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# Country Pilot Improved Water Allocation for Agriculture

(Palestine)

18-10-2022



# 1 Country background

## General

Historical Palestine area : 27,000 km<sup>2</sup>

- West Bank area: 5845 km<sup>2</sup>
- Gaza Strip area: 365 km<sup>2</sup>

The climate of Palestine: a desert and semi-humid climate



# 1 Country background

## Available Water Resources in Palestine

### 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

### Groundwater

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

### Surface Water (Jordan River, flood Wadis)

- No Access, No use of the Jordan River
1. Few water harvesting attempts due to occupation restrictions, lack of experience,



# 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<sup>3</sup>/day from Jenin wastewater Treatment Plant , 1200 m<sup>3</sup>/day from Jericho treatment plant and 500 m<sup>3</sup>/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<sup>3</sup>

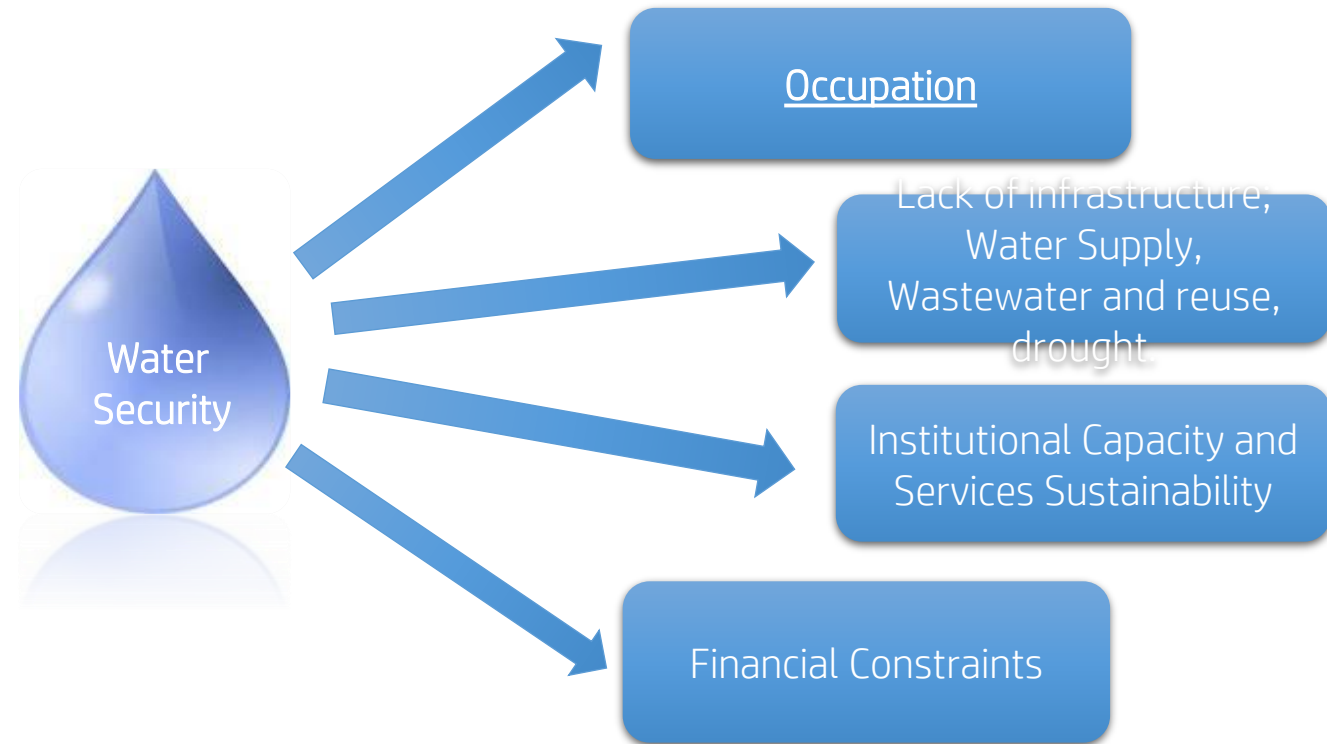
- 77.5 MCM/y for West Bank (represents 62 % of domestic water )

