystem analysis; applied anthropology; field research on farming systems; and, rapid rural appraisal. The choice of PRA processes for this study was intended to provide a basis for empowering rural communities, promoting ownership and setting the foundation for sustainability.

The assessment was undertaken to support planning at county level and this differs from most traditional PRA exercises that are carried out at community level, where communities undertake the analysis of their village and develop local plans focussing on the development of village, rather than the entire county in this case. This difference meant that some of the traditional PRA tools like transect walks or participatory mapping had to be modified or not used at all. This section describes the process that the team went through during the study.

5.2. The PRA process

The assessment was carried out over a three-week period from 16th September to 3rd October 2014. Figure 1.1, below, summarises the steps involved in the assessment, and these are: site selection; team selection and training; information gathering and analysis; county and organisational workshops; and, analysis and report writing.

5.2.1. Site Selection

The assessment was undertaken in the five counties covered by the W4L programme, although only two (Rumbek Centre and Rumbek East) of the counties, were physically accessed. Local leaders and community representatives from a third county, Rumbek North, were met in Rumbek town. Information on the other two counties was derived from interviews with state government officials and secondary data sources.

The team visited cattle camps, water points, organised groups, fishing areas and local villages. Meetings were held with groups and individuals in the areas visited, and participants consisted of both local leaders and ordinary community members.
5.2.2. Team Selection and training

In consultations with the W4Ls programme team and the state directorate for water and sanitation, a Core Team (CT) for the assessment was constituted and this brought together technical staff from the following government ministries or organisations:

- Water for Lakes Programme
- Directorate of Animal Resources, Lakes State (LS)
- Office of the Water Commissioner, Rumbek East County
- Directorate of Agriculture, LS
- SNV Netherlands Development Organisation – Team Leader.

Members of the CT represent line ministries that will be involved in the implementation of W4L programme, and they will undertake follow-up PRA assessment during programme implementation, monitoring and evaluation. The team members were trained for one-and-half days on PRA concepts, methodology and the code of conduct needed for facilitating community processes. The CT members supported the communities to apply the different PRA tools for data collection and analysis. They also facilitated workshops and meetings where emerging issues were discussed and validated.

5.2.3. Information gathering and Analysis

This involved the use of selected PRA tools depending on the context i.e. the numbers of people involved, the type of people, the location, the objectives being investigated and any other factor. Some of the tools that were frequently used include:
• **Secondary Sources**: includes program documents and general information on LS and the counties from various sources including, files, reports, maps, aerial photographs, articles and books.
• **Semi-structured interviews**: with individuals (key informants interviews) and selected groups (focused group discussions) of stakeholders.
• **Participatory mapping, diagramming and modeling**: using flip charts to draw social, administrative, natural resource (grazing areas, water resources etc.) maps. Also included the use of bar diagrams, pie charts, matrices for showing trends or rankings (see photo 2.1).
• **Time Lines and trend analyses**: used to show chronologies of events or calendars and how things have changed in the community. This was useful when discussing changes in land use, cropping and grazing patterns.
• **Transect walks**: This was used in fishing areas and cattle camps to observe and identify different zones, observe local technologies, and understand local problems, solutions and opportunities.
• **Presentations and analyses**: These were usually active moments when maps, models, diagrams, and findings were presented by villagers and other workshop participants for validation, checking, correction or discussions.

### 5.2.4. County and organisational workshops

One-day workshops were held for the officials of three counties i.e. Rumbek East, Rumbek Centre and Rumbek North. The workshops were intended to validate and expound on information obtained from other sources e.g. secondary data, key informant interviews, focused group discussions, observations and other PRA data collection tools. The workshops brought together representatives of the respective project line ministries, chiefs, cattle camp leaders, the youth and women.

### 5.2.5. Information gathering and Analysis

Report writing was a participatory process that started during small group and plenary discussions. Participants of each small group usually put together the process and outcomes of their discussions in a flip chart or paper, and this was the first step in the documentation process. The small group findings are shared in the plenary sessions and the input from other participants used to modify the report. Every CT member took record of whatever was happening, and this is consolidated for each county and used to produce the final report. The final report was compiled by the Team Leader.

### 6. STUDY FINDINGS

#### 3.1. Objective 1: Assessment of Land Use

#### 3.1.1. Lakes State Livelihood Profiles

*Land Use* refers to "the arrangements, activities and inputs people undertake in a certain land cover". A *Land Use Map* provides an aerial representation of the livelihood profiles of a given area, and this is highly correlated with the physiographic and agro-climatic zones of an area. South Sudan has seven livelihood zones (see map 3.0 below), three of which pass through Lakes State i.e. the *Iron Stone*

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7 Report on the ad hoc expert consultation on land evaluation, Rome, Italy, 6-8 January 1975.
In general, households in all the three zones rely on cattle rearing, crop production, fishing, wild food collection and trade, with various combinations of these elements making up specific household economies depending on the ecological zone. Below is a brief summary of the three livelihood zones, counties that they reach and household livelihood strategies in the different zones.

- **Western Flood Plains:** Covers most of Rumbek North, Awerial, Yirol East, Yirol West, and parts of Rumbek East and Rumbek Centre. The zone is predominantly agro-pastoral, and households supplement their food needs by collecting wild foods and fishing. The zone is prone to seasonal flooding with rains occurring any time between May and June and ending in October (Table 3.1). Land for cultivation and settlement is for the most part openly available. Soils in this zone are predominantly black cotton in lower lands and a sandy loam in the higher areas. The forests harbour a rich diversity of wild plants and fruits that provide an important source of dietary energy and nutrients. Opportunities for productive investment in this zone includes promoting commercial agriculture along the seasonal rivers, fish processing and improving water infrastructures for livestock and humans.

- **Nile and Sobat River zones:** This zone encompasses the land areas near to Nile River and includes parts of Yirol East, Yirol West and Awerial Counties. Most of the land surrounding the river is low lying and contains soils with a high clay content making the zone susceptible to flooding. The zone receives between 700-1,300 mm of rainfall annually. This zone is distinct from both the Iron Plateau and Western Flood Plains in that livelihoods are far more dependent on the rivers, which harbours fish and wild plant (i.e. water lily). The main productive investment is in the fishing sector, e.g. providing inputs, fish processing and market linkages.

