Water for **lakes** in Lakes State

Programme for the Water Sector between South Sudan and the Netherlands

**Water for Lakes Programme**

Bart Goes – programme hydro(geo)logist, June 17th, 2015
1) Water for lakes in dry-season
2) Lakes Yirol and Anyii
3) Lake Nyibor
4) Lake Akeu
5) What next?
1 Water for ‘lakes’ in Lakes State
Water for Lakes State

Programme for the Water Sector between South Sudan and the Netherlands

Implemented by:
Euroconsult Mott MacDonald  Mott MacDonald
Water For Lakes - Programme
Water For Lakes State Programme

Aim: stimulate economic development in Lakes State using water as an entrance

Focus components:
1. People (WASH)
2. Livestock
3. Agriculture
4. Fish & habitats
5. Integrated Water Resources Management (IWRM)
Specific Objective 1:

*Reduced conflict potential by improving livestock access to water sources in the dry season.*

Result 1.2:

*Feasibility study implemented on improved availability of water in existing (downstream) lakes, marshes and natural depressions, a.o. by: (i) reconnect streams, restore linkages; (ii) improve river carrying capacity and natural flows towards lakes, marshes and depressions.*
Work on dry-season water availability in lakes

- Identifying main dry-season lakes
- Consultations with dredging experts
- Field visits to the lakes
- A map based assessment of the lakes
- Stakeholder consultations on findings and formulation and
- Formulating next steps ……..
Lakes State – rivers and lakes
Assessed lakes
## Assessed lakes

<table>
<thead>
<tr>
<th>Lake</th>
<th>County</th>
<th>Payam</th>
<th>Water source(s)</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Yirol</td>
<td>Yirol West</td>
<td>Yirol Town</td>
<td>Payii River</td>
<td>good</td>
</tr>
<tr>
<td>Lake Anyii</td>
<td>Yirol West</td>
<td>Geng-Geng</td>
<td>Payii River</td>
<td>good</td>
</tr>
<tr>
<td>Lake Akeu</td>
<td>Rumbek Centre</td>
<td>Amongpiny / Mayom</td>
<td>Na'am River</td>
<td>fair (cattle keepers are friendly but armed with Kalashnikovs)</td>
</tr>
<tr>
<td>Lake Nyibor</td>
<td>Rumbek East* / Yirol West **</td>
<td>Paloch (RE) / Gher (YW)</td>
<td>Payii River, White Nile (backflow), Gol River (minimal)</td>
<td>very poor (area abandoned, field visit with military)</td>
</tr>
</tbody>
</table>
2 Lakes Yirol and Anyii

Dry-season vegetable farming along Lake Yirol (Feb, 2015)
Lakes Yirol and Anyii – in and outflow
Lakes Yirol and Anyii – landuse map
Preliminary conclusions – Lake Yirol

- No indications of a muddy lake bottom that needs dredging

Possible works:

- Retain water in Lake Yirol by reducing backflow to Pjei river with temporary sand-bags blockage in channel
- Some weed (& silt?) clearance in channel
- Reservations: a) need? (since lake hardly dries-up), b) contractor capability, c) local stakeholder commitment / contribution, d) by-pass outflow?, e) impact? (fish migration, sediment build-up)

Other: support farming, fisheries & some borehole rehabilitation (people are using lake water) in the area
Lakes Yirol and Anyii – in and outflow

Temporary block backflow with sand bags? (Nov-March)
Lake Anyii

Culvert from Lake Yirol marshes to lake Anyii

Getting water from Lake Anyii
Preliminary conclusions – Lake Anyii

- Surrounded by reeds, inflow via marshes (so no distinct channel) → improvement works on inflow is difficult
- Still, Lake Anyii water retention may benefit from discussed Lake Yirol works
- Limited economic activity compared to Lake Yirol

Other: support farming & some new boreholes (people using lake water)
Lake Nyibor
Lake Nyibor – in and outflow
Lake Nyibor – digital elevation map
Lake Nyibor – landuse map
Preliminary conclusions – Lake Nyibor

- Sufficient water all year round, fed by two largest rivers in Lakes State
- Any W4L development project (fisheries, livestock) is difficult to implement since area has been abandoned since 2012 due to insecurity
Lake Akeu
Lake Akeu – in and outflow
Preliminary conclusions – Lake Akeu

- Weed and silt clearance of at least 3 km of Naam River
- Reservations:
  a) sustainability of clearance (standing water because limited through flow Lake Akeu),
  b) local contractor capability?,
  c) disposal of the sediment / weed outside floodplain
• Very unlikely that an international dredger (their demands, high budget, long-term training beyond Project period) will do any work in Lakes State under W4L Programme

• Lake Yirol works seem least complicated

• Establish local need, interest and commitments for water retention works for the lakes (this workshop)

• Develop ToR and identify potential local contractors / implementation expert
Dry-season grazing & drinking for cattle