

# التكامل بين قطاعات المياه والطاقة والزراعة - **Water Energy Food- Nexus**

Palestinian Water Authority-PWA



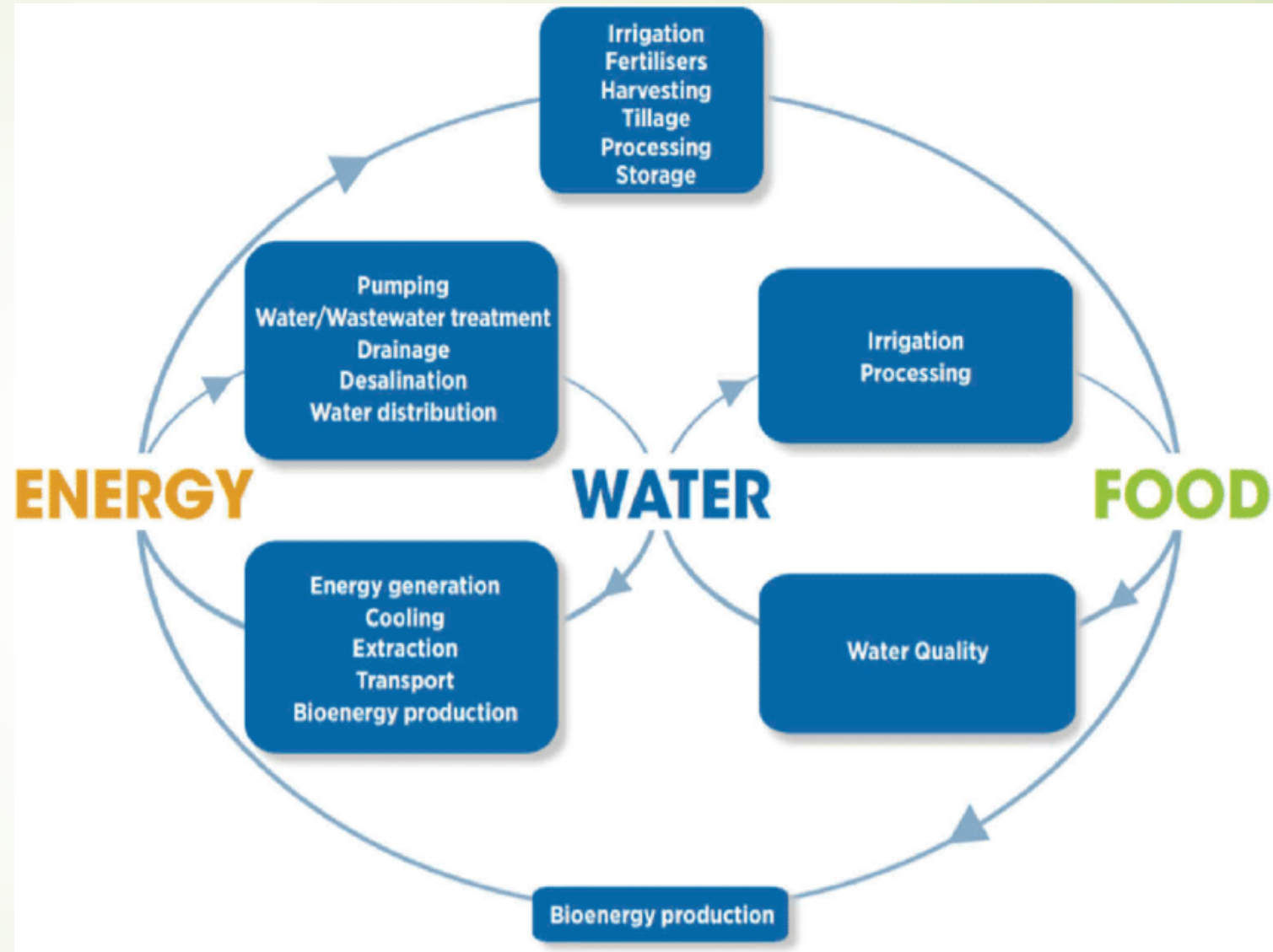
سلطة المياه الفلسطينية  
PALESTINIAN WATER AUTHORITY



## Outline:

1. What is the WEF Nexus?
2. WEF NEXUS In Palestine
3. Water and Energy and Agricultural Sectors in Palestine
4. Case study :Water- Energy Nexus Project - North of West Bank.
5. Conclusion

## What is the WEF Nexus?





## WEF NEXUS in Palestine:



Provide alternatives and options to achieve the independence in the water and energy and land sectors as a pillar and basis for building the Palestinian Free state.