- **Ironstone Plateau Zone:** The zone basically coincides with the geological boundary between basement hard rock and the sedimentary deposits. It covers Wulu completely and the southern western fringes of Cuiebet, Rumbek East, Rumbek Centre.
and Yirol West. This zone is mostly agricultural, supplemented by large amounts of commercially viable shea butter oil, fruit and honey production. Rainfall averages 950-1300 mm annually. The lateritic soils do not hold water well and become shallower to the north of the zone. Agro-climatic conditions favour sorghum, which is planted in May or June. Maize is planted in small quantities with the aim of shortening the hunger season. Other crops grown are sesame, groundnuts, cowpeas, green grams, maize, millet, okra, sweet potatoes and a variety of greens. Water availability is a severe problem because of the granite ironstone plateau which makes the water table very low. The zone is more agricultural than agro-pastoral, implying that land and crop cultivation are main assets. Investment opportunities in this zone can focus on promoting rain-fed commercial agriculture, although irrigation of high value crops like oil seeds and non-traditional vegetables can be commercially viable. Investments in water points for livestock could limit the time that livestock have to move to the neighbouring states (usually Western Equatoria State), thereby limiting conflicts arising from such movements.

3.1.2. Lakes State Land Use map

The main land use patterns shown in the map include:

- **Wetlands**: This covers the areas in the western flood plains livelihood zone, taking up more than 75% of the land mass in Rumbek North, half of Rumbek East, Yirol west and the northern parts of Cueibet County. The area provides grazing land, especially in the dry season, and is rich in fish, especially the northern parts of Rumbek East.

- **Agriculture land**: The land mass that is ecologically considered most suitable for agriculture runs across the state from the borders with Western Bar el Ghazal in Cueibet County, moving east through Rumbek Centre, Rumbek East, the centre of Greater Yirol County, and parts of Awerial County. As expected, this is the main productive zone in the state.

- **Shrubby vegetation (Scrubland)**: Scrubland takes up the greater land mass in Wulu County, and to a smaller extent in Awerial County. Scrubland also dominates the western parts of Rumbek East, moving north along the borders with Rumbek Centre and into Rumbek North. Scrubland falls within the Iron Plateau livelihood zone, hence most suitable for agriculture rather than livestock. The area is rich in wild fruits, notably shea nuts, and honey.

- **Sparse vegetation (single shrubs, grassland)**: Areas with sparse vegetation cover runs across the state from west to east, and lies to the north and south of the land mass considered suitable for agriculture described above.

- **Dense vegetation (groves)**: Isolated areas of dense forest are found within the areas with shrubby vegetation in Wulu, Awerial, Greater Yirol and Rumbek East Counties.

- **Other land use**: Other land use areas in the map include settlement areas which are sparsely scattered across the state and surface water which are perennial water bodies, notably the Nile River.

3.1.3. Conclusions and Recommendations

The ecological zones and land use patterns in the different counties of LS do not show significant distinction among all the counties, and apart from Wulu, livelihoods in all the other counties involve a combination of livestock rearing and subsistence agriculture. Fishing and other aquatic resources are more available in the flood plains and areas along the Nile River, while wild fruits are more important as supplementary sources of food in the southern counties.

Investment potentials in all productive sectors can be viably undertaken in all the counties, with the southern counties of Wulu and Cueibet providing high potentials for large scale commercial irrigation of cereals and oil-seeds. The areas near the banks of the Nile River have high fish resources and this sector could provide employment, income and food source to a high number of households if developed. Potentially viable investments in water for livestock can be carried out in any of the counties, except Wulu, where the community don’t rear substantial numbers of livestock.
3.2. Objective 2: Mapping of Water Resource Potential

3.2.1. Water sources for production in LS

It consistently emerged during the assessment in all the counties that many communities in LS lack dependable and round-the-year access to water for humans and livestock. Women, for instance, travel long distances and queue for several hours to obtain water for domestic use. Livestock herders from all the counties travel long distances with their livestock during the dry months between November and May in search of water and pasture. These problems exist despite what can be considered a huge water resource potential in the state. Some of the main water sources include:

- **Rain water**: Lakes State has distinct wet and dry season, with the rains coming in May and the onset of dry season starting from October for all the livelihood zones. The amount of rainfall is variable but ranges from 700-1,300 mm/yr in the Nile and Sobat livelihood zone to 950 – 1,500 mm/yr in the Iron Plateau livelihood zone. Trend analysis of rainfall patterns of the last 30 to 40 years paint consistent picture of a decline in the amount of rainfall and an increase in variability in the rainfall patterns. Meanwhile, despite the variability and decline in the amounts of rainfall, rain water remains the most realistic option for agricultural production in the foreseeable future. Effective and more productive use of rain water can be increased through improving extension services and promoting technologies

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9 SSCCSE and Save the Children UK, “South Sudan Livelihood Profiles”, Data up-dated in 2004 and expected to be valid up to 2011.
(e.g. seed varieties) that are more suitable to the rainfall patterns and the agro-ecological zones in the state.

- **Seasonal rivers and lakes**: Lakes State is drained by several seasonal rivers ([Map 3.2](#)) that serve as the main source of water for livestock. Key rivers include: Rivers Gel, Makak and Gurnam that drain through Wulu and Cuelbet Counties in the west and south-west of the state; Rivers Gel (different from the first one), Nam, Abek and Baloko originate in the south and drain northwards through the centre of the state, covering the counties of Wulu, Rumbek Centre, Rumbek East and Rumbek North. On the eastern part of the state are Rivers Pjei (Rodii), Lou (Dhok), and Gel-Alaab, which drain through Awerial and Greater Yirol Counties. Finally, the White Nile, whose river beds serve as an important fishing ground, runs along the eastern borders of the state.

- **Swamps and Marshes**: Lakes State is endowed with several swamps and marshy waters that serve as grazing areas for livestock and rich fishing grounds. In fact the seasonal rivers and lakes mentioned above usually turn into marshy swamps at the onset of the dry season in October.

