Country Pilot
Improved Water Allocation for Agriculture
(Palestine)
18-10-2022
Country background

General

Historical Palestine area: 27,000 km²
- West Bank area: 5845 km²
- Gaza Strip area: 365 km²

The climate of Palestine: a desert and semi-humid climate
Available Water Resources in Palestine

1. **Country background**

2. **Main parameters on water resources in the country, including areas of scarcity, trends in water use and water productivity**

3. **Rainwater**
   - the main source of water, as it feeds the aquifer, waterways, valleys, and torrents
   - falls in winter and spring months,
   - its amount is limited and fluctuating, with an average annual 460 mm in West Bank, 356 mm in Gaza Strip

4. **Groundwater**
   - Three groundwater basins (Western, Eastern and Northeastern) represent the groundwater aquifer system in the West Bank.
   - Part of Costal Aquifer exists in Gaza Strip. GW represents 95% of Palestinian water supply.

5. **Surface Water** (Jordan River, flood Wadis)
   - No Access, No use of the Jordan River
   - Few water harvesting attempts due to occupation restrictions, lack of experience,
Main parameters on water resources in the country, including areas of scarcity, trends in water use and water productivity.

1 Country background

Non Conventional Water Resources

Rainwater Harvesting:
• small scale projects Dams and agricultural ponds used in irrigation
• Roof top water harvesting cistern to be used for municipal uses.

Treated Wastewater for Reuse in irrigation
• about 1500 m$^3$/day from Jenin wastewater Treatment Plant, 1200 m$^3$/day from Jericho treatment plant and 500 m$^3$/day from small scale treatment Plants In West Bank
• about 4MCM is reused in irrigating agriculture In Gaza
• projects under implementation to reuse of more than 3 MCM annually from Nablus West and others

Desalination
• about 5.7 MCM is used for drinking purposes in Gaza
• Pilot projects in West Bank to desalinate brackish water in Jordan Valley.

Purchased water from Israeli Mekorot Company......94.9MCM/Y in 2020 with price of 0.75-0.85 $ / m$^3$
• 77.5 MCM/y for West Bank (represents 62 % of domestic water.)
Main challenges in water management and water allocation for agriculture in the country

2 Country challenges

Main Challenges of Water Security

- Lack to access to water resources due to Israeli Control
- Demand exceeds the available water supply
- Large construction needs in water supply infrastructure.
- Water Salinity in Gaza and Jordan Rift Valley.
- Climate change
- Desertification due to losing 50% of the grazing areas to Israeli settlements and military camps and “nature reserves”.
- Over exploitation of aquifers
- Lack of institutional efficiency of Water users
- Lack of official lawmaking power
- The need to endorse and implement Water Management bylaws and regulations agricultural water tariff, etc.
Reasons/criteria to select the pilot area

Proposed pilot area (1)

Al Fara’a Watershed as a case study

Why Al Fara’a???

- Rapid Water Accounting and Governance was conducted
  - Data was collected
  - Water issues and problems were identified
- Significant change in agriculture development since the last twenty years.
- It shifted from a primarily rainfed, cereals and legumes oriented to an irrigated export-oriented horticulture production zone
- Inequities in water access and allocation
- Legal pluralism in water tenure and institutional fragmentation in water domain
Main Stakeholders

- MoA, PWA, MoLG, EQA, Governance of Nablus & Tubas
- Farmers association & cooperatives
- Wells owners
- Private sector
- Spring Water rights owners

**Proposed pilot area (2)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Demand (MCM)</th>
<th>Supply (MCM)</th>
<th>Gap (MCM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated agriculture</td>
<td>24,973,689</td>
<td>23,069,870</td>
<td>1,903,819</td>
</tr>
<tr>
<td>Municipality</td>
<td>1,890,400</td>
<td>1,730,922</td>
<td>159,476</td>
</tr>
<tr>
<td>Total</td>
<td>24,960,270</td>
<td>26,704,611</td>
<td>2,063,295</td>
</tr>
</tbody>
</table>

**Inflows**

<table>
<thead>
<tr>
<th>Source of data</th>
<th>Quantity (m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitation</td>
<td>67,158,000</td>
</tr>
<tr>
<td>Import (Purchased water)</td>
<td>450,000</td>
</tr>
<tr>
<td>Groundwater lateral flow (in)</td>
<td>4,000,000</td>
</tr>
<tr>
<td>Wastewater flows into the area</td>
<td>4,500,000</td>
</tr>
<tr>
<td><strong>Total inflows</strong></td>
<td>76,108,000</td>
</tr>
</tbody>
</table>

**Outflows**

<table>
<thead>
<tr>
<th>Source of data</th>
<th>Quantity (m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runoff from precipitation, exiting the study area</td>
<td>6,760,000</td>
</tr>
<tr>
<td>Wastewater and/or TWW passing to the Jordan River</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Actual Evapotranspiration from agriculture</td>
<td>57,400,000</td>
</tr>
<tr>
<td>Actual Evapotranspiration from non-agricultural lands</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Export</td>
<td>9,125,826</td>
</tr>
<tr>
<td>Groundwater lateral flow (out)</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total outflows</strong></td>
<td>74,285,826</td>
</tr>
</tbody>
</table>

**Change In Storage**

<table>
<thead>
<tr>
<th>Source of data</th>
<th>Quantity (m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change In Storage</td>
<td>1,822,174</td>
</tr>
</tbody>
</table>
What the pilot want to achieve?

- Practical excersize to manage available agricultural water resources through application of the guideline developed by LACS
- To learn how to scale up the pilot to larges scale and extend to other areas in the country
Activities done

- Several meetings for the team conducted
- Agenda and initiative guidelines reviewed
- Rapid assessment of current situation and data available
- Brainstorming for gaps and needs
- Roadmap for case study plan was initially developed
- Stakeholders were identified and the first meeting date was appointed on 14th November
Thank You