This opens the possibility for renewable energy to solve the energy crisis in Palestine and future energy sources for water ,wastewater treatment

Water- Energy –Food Nexus Projects in Palestine are existing at small scale in private sector.

In public sector recently, there is proper understanding of NEXUS among the decision-makers which appears in starting developing the related appropriate policies ,strategies, and investments.

# WATER SECTOR IN PALESTINE

**Institutional challenges:** Poor efficiency of service providers in terms of financial, technical and administrative aspects

**Political challenges:** Lack of control over water resources and Israeli obstacles

**Demographic challenges:** The large increase in the population and the increase in the demand for water

**Financial challenges:** High capital and operational costs and the accumulation of debts on service providers

**Social, economic and environmental challenges:** Land acquisition, reuse of treated water and sludge, and opposition to the implementation of sewage projects



# Energy Sector:



**FACT:** The Israel Electric Corporation Limited” was first registered under the name "The Palestine Electricity, Corporation Limited“

## Power shortage due to

- Israelis control 97% of the potential electric energy production in the West Bank at very high cost (HUMEID, 2013).
- Limited domestic power generation due to lack in infrastructure and high fuel cost
- High losses (Technical and non Technical)
- Electricity distribution companies in the West Bank are private companies



## Agriculture Sector:

1. Agriculture in the State of Palestine is a mainstay in the economy of the State of Palestine. The production of agricultural goods supports the population's sustenance needs and fuels Palestine's export economy
2. According to World Bank agriculture Sector in Palestine suffers from wide spread use of land for nature reserves as well as Israeli military and settler use.
3. More the 67% of West Bank area are classified as area C where there is no access to the Palestinian people to use their land to achieve the socio-economical development.

# Renewable Energy Project- Nexus North



## Water- Energy Nexus Project - North of West Bank

1. The project's specificity as a pilot project since it is the first of its kind linking the water and energy and Agriculture sectors
2. Donors AFD & EU with Total Amount of 18 M Euro.
3. Beneficiary: Tubas- JWSSC & Al Yamoun JSC.
4. Technical and Steering Committees were formulated to facilitating implementing this Project.
5. Project Components:

Infrastructure water and sanitation works with the main objectives to secure drinking water production capacity, extend and optimize water and wastewater service for Tubas- JWSSC & Al Yamoun JSC.

Renewable Energy (RE) electricity generation system and related installation works to serve Tubas- JWSSC



## Water- Energy Nexus Project - North of West Bank (T-JWSSC)

1. The project's specificity as a pilot project since it is the first of its kind linking the water and energy and Agriculture sectors
2. Donors AFD & EU with Total Amount of 18 M Euro (12 M Euro W&WW+6 M Euro Energy).
3. Beneficiary: Tubas- JWSSC & West Jenin Villages JSC.

### 4. Project Components

Infrastructure water and sanitation works with the main objectives to secure drinking water production capacity, extend and optimize water and wastewater service for Tubas- JWSSC & West Jenin Villages JSC **(Completed)**.

Renewable Energy System Tubas- JWSSC **(IN Progress)**.

1. PV plant with Capacity of (2000 KW)



## Water- Energy Nexus Project - North of West Bank

1. The Joint Service Council of Tubas (T-JWSSC) who is a W&WW Service provider the owner of the project.
2. Tubas (T-JWSSC) is served more than 60,000 People in Tubas ,Tammoun, Taysir and Aqaba local Communities.
3. Tubas (T-JWSSC) Water and Wastewater System consist of :
  - Water Distribution System
  - Pumping Station.
  - Wastewater Treatment Plant
  - Wastewater Pumping Station.