- The list of swamps and seasonal rivers in the three counties that were directly assessed is provided in [Table 3.2](#). As can be seen from the table, Rumbek North is much more endowed with water sources than the other two counties visited.

### Table 3.2: Major Water Sources in the three counties visited

<table>
<thead>
<tr>
<th>Rumbe Centre</th>
<th>Rumbe East</th>
<th>Rumbe North</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nam</td>
<td>Lek Achuer</td>
<td>Agadhang</td>
</tr>
<tr>
<td>Logo</td>
<td>Jou</td>
<td>Cil-Abier</td>
</tr>
<tr>
<td>Seasonal lake</td>
<td>Yar</td>
<td>Danhiem-acot</td>
</tr>
<tr>
<td>Bar-nam</td>
<td>Duk</td>
<td>Jou</td>
</tr>
<tr>
<td>Patar</td>
<td>Panhom-thony</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malualgai</td>
</tr>
</tbody>
</table>

The challenge with the swamps is that they all dry up as the dry season progresses, and by March all of them will be dry. This usually forces the herders to trek to areas with more permanent water sources like Lake Nyibor in Rumbek East.

In summary, although LS appears to have huge water sources potential, sustainable access to water for domestic use and production remains evasive for several reasons, including:

- **Unreliable rainfall**: This makes agricultural production unreliable especially where farmers do not have access to early maturing seed varieties compounded by limited access to extension services needed to advice farmers on when to start planting different crop types.

- **Soil texture**: The sandy-loam soil type does not hold water for long, and this makes it difficult to invest in water trapping technologies like hafirs.

- **Limited investment in domestic water sources**: Water for home use will continue to remain a challenge unless there are massive investments in sinking wells and providing hand pumps, especially in the rural areas.

### 3.2.2. Water for Livestock

#### a. Wet and dry season grazing areas

Livestock herders in LS are always on the move in search of water and pasture, sometimes moving from one place to another three to four times a year. They move not only in search of water and pasture, but sometimes they move because there is too much water due to floods. Rumbek East is the most endowed with grazing areas that have reliable water sources that last the whole year, and this area is Manyang- Ajith on the shores of Lake Nyibor. Most of the livestock from Rumbek East, Rumbek Centre and Rumbek North congregate in this grazing area, especially during the driest months of March to May ([Table 3.3](#) and [Map 3.3](#)).

When the rains start in May, all the livestock return to graze in deserted villages around the homesteads. In the case of Rumbek North, this stay home is interrupted when the floods begin to rise in
the middle of the rainy season around June or July. Around this time livestock move to the higher grounds in Warrap State, Cueibet County or Rumbek Centre. The herders from Rumbek Centre and Rumbek East usually graze around their villages until the onset of the early dry spell in November. For Rumbek East, the payams of Cueicok, Maleng Agok and Pacong move with their livestock north or south along the River Nam to grazing areas in Biling Cok, Bar-nam Dit, and Atiriu and sometimes up to Lolkou in Paloic Payam. The livestock from the counties of Aduel, Akot, Atiaba and Mathiang either move south to the same places along the Nam River or move north to Lolkou. The herders from Paloic move to grazing areas in Kar, Circok and Ameth in wet and early dry seasons.

| Table 3.3: Dry and wet season grazing areas for three counties in Lakes State |
|-----------------------------|-----------------------------|-----------------------------|
| **Season**                  | **Grazing Areas**           |                             |
| Early wet season (May – June) | Rumbek Centre | Rumbek East | Rumbek North |
|                            | Ngap Boi               | Akuoch                  | Pathan                | Ajiiang               | Dhieuawet          | Ameth                  | Matar                 | Warrap Sate |
|                            | Mabor                  |                          |                        |                       |                    |                        |                       | Cueibet County |
| Main wet (July – September) season | Rumbek Centre | Rumbek East | Rumbek North |
|                            | Mabor Akan             | Pathan                  | Cungcok               | Matar                 | Gwang rel          | Matur                  | Monmon               | Warrap Sate |
|                            | Abar Kou               |                          |                        |                       |                    |                        |                       | Cueibet County |
| Early Dry season (Oct. – January) | Toich-Amech | Mabor                  | Pathan                | Akuoch          | Atiriu             | Namcok                | Gok Akon              | Lokkou               |
|                            | Mabor                  |                          |                        | Thau              | Bar-nam            | Mabari               |                        | Biling Cok Patir   |
|                            | Ngap                   |                          |                        |                    |                    |                       |                       | Thon Col              |
| Main dry season (Feb. – April) | Ameth               | Manyangajieth           | Lake Nyibor           | Biling             | Manyam             | Cheatom                | Makuei               | Warcir               |
|                            | Wunyar                 |                          |                        |                    |                    |                        |                       | Agar                 |

It is important to note that, these movement routes only work as stated when there is peaceful coexistence among the different sub-tribes living in the different counties and Payams. During the recent main wet season, the people of Rumbek North were not able to cross into Cueibet as a result of conflicts between the sub-tribes living in the two counties.

b. **Proposed areas of investment in water for livestock**

Discussions on investment options for water for livestock generated the following broad suggestions⁴⁰:

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⁴⁰ These suggestions are not necessarily recommendations for the W4L programme, but rather the opinions expressed during PRA processes
Livestock watering facilities around homesteads: There were consistent suggestions from all the counties that W4L should construct water points around settlement areas, so that animals could stay around a little longer. These could be multiple use water yards from deep wells and installed with solar-powered pumps. This would provide water for domestic use, small scale irrigation and livestock. It is recommended that a detailed Environmental Impact Assessment (EIA) is undertaken prior to constructing a water yard in order to assess potential effects on the socio-economic, political and natural resource environment. One comprehensive state-wide assessment could be undertaken to provide a broader picture of the potential effects of the water yards on the environment. Smaller, participatory and more focussed assessments can then be undertaken by project teams for each water point to be constructed.