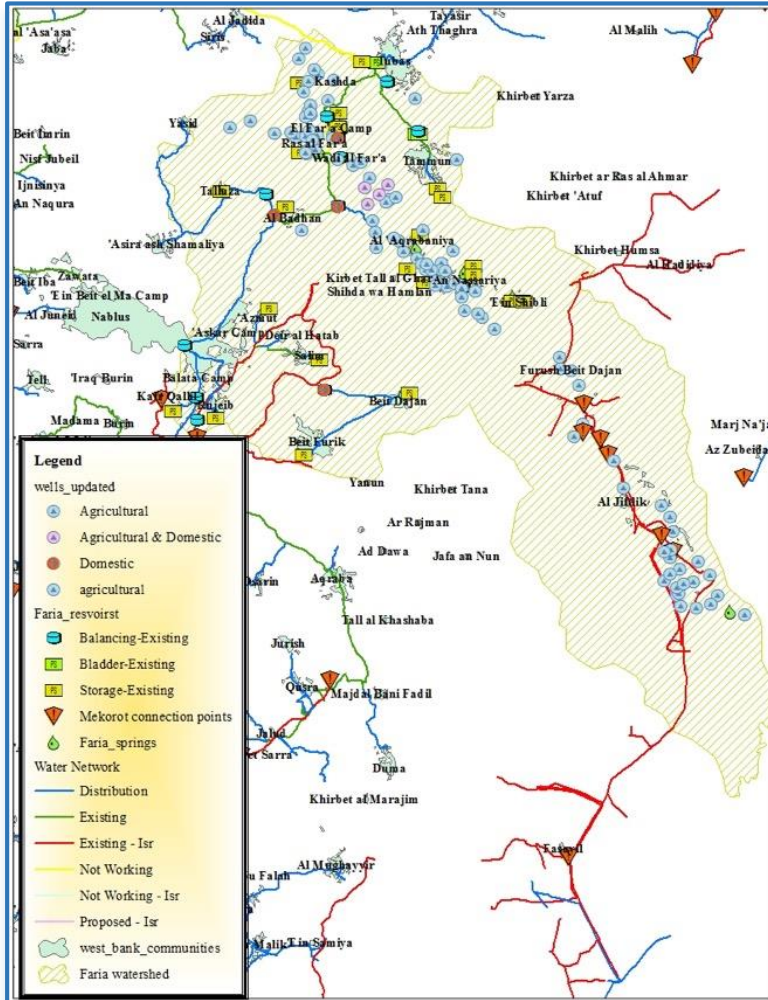


## 2 Country challenges

- Lack to access to water resources due to Israeli Control
- Demand e 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 loosing 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.

### Main Challenges of Water Security





# 3 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

## 4

# Proposed pilot area (2)

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

## Main Stakeholders

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

Inflows	Source of data	Quantity (m <sup>3</sup> )
Precipitation	PMD & PWA database	67,158,000
Import (Purchased water)	PWA database	450,000
Groundwater lateral flow (in)	Study results	4,000,000
Wastewater flows into the area	PWA database	4,500,000
<b>Total inflows</b>		<b>76,108,000</b>
Outflows	Source of data	Quantity (m <sup>3</sup> )
Runoff from precipitation, exiting the study area	PWA database	6,760,000
Wastewater and/or TWW passing to the Jordan River	estimations	1,000,000
Actual Evapotranspiration from agriculture	estimations	57,400,000
Actual Evapotranspiration from non-agricultural lands	N/A	N/A
Water Export	PWA database	9,125,826
Groundwater lateral flow (out)	N/A	N/A
<b>Total outflows</b>		<b>74,285,826</b>
<b>Change In Storage</b>		<b>1,822,174</b>

# 5

## 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



# 6 Activities done

- Several meetings for the team conducted
- agenda and initiative guidelines reviewed
- Rapid assessment of current situation and data available
- Brain storming for gaps and needs
- Road map for case study plan was initially developed
- Stakeholders were identified and the first meeting date was appointed on .14<sup>th</sup> November



**Thank You**