# Tubas- JWSSC Electrical loads

**Total Useful Production  
Energy From renewable**

**4,927 MWh/Y**

**Renewable energy cover  
100% of the Consumption energy  
of *T-JWSSC*  
and  
95% of the Consumption energy  
Of *T-JWSSC & WBWD***

**Total Electricity Consumption  
For *T-JWSSC & WBWD*  
5214 MWh/Y**

## ***Electricity Consumption of T-JWSSC***

**Offices : 29 MWh/Y**

**Water Facilities : 226 MWh/Y**

**Tubas Pumps**

**Tammoun Pumps**

**Aqqaba Pumps**

**Tubas Upper tanks**

**Tayaseer Tanks**

**Wastewater Facilities : 804 MWh/Y**

**Total=1055 MWh/Y**

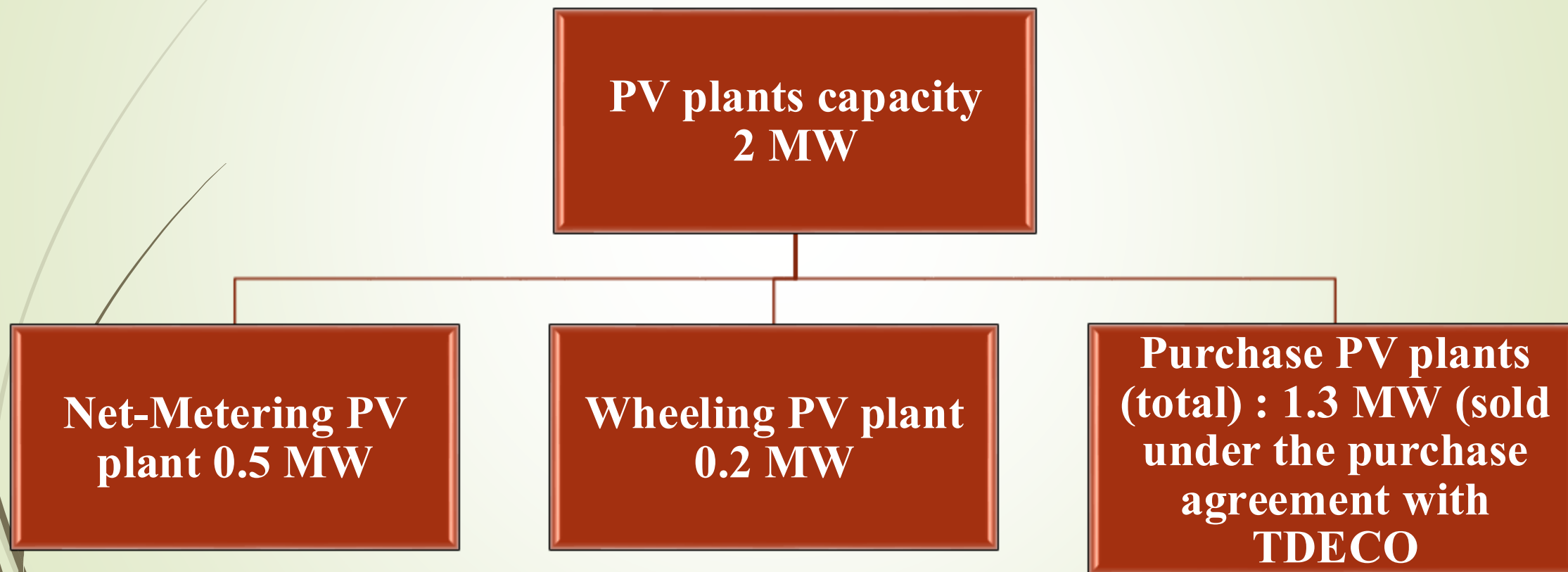
## ***Electricity Consumption of WBWD***

**Tubas Well : 967 MWh/Y**

**Tammoun Well ; 3,188 MWh/Y**

**Total=4155 MWh/Y**

## **Tubas (T-JWSSC) Renewable Energy (Solar):**



## Tubas (T-JWSSC) Renewable Energy (PV Plant):





## CONCLUSION:

1. The WE Nexus project (NEXUS North) is Pilot Project.
2. The WEF Nexus is the most important inter-dependencies in Palestine since all the socio-economic development sectors rely on the sustainable provision of these resources.
3. The development of a national plans for development projects should be based on utilizing the Nexus approach to promote coordination and collaboration across sectors and to achieve the Sustainable Development Goals (SDGs), particularly SDG 6 (Clean Water and Sanitation) and SDG 7 (Affordable and Clean Energy).