Livestock watering facilities in the dry season grazing areas: Most of the seasonal rivers and swamps run out of water by January of most years and that is when livestock begin to move to grazing areas with permanent water sources. In some of these watering grounds like Lolkou and Biling, the herders move because of water shortage, and not pasture. It was suggested that, if water facilities were constructed in these places, the animals would be able stay longer, or even up to the end of the dry season. The proposed facility is the solar-powered water yard that has already been referred to. The challenge here is that these places are not settlement areas raising questions that were not satisfactorily answered regarding how these facilities would be secured and maintained when pastoralist return home or move to new grazing grounds. The option of open water catchment like hafirs is considered not feasible because they cannot hold water for long periods due to the porous nature of the soils in these areas and high water losses from evaporation.

Other measures to improve livestock productivity: Investments in water for livestock will not make a big difference on livestock production unless other constraints to livestock production are addressed. Some of the issues that emerged in the discussions included:
Inter-clan conflicts: Affects seasonal movement of livestock for water and pasture thereby impacting on livestock productivity.

Livestock diseases: Uncontrolled movement and mixing of livestock is a recipe for the transmission of various diseases. Improving access to water for livestock should go hand-in-hand with the provision of animal health services.

Improving range management: Although this did not come out strongly, there were suggestions that in the long run, the control of livestock numbers moving into specific grazing areas will need to be managed better. This will particularly be relevant when the water yards are constructed around villages, requiring that only limited numbers of animals should be kept around homes to avoid a negative effect on the environment.

3.2.3. Water for subsistence and commercial agriculture

a. Farming practices in LS

Like the rest of South Sudan, farming in LS mostly involves small hand-cultivated plots, and farms are intercropped thereby making it difficult to estimate average acreage for each crop. Participants estimated the average household acreage for cereals to be between 2 and 3 hectares (ha), which is much higher than the FAO estimate of 1.04 ha (Table 3.4).

Table 3.4: Household (HH) cereal production in target states of LS

<table>
<thead>
<tr>
<th>County</th>
<th>Population</th>
<th>HHs¹¹</th>
<th>% farming HHs</th>
<th># of farming HHs</th>
<th>Average acreage (ha/HH)</th>
<th>Total area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cueibet</td>
<td>130,662</td>
<td>19,178</td>
<td>94</td>
<td>18,027</td>
<td>1.00</td>
<td>18,027</td>
</tr>
<tr>
<td>Rumbek Centre</td>
<td>170,381</td>
<td>18,660</td>
<td>80</td>
<td>14,928</td>
<td>0.90</td>
<td>13,435</td>
</tr>
<tr>
<td>Rumbek East</td>
<td>136,296</td>
<td>17,214</td>
<td>80</td>
<td>13,771</td>
<td>1.10</td>
<td>15,148</td>
</tr>
<tr>
<td>Rumbek North</td>
<td>48,168</td>
<td>5,496</td>
<td>80</td>
<td>4,306</td>
<td>1.10</td>
<td>4,836</td>
</tr>
<tr>
<td>Yirol West</td>
<td>114,500</td>
<td>16,407</td>
<td>90</td>
<td>14,766</td>
<td>1.10</td>
<td>16,243</td>
</tr>
<tr>
<td>Totals</td>
<td>600,007</td>
<td>76,955</td>
<td>85</td>
<td>65,798</td>
<td>1.04</td>
<td>67,689</td>
</tr>
</tbody>
</table>

Sorghum is the staple food and is often intercropped with sesame and bulrush millet. Maize is cultivated in limited quantities close to homesteads and is consumed green with the first early sorghums in August-September. Groundnuts make an important contribution to household diet and it is also the main cash crop for most households. Okra, cowpea, green-gram, pumpkin, Bambara nut and tobacco are also widely grown around homesteads. Non-traditional vegetables such as onions or tomatoes are not commonly grown in rural areas, but are increasingly cultivated near urban areas to supply urban markets.

Constraints to agricultural production that were listed during group and plenary discussions included: unreliable rains, absence of extension workers and access to inputs. Insecurity from inter-clan feuds and cattle rustling was considered a big problem as people are displaced from their farm lands and cannot cultivate. Poor infrastructure and dependency syndrome were also mentioned.

¹¹ Based on FAO estimates for mid-2012
¹² Households – also based on mid-2012 estimates
b. **Proposed investment opportunities in agriculture**

*Improving productivity of rain-fed cropping*

It is clear that rain-fed agriculture, on which nearly 100% of households rely, will remain the main means for agricultural production for most households in the foreseeable future. Alternative sources of water for agriculture, like large scale irrigation can only be promoted with a few entrepreneurial farmers or foreign investors but will not be feasible with subsistence farmers who currently produce nearly 100% of the food in LS. One possible solution to the problem of subsistence farming is to improve agricultural productivity through various measures, like improving extension services so that farmers get timely advice on when to plant seeds. Other measures could include improving market access and the quality of inputs, especially seeds that mature early.

*Small scale irrigation*

At the moment there are only a few farmers practicing small scale irrigated agriculture, and these are mostly foreign investors or groups that have been supported by NGOs. The W4L programme could build on this, by reviving existing groups that already have experience in using irrigation technologies. Another option is to identify individual entrepreneurs that can then be supported to grow high value crops like vegetables and fruits for the local market. The main suggestion on the water source for irrigation was the sinking of deep wells that are installed with solar-powered pumps. Any support to individuals or groups must be based on a clear business plan with contributions from the farmers that will be supported. Irrigation around seasonal swamps can be explored with groups and private entrepreneurs but again this should be done on a commercial basis.

*Large scale commercial farming*

State government officials recommended that W4L should link its interventions in water for agricultural production with the current initiatives of the national and state ministries regarding large scale investments in commercial agriculture. One such initiative is the National Effort for Agricultural Transformation (NEAT), a comprehensive national strategy to transform agricultural production in the country. NEAT has divided the country based on the livelihood zones described earlier, and Lakes State falls within, Western Flood Plains and Iron Plateau zones in the strategy documents and plans. In the Western Flood Plains zone, NEAT has chosen cereals (rice and sorghum) as the value chain to be promoted and in the Iron Plateau zone the choice is oil seeds. The strategy is to use a value chain development approach to support smallholder agro-pastoral production with interventions at each step of the value chain.

