Wetlands and Agriculture in Rwanda
Current status of Rwanda’s wetlands

- Wetlands under full protection (38): 56,120 ha;
- Conditional use (after EIA & Env mgt Plan (475): 206,732 ha;
- Unconditional use (community /HIMO approach-347):15,689 ha;
- Total : 278,541 ha (10.6 % of total country area)

- Marshland potential: **219,791 ha** (Rwanda’s Irrigation Master Plan, 2010)
- Wetlands are **state-owned lands**…No individual appropriation, but can be leased for 20-49-99 years under vigilant monitoring.
- No building or housing projects on wetlands
- Wetland **ownership** (STATE) # wetland **use** (INDIVIDUALS)
- Need for complying with Land law and Environment reg.
Current policies/tools used for irrigation development on wetlands

- Vision 2020
- Economic Development and Poverty Reduction Strategies (EDPRS)
- National Agricultural Policy (NAP)
- Strategic Plan for the Transformation of Agriculture – Phase III (PSTA-III)
- Marshland Master Plan, 2004
- Irrigation Master Plan, 2010
### Guidelines for wetlands development

<table>
<thead>
<tr>
<th>Hydrology</th>
<th>Biodiversity</th>
<th>Presence / Peat Tourbe</th>
<th>Nearness/ a National Park</th>
<th>Rapid Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H0</td>
<td>B0</td>
<td>T0</td>
<td>P0</td>
<td>No limiting factor</td>
</tr>
<tr>
<td>H1 Rugezi</td>
<td>B1 Akanyaru</td>
<td>T1 Rugezi</td>
<td>P1 Streams towards ANP</td>
<td>Wetland is critical for this criteria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T2 Kamiranzovu</td>
<td></td>
<td>Critical</td>
</tr>
</tbody>
</table>

**Légende:**
Le chiffre **zéro** signifie que le marais n’est pas critique pour le critère, le **chiffre 1** désigne que le marais est critique pour le critère.

Pour la présence de tourbe :
T1 veut dire **tourbe évolutée**
T2 tourbe peu évolutée.
Setting up irrigation-drainage infrastructures

Irrigation infrastructure: **Water control**
- in wet seasons (minimize flooding risks);
- in dry season (securing crops against drought).

Three (3 types of scheme layout):
1. **Simple intake/diversion structure**: perennial stream...Local community/HIMO approach;
2. **Medium-Low Cost design**: GOR/NGOs staff
3. **Heavy and costly design** for large command area: Donors (dams, dykes, big reservoirs...studies & implementation)→Consultants
Integrated watershed management

- Erosion control above developed wetlands
- Soil fertility management of uplands
- Water conservation measures → steady flow
- Afforestation – rehabilitation of old woodlots
- Runoff control from national road network and built-up areas
- Promoting off-farm activities to reduce pressure
- Encourage professionalization of farmers
- Setting up marshland development Committees
Operation, Maintenance & Management (OMM)

• The Ministry of Agriculture and Animal Resources has embarked in construction of irrigation schemes within Rwanda to avoid rainfall dependence.

• The new management model is based on the establishment of “Water Users Organizations” (WUOs), sole entities to collect water fees.

• The Ministerial Order No 001/11.30 of 23/11/2011 makes the establishment of Irrigation Water Users Associations in all irrigation schemes within Rwanda. Present day, 76 WUOs are in place.

• **Cooperative** → Production & Marketing activities

• **WUO** → Operation & Maintenance of ID network

• **Service provider**: where there are heavy infrastructures
**WUO - OMM Model**

1- National level: Supervision, legal and regulatory

2- District level: Overseeing activity of WUAs

3- Farm/ Scheme level:

**Government** → **MINAGRI**

1- Subsidy to operator
2- OMM contract

**District Irrigation Steering Committee** → **Service provider/Operator**

1- Water service contract
2- Water fees
3- Environmental issues

**District Irrigation Technical Unit (District engineers, RAB, TF I&M)** → **RAB Extension services**

**RAB Extension services** → **Cooperative/Company of farmers**

**Water Users Organization** → **Unit of operator/Service provider**

- IWUO<sub>1</sub>
- IWUO<sub>2</sub>
- IWUO....