The study team was not able to obtain clear details on where the plans have reached and the specific investments that will take place in LS. The W4L team can follow this up with the state ministry for agriculture in order to find out more details on the plan and whether there can be role for the project.
3.2.4. Potential Areas for Fisheries Development

a. Major fishing areas

Fishing is an important supplementary livelihood activity in LS, especially during the dry season. The main fisherfolks are the pastoralists who use their times in the cattle camps to do fishing in the water bodies where livestock graze. As shown in Map 3.4 and Table 3.5, fishing takes place in all the counties, with Rumbek East, Yirol West and Rumbek North considered the more fish endowed counties. The main types of fish caught are tilapia, Nile perch, eel and mudfish.

Table 3.5: Fishing Areas

<table>
<thead>
<tr>
<th>Fishing Areas</th>
<th>Rumbek East</th>
<th>Rumbek North</th>
<th>Rumbek centre</th>
<th>Cueibet</th>
<th>Yirol West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major fishing ground</td>
<td>Lake</td>
<td>Lek</td>
<td>Yar</td>
<td>Among Piny</td>
<td>Gel River</td>
</tr>
<tr>
<td></td>
<td>Nyibor</td>
<td>Kadongi</td>
<td>Madol</td>
<td></td>
<td>Gur-Naam</td>
</tr>
<tr>
<td></td>
<td>River</td>
<td>Logo</td>
<td>Alor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lollou</td>
<td>Biling</td>
<td>Guar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bar Nam</td>
<td>Achuer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One of the challenges that came out from both group discussions and interviews with fisherfolks was the issues of poor infrastructures that affect access to good markets in Rumbek town and other urban
centres. The problem related to insufficient knowledge regarding post-harvest management leading to high post-harvest losses also came out prominently. Finally, there is the issue of weak public or private institutional capacities to support the fishing sector in the state.

b. **Proposed investment opportunities in fishing**

The following were some of the suggestions for exploiting the fish resources potential in Lakes State:

- **Post-harvest management:** Fishers need technologies and training in fish processing, specifically fish drying. There is the need to train them in hygienic fish handling from the time it’s got out of water until it reaches the smoking kilns or fresh fish markets.

- **Improving access to inputs:** Presently there are no reliable suppliers of fishing gears in the state, and most fishers make their own fishing nets from mosquito nets and other materials. W4L will need to work through service NGOs and local enterprises so that the fishing gears are made available through the market system rather than distributed freely. But this should be preceded by a more detailed marketing study of the fishing sector in the state so as to assess the economic value of the fishing sector in the five target counties.

- **Improving infrastructures:** Physical infrastructure like roads affect all potential investment sectors because of its effects on market access. The other critical marketing infrastructure for fish in the marketing stalls in the markets. W4L could consider erecting a fish marketing section within the main Rumbek market. This can be used for both fresh and dried fish, and can a long way into expanding fish consumption, hence market, for the fisherfolks.

### 3.2.5. Conclusions and recommendations

The purpose of the PRA assessment was to collect the views of the different stakeholders, especially the beneficiary communities, on the potential areas of investment in water for livestock, agriculture and fisheries. Participants in all the workshops agreed that there is a huge potential for investing in water for agriculture and livestock, and to a lesser extent in fisheries. There was also unanimity among the counties and different discussion groups regarding the kind in investment that were needed regarding water for production. Some of the common observations from the process and recommendations from different stakeholders are:

- **Combine water investments with addressing other production constraints:** Providing water for livestock or agriculture alone without addressing other constraints to productivity will not lead to increased livestock or agricultural production. Some constraints like government and private sector institutional capacities or road infrastructures might be beyond the scope of W4L, but addressing factors that directly affect production like inputs and advisory services should be feasible.
• **Multiple-use water yards**: The issue of multiple-use water yards was a surprisingly consistent recommendation in all the counties and groups that were met. To most participants, a water yard was basically a deep well supplied with a solar-powered pump to provide water for irrigation, livestock and humans. The W4L programme should start slowly with a few water yards, and assess whether the facility is able to meet the multiple needs of the target communities in a financially and ecologically sustainable way. A detailed EIA should be undertaken before the construction of the water facility.

• **Water for dry season grazing**: The need for this is clear, especially for grazing areas where livestock move during the early dry season that runs from November to January. Again the choice of the water facility to be installed was a water yard, but there was no clear suggestion on how this facility would be maintained when the pastoralists move back close to the homesteads at the onset of the wet season, or when they are forced to move to other areas in search of pasture for their livestock. This would need to be followed up by the project team.

• **Investing in commercial agriculture**: It is clear that the main area of investment in commercial agriculture will have to be through smallholder producers who rely on rainfall for production. This can be through addressing those factors that directly affect productivity like inputs and extension services. Small scale irrigation of high value crops should be piloted especially with organised groups that have been supported before by NGOs. Individual entrepreneurs who have the resources and business acumen to produce commercially can also be supported with knowledge and technologies because they can serve as models for other farmers, let alone ensuring that local markets have constant supplies of fresh fruits and vegetables.

• **Maintenance costs for water facilities**: It was clear in all meetings and discussions that the maintenance costs for water facilities would be borne by the users. There was unanimity in all the groups and counties that this would not be a problem. The W4L programme will need to work with the communities and develop a business/management plan to ensure communities understand the costs involved in maintenance.

### 3.3. Objective 3: Organisational Assessment of Groups

#### 3.3.1. Gok Akon Multi-purpose Cooperative

Gok Akon started as a farming group in Biling village in 1999, and later moved to a village called Til Kuc and eventually Gok Akon village. The group started as a member-based producer cooperative, where farmers came to produce collectively for sale. They have practised irrigation for many years using various methods. They started with local guards and later upgraded to watering cans and treadle pumps supplied by aid agencies during the war. The group currently has 200 members.

As the group evolved it came to the attention of UN agencies like WFP and FAO, who then started working with them as service providers to help with relief distribution. Presently Gok Akon acts as a link between WFP and 10 other farmers’ organisations from three payams (Atiaba, Aduel and Paloic) in Rumbek East County. In effect Gok Akon now functions as a cooperative organisation for its 200 members as well as service provider NGO working with 10 organised farmers groups with funding and other support from WFP and FAO.

The main strength of Gok Akon group that was noticed by the team is its leadership which appears to be visionary and devoted to the activities that they are pursuing. The members also look cohesive and dedicated to their mission. The fact that they evolved on their own without external stimulus means they are able to sustain activities even after external support has ended. Their main weakness lies in the lack of clear understanding on whether they should function as a cooperative organisation providing business services to its members or service NGO distributing relief food and other supplies to a wider community. The group also seems to be dominated by a few leaders, especially the director.

In the meeting with Gok Akon, the members presented a long list of issues that they want the project to address:

• **Water for domestic use and production**: A water yard that can provide water for domestic use as well as irrigation. They specifically want to specialise in the production of vegetables.
• **Transport facilities**: The area is difficult to access, especially during the wet season. The group needs support to get a pick-up truck that they can use to take their vegetables to the market. They also need a motorcycle and if possible a four-wheel drive car to help them with their operations.

• **Storage facilities for vegetables in the Rumbek market**: The group needs improved facilities in the Rumbek Market for the storage of vegetables and ensuring that they remain fresh for a longer time.

• **Mechanised production equipment**: Including considerations for a tractor or ox-ploughs.

The group presented the PRA team with a detailed logical framework for a project whose objective is “**Uplifting agricultural potentials through irrigation systems and mechanization**”. The proposed project addresses diverse issues like: sorghum production; roaming animals destroying crops; commercial *lulu* (shea nut) collection and marketing; and, fish production. It is an ambitious project and it’s unlikely that *Gok Akon* would have the capacity to implement on their own.

### 3.3.2. Women for Women Groups

**a) Makernhom Women’s Group – Women for Women (W4W)**

Makernhom women’s group is the product of a development project that was implemented by an organisation called Women for Women in Rumbek East County between 2008 and 2012. The project ended in 2012 but some women have continued to live in the premises that were constructed by the project and farm the lands that had been allocated to them when the project started.

The members who started the project had been assembled from different villages and were supported to engage in various economic activities like poultry, apiary and commercial agriculture, including irrigated vegetables production. The group started with about 400 but this is said to have grown to 3,600 women by the time the project ended in 2012. The members cultivated a range of non-traditional crops like green pepper, egg plants, kales, maize, beans and papaya. Their project drilled a well and installed a diesel-engine powered water pump that was used to pump water for domestic purposes as well as for irrigation. The project provided transport for the women to take their produce to the market in Rumbek.

From discussions with the members and former staff who were employed by the project, one can tell that the project had made a difference in the capacities and lives of the women who were still on the project site. The main problem is that the project either did not have an exit strategy or the exit strategy was not properly executed at the end of the project. But the fact that more than 100 women were still farming the land in this site, nearly two years after the project ended, means there had been an impact on beneficiaries. The PRA team toured their farms and it was clear that their farm sizes were above average when compared to the farms of other farmers in the nearby villages, and similarly, their gardens were well managed and the crops appeared healthier than what we had been seeing in other villages.

**b) Akan Bang women’s group**

Akan Bang village was the first site that had been chosen by the NGO Women for Women for their project when they first came to Rumbek East. The main site was eventually built in the village of Makernhom when the local chiefs in Akan Bang could not avail more land for the project to expand. Meanwhile, W4W continued to support the small group in Akan bang until the project ended in 2012. But unlike Makernhom, Akan Bang women are not active and have not cultivated any farm in their project site this year. The water tanks and deep-well that was sunk have all been overcome by bush, and could get burnt down in the event of bush fires. The PRA team was unable to meet any member of the group despite visiting the site twice.

### 3.3.3. Recommendations

**a. Organisational development support**

Any support to any of the above groups should include organisational capacity development that is needed to nurture the groups and provide them with the skills and knowledge needed to plan and implement activities. The organisational support should also include inculcating skills and knowledge needed to manage a business project, because whatever support to be provided should be business-oriented.
b. **Structure for working with groups**

The W4L project should figure out how it will work with organised groups during project implementation. The current staff members of the W4L programme are mainly technical and of high capacities that they cannot be deployed to work with organised groups on a day-to-day basis. There are two options; the first is to sub-contract activities of working with organised groups to an international or national NGO with experience in capacity building of interest groups. The second option is to recruit national staff and deploy them to work as field officers with organised groups. A mix of the two would probably deliver better results, i.e. sub-contracting work with organised groups to one or more NGOs and hiring national staff to supervise the work of the sub-contracted NGO(s) with the groups.

c. **Organised groups in other counties**

Working with groups will enable the programme to reach a large number of people, and groups also provide a means for delivering inputs, skills and knowledge. The programme should develop a strategy for identifying interest groups in all the counties targeted by the project so that this becomes the means for delivering services. This will particularly be important when working in fishing communities, where groups will provide a means for delivering inputs and marketing services. Agricultural production services and market access are also better promoted through organised groups.

d. **Capacity for business-driven approaches**

Future investments in livestock, agriculture and fisheries will all be geared towards increasing production and income to producers. This will require that from the beginning the approach should be market-driven. The W4L programme should consider having in-house capacity in agricultural marketing so that it’s able to identify and support business opportunities in target communities. This capacity will also help with developing business or management plans for managing water facilities where user-fees will need to be charged for maintenance purposes.

e. **Support to Gok Akon**

Gok Akon has lots of expectations from the W4L programme, and has in fact been given some promises by the programme team. The setting up of a water yard for this group would be a safe intervention and in fact this could serve as trial of how water yards will perform. They have the institutional capacity to use the water facility for productive purposes and they will also be able to meet maintenance costs.

The group will also need to be provided with organisational support so that they able to define their organisational strategy and make a deliberate choice on whether they would want to function as a cooperative, service NGO or both. Future long-term support to the group should depend on this role definition since they would need a business oriented support if they are to function as a cooperative. If the W4L programme is to engage Gok Akon as a service providing local NGO then their role will need to be clearly defined and any support given to them should be geared towards helping them to deliver agreed project outputs.