- Irrigated area 1
- Irrigated area 2
- Irrigated area....

Farmers
Rice development in wetlands

- Rice is the main staple grown on developed wetlands
- It is envisaged that the approaches will raise the productivity level from 5.8 t/ha to 7.0 t/ha and expand the area under cultivation from 6,838 Ha to 28,500 by 2018
- In 2013, people engaged in rice cultivation were 70,353.
- In Rwanda, rice farmers belong to a total of 100 cooperatives, distributed within 64 rice schemes country-wide
- Each cooperative covers rice farmers in a watershed.
- Each WUO signs a Performance contract with the Cooperative
- WUO and Cooperative are legally registered and accountable before their General Assembly/District/MINAGRI.
- And to RCA for the Coops and RGB for the WUOs → Periodic M & E
  WUC has to work before it can ask for a Permit from RNPA/IWRM.
### Projections of rice demand for Rwanda (RNDS, 2011)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population ('000)</th>
<th>Consumption per capita (kg/year)</th>
<th>Predicted Consumption (Milled Rice, MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>9,908</td>
<td>6.1</td>
<td>60,825</td>
</tr>
<tr>
<td>2013</td>
<td>11,238</td>
<td>11.5</td>
<td>130,752</td>
</tr>
<tr>
<td>2018</td>
<td>12,568</td>
<td>15.6</td>
<td>204,110</td>
</tr>
</tbody>
</table>
## Targets set under NRDS on area, yield, and production

<table>
<thead>
<tr>
<th>Year</th>
<th>Rain-fed lowland</th>
<th>Irrigated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (Ha)</td>
<td>Yield (t/ha)</td>
<td>Production (Ha)</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td>7,000</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td>6,838</td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td>13,500</td>
</tr>
<tr>
<td>2018</td>
<td>2,500</td>
<td>2.0</td>
<td>5,000</td>
</tr>
</tbody>
</table>

**Rain-fed lowland**: Including both area and yield data for the years 2008 to 2018. **Irrigated**: Same for the years 2008 to 2018. **Total**: Combination of both rain-fed lowland and irrigated data.
### SWOT analysis of Rwanda’s rice sector

#### STRENGTHS
- Suitable Ecological Niches
- High productivity (5.8 t/Ha)
- Government’s commitment
- Organization of farmers
- Favorite Food Choice
- Favorable policies
- Rural and Family labor supply

#### OPPORTUNITIES
- Vast areas of untouched marshlands
- Special bowls for Premium rice
- Profitability
- Strong demand in local markets
- Open regional markets
- Off-shelf technologies
- Regional and International Initiatives

#### WEAKNESSES
- Inadequate integration of Value Chain
- Inadequate research and extension
- Low private sector participation
- Low mechanization
- Small farm size
- High post-harvest losses
- Standards of small mills
- Access to credit and market

#### THREATS
- Demographic pressure
- Soil fertility management
- Climate Change
- Access to water
- Pressure from pests and diseases
- Competition from imported rice
- Raising Fuel prices (input costs)
- Seasonal labor constraints
Sustainable agriculture in wetlands

- Improving productivity from current 5.5t/ha to 7t/ha (seeds, fertilizers, diseases control, improving farm operations, water productivity)
- Extension of area from current 8,000 ha to 65,000 ha
- Development, rehabilitation and maintenance of irrigation infrastructures by farmers through WUOs
- Development of post harvest handling and processing infrastructures to minimize post harvest losses and ensure high quality rice that can be competitive at regional level
- Continuous capacity building; R&D- long grain breeds, update Policies and Strategies to meet farmers' needs, consumers' demands, Gvt regulations on natural resources management, etc.
THANK YOU