**Support to Makernhom Women group**

The current members of Makernhom, numbering more than 100, are already involved in commercial production through the use of their own resources and the skills that they acquired during the project that ended more than two years ago. The members seem to possess the zeal and spirit to succeed – the PRA team found them more self-driven than even Gok Akon. Like Gok Akon group, Makernhom women have the capacity to use productively and maintain the water yard facility once installed.

Additionally, both groups will need to be supported to acquire appropriate technologies (seeds and other inputs) for the kind of crops that they need to engage in. They will also need to be supported with extension services.
Support to Akan Bang Women group

Akan Bang group is not active and so there is nothing that can be done immediately with the group. They can be considered at a later stage once a strategy for capacity development of organised groups has been developed, and there is internal capacity within the project for that.

3.4. Objective 4: PRA Training Guide for W4Ls Team

As the programme gets underway, the staff may choose a select number of communities in which to do regular PRA studies to monitor implementation, and to assess the effectiveness of the approach. This will enable corrections to be made as problems are identified. PRA will also be useful during the mid-term evaluation of project, and the end of project evaluation will require PRA assessment of strengths and weaknesses. A facilitatory guide has been provided as an appendix.

7. REFERENCES

1. Andrew Nam Odero, Livelihood Characterisation of South Sudan: The use of physiographic and Agro-climatic Layers’ Juba.
6. FAO/WFP, “Crop and Food Security Assessment Mission to South Sudan”, February 2013
9. SSCCSE and Save the Children UK, “South Sudan Livelihood Profiles”, Data up-dated in 2004 and expected to be valid up to 2011.
11. TERMS OF REFERENCE for “Cooperation Between South Sudan And The Netherlands “Programme For The Water Sector Between South Sudan And The Netherlands – Water For Lakes State” (Prowas/SSN-Lakes).
8. **APPENDICES**

3.5. **Appendix 1: List of participants: VCA Training workshop; Inception Meeting**

<table>
<thead>
<tr>
<th>List of Participants</th>
<th>County: Rumbek East</th>
<th>Date: 23rd September</th>
<th>Venue: Aduel</th>
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</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td><strong>Designation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Augustine Madol Mayen</td>
<td>A/Commissioner, WASH</td>
<td></td>
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</tr>
<tr>
<td>2. Cornelius</td>
<td></td>
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<tr>
<td>3. Elisabeth Stephen</td>
<td>Core Team facilitator, MOAA</td>
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<tr>
<td>4. Engorok Obin</td>
<td>SNV, PRA Lead Facilitator</td>
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<tr>
<td>5. Joseph Amal Malwal</td>
<td>A/water Commissioner</td>
<td></td>
<td></td>
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<tr>
<td>6. Jacob Det</td>
<td>Paramount Chief</td>
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<tr>
<td>7. Ater Madul</td>
<td>Vice Paramount Chief</td>
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<tr>
<td>8. Akol Bol</td>
<td>Executive -Chief</td>
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<td></td>
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<tr>
<td>9. John Marial</td>
<td>Executive –Chief</td>
<td></td>
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<tr>
<td>10. Kuol Maluoch</td>
<td>Payam Administrator – Paloc</td>
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<td></td>
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<tr>
<td>11. Gordon Maper</td>
<td>Aduel Payam</td>
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<td>12. Maral Wade</td>
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<tr>
<td>13. Meen Marial Malok</td>
<td>Payam Administrator, Paloc</td>
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<tr>
<td>14. Peter John Majak</td>
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<tr>
<td>15. John Manyiel</td>
<td>Deputy Payam Administrator</td>
<td></td>
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<tr>
<td>16. Isaac Mapuor</td>
<td>Senior Inspector</td>
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<tr>
<td>17. Isaac Majuail</td>
<td>Senior Inspector</td>
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<tr>
<td>18. Joseph Makoi</td>
<td>Senior Inspector</td>
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<td></td>
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<tr>
<td>19. John Majok Majak</td>
<td>Senior Inspector</td>
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<tr>
<td>20. Isaac Marial</td>
<td>Gelweng</td>
<td></td>
<td></td>
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<tr>
<td>21. Chol Majok Apac</td>
<td>Sub-Chief</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Marel Muga</td>
<td>Labourer</td>
<td></td>
<td></td>
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<tr>
<td>23. Mading Makuei</td>
<td>Farmer</td>
<td></td>
<td></td>
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<tr>
<td>24. Isaac Makuie Akol</td>
<td>Inspector</td>
<td></td>
<td></td>
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<tr>
<td>25. John Majok Manyol</td>
<td>Across (NGO)</td>
<td></td>
<td></td>
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<tr>
<td>26. Mangok Mayek Billing</td>
<td>Administrator</td>
<td></td>
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<tr>
<td>27. Atem Manyiel</td>
<td>Executive Chief</td>
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</tbody>
</table>
### List of Participants

**County:** Rumbek North  
**Date:** 30<sup>th</sup> September  
**Venue:** Rumbek

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
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</thead>
<tbody>
<tr>
<td>1. Augustine Madol Mayen</td>
<td>Assistant Commissioner, WASH</td>
</tr>
<tr>
<td>2. Marop Makoi</td>
<td>Executive Director</td>
</tr>
<tr>
<td>3. James Majok</td>
<td>CBO Representative</td>
</tr>
<tr>
<td>4. Abraham Makoi</td>
<td>Town Administrator</td>
</tr>
<tr>
<td>5. James Aguek</td>
<td>Forestry Department</td>
</tr>
<tr>
<td>6. John Dhuor Juec</td>
<td>Payam Administrator</td>
</tr>
<tr>
<td>7. Abraham Manyuang</td>
<td>Payam Administrator</td>
</tr>
<tr>
<td>8. Joseph Kunor</td>
<td>Extensionist – livestock</td>
</tr>
<tr>
<td>9. Makuer Majuech</td>
<td>Director, Animal resources</td>
</tr>
<tr>
<td>10. Nyok Maduol</td>
<td>Women Representative</td>
</tr>
<tr>
<td>11. Majon Deng</td>
<td>Director of Fisheries</td>
</tr>
<tr>
<td>12. Deng Mathiang</td>
<td>Paramount Chief</td>
</tr>
<tr>
<td>13. Ayol Kumbaai</td>
<td>Paramount Chief</td>
</tr>
<tr>
<td>14. Macholbaai Awer</td>
<td>Gelweng</td>
</tr>
<tr>
<td>15. Mathiet Puot</td>
<td>Gelweng</td>
</tr>
<tr>
<td>16. Makuol Dalkoc</td>
<td>Executive Chief</td>
</tr>
<tr>
<td>17. John Manyuir Makor</td>
<td>Payam Administrator</td>
</tr>
<tr>
<td>18. Mayar Muorin</td>
<td>Executive Chief</td>
</tr>
<tr>
<td>19. Kachuel Achom</td>
<td>Youth representative</td>
</tr>
<tr>
<td>20. Machiek John</td>
<td>Pastor</td>
</tr>
<tr>
<td>21. Wal Riak</td>
<td>Extension worker, Agric</td>
</tr>
<tr>
<td>22. Makuach Pep</td>
<td>Executive Chief</td>
</tr>
<tr>
<td>23. Marik Achom</td>
<td>Gelweng</td>
</tr>
<tr>
<td>24. Awechkok Machar</td>
<td>Paramount Chief</td>
</tr>
<tr>
<td>25. Benjamin Mading</td>
<td>D/Team Leader, W4Ls</td>
</tr>
<tr>
<td>26. Bart Goes</td>
<td>Water Expat, W4Ls</td>
</tr>
<tr>
<td>27. Cornelius Verduyn</td>
<td>Livestock Expert, Consultant</td>
</tr>
</tbody>
</table>
3.6. Appendix 2: PRA Training Guide

### PRA TRAINING GUIDE

#### 1. Preparing for PRA Assessment

The following issues should be addressed before moving to field to carry out a PRA assessment.

**a) Selecting the team:**

The first step in the PRA assessment process is to determine who will be on the PRA team. In the W4L case the immediate candidates for the PRA team will be the four staff members who were trained. The team can then add in other staff as well as any "specialists" in different fields who are needed to triangulate the process from different perspectives. A good team should be small – not more than 6 people.

In some cases, like a mid-term evaluation, you might require and external consultant as team leader. In this case look for a person who adds technical or facilitatory value to the team.

**b) Setting Study Objectives**

The next step is setting the PRA study objectives. The objectives depend on the purpose of the study i.e. what the information or data to be generated will be used for. This need to be clarified even before the team is selected since this will determine what kinds of people should be on the team. The objectives must neither be too broad nor too narrow.

**c) Site Selection**

In the case of W4L project the PRA area will fall within the five counties targeted by the project. It will always not be possible to carry out the exercise in all the counties or payams so it's important to develop criteria for selecting the counties and payams based on the objectives of the study.

#### 2. Carrying out the PRA exercise

**a) PRA Tools**

There are hundreds of tools – some examples that might be used:

- **Secondary Sources:** such as files, reports, maps, aerial photographs, articles and books.
- **Key Informant Interviews:** find out who the experts are and talk to them using structured interview techniques.
- **Focused group discussions:** semi-structured interviews with a selected group of stakeholders
- **Participatory mapping and modelling:** people use the ground or paper to draw social, demographic, health, natural resource (soils, trees and forests, water resources etc.) maps.
- **Participatory diagramming:** of flows, causality, quantities, trends, rankings, scorings - in which people make their own diagrams - systems diagrams, bar diagrams, pie charts etc.
- **Time Lines:** Chronologies of events or calendars – listing major remembered events in a village with approximate dates.
- **Trend analysis:** people’s accounts of the past, of how things close to them have changed. Might be document changes in land use, cropping patterns, customs population ... and the causes of changes and trends.
- **Transect walks:** systematically walking with local people thru an area, observing identifying different zones, local technologies, introduced technologies, seeking problems, solutions and opportunities, and mapping and diagramming resources and findings.
- **Participatory planning, budgeting and monitoring:** in which villagers or group members prepare their own plans, budgets and schedules, and monitor progress.
b) **Matching study objectives and tools**

The next step is to think through what will happen during the field work. This is usually done by using a matrix of objectives against tools. You mark with a cross the kind of tools that can be used to generate data for a given objective as shown below.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>PRA Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing areas</td>
<td>Participatory mapping</td>
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<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Crops varieties</td>
<td>0</td>
</tr>
<tr>
<td>Food prices</td>
<td>0</td>
</tr>
</tbody>
</table>

c) **Starting the meeting**

Once the team arrives in the community, the field studies begin and end with official opening and closing sessions respectively. The team then proceeds to start the meeting in this order:

- Introduce the team members and ask the participants to introduce themselves
- Explain the purpose of the exercise and how the community was selected
- Explain what will happen during the PRA exercise
- Conduct data gathering using various tools
- Data sharing and validation in plenary
- Closing session

d) **Role of the Facilitator**

The facilitator plays a key but very delicate role in PRA, and ensuring that the community members participate. It is essential, then, that the facilitator’s role changes over the course of the PRA process. The facilitator’s role will include some or all of the following tasks:

- Training community members in the tools and techniques
- Asking key questions to keep the methodology on track
- Gently orienting the process toward greater inclusiveness
- Pulling back from the process to leave room for community initiative as the session progresses
- Doing less within the village and perhaps more to link the villagers to external resources
- Responding to community demands for help rather than initiating
- Encouraging villagers to make progressively more decisions

3. **Analysis and Report writing**

In PRA, the analysis is carried out locally by team members with the participation of local residents. Analysis begins to take place as soon as information collection begins. Most of the techniques used in these methods facilitate analysis by organizing material in visual ways. Some, like matrices and flow charts, help local people to work through relationships between different variables, a critical step in analysis. If the team members are literate, the activity summaries should be done on flip chart paper. The team (or the members who were involved in the activity if the team split up) will ask itself:

The first step in writing the report is preparing a detailed outline of everything that will be addressed in the report. All team members should be involved in this process since it is crucial that the outline (and hence the final report) reflect the concerns of everyone who participated in the study. Once this has been done, however, the actual writing of the report can be delegated to a smaller number of people.