



5th WES Steering Committee Meeting

Saving Water, Growing Crops: remote-controlled irrigation system to address water scarcity and promote preservation of available freshwater resources

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Aim of the Action

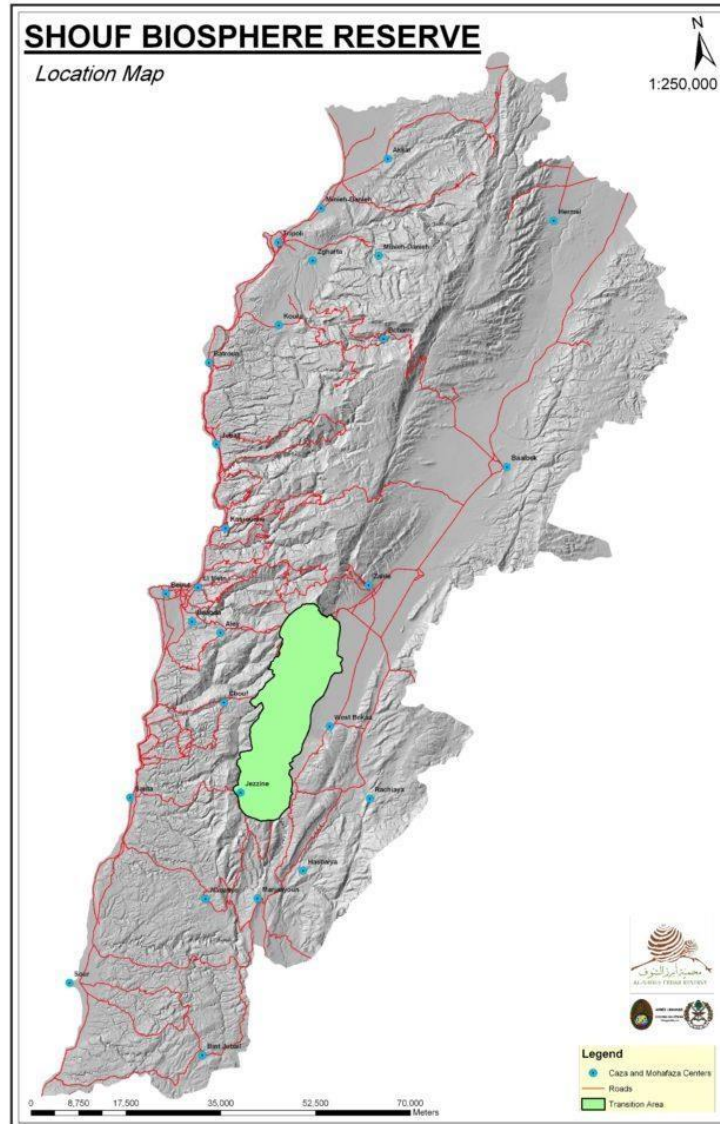
The overall objective (OO) of the project is “to increase the adaptation capacity to economic losses and freshwater depletion induced by climate change through efficient use of water in the Shouf District”.

Lebanon’s 4th National Communication to the UNFCCC (2022) climate change will cause a decrease in precipitation of 6.5 to 10% by the end of the century, a temperature increase of 1.7°C by mid-century

Water consumption for irrigation it’s around 10,000 m³/hectare/year.



SWat target Zone



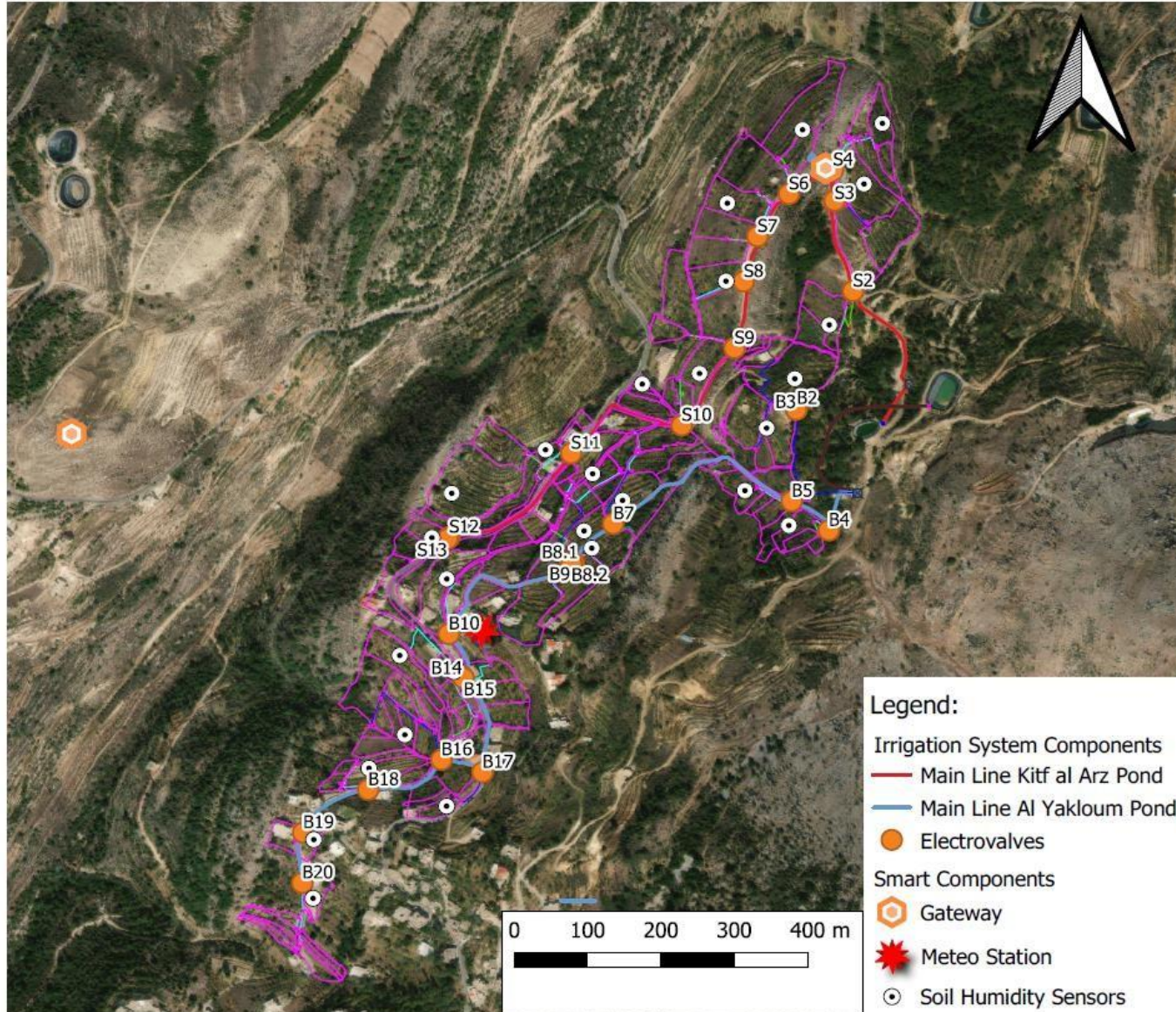
Shouf Biosphere Reserve:

The Shouf Biosphere Reserve is situated in the mountain range in Lebanon.

- It covers an area of approximately 550 square kilometers.
- It was designated as a Biosphere Reserve by UNESCO in 2005.
- Like many protected areas, the Shouf Biosphere Reserve faces challenges such as habitat degradation, human-wildlife conflicts, and sustainable resource management.



The Municipality of Mrusti



Altitude: 1300 m a.s.l.

Total project area: 20 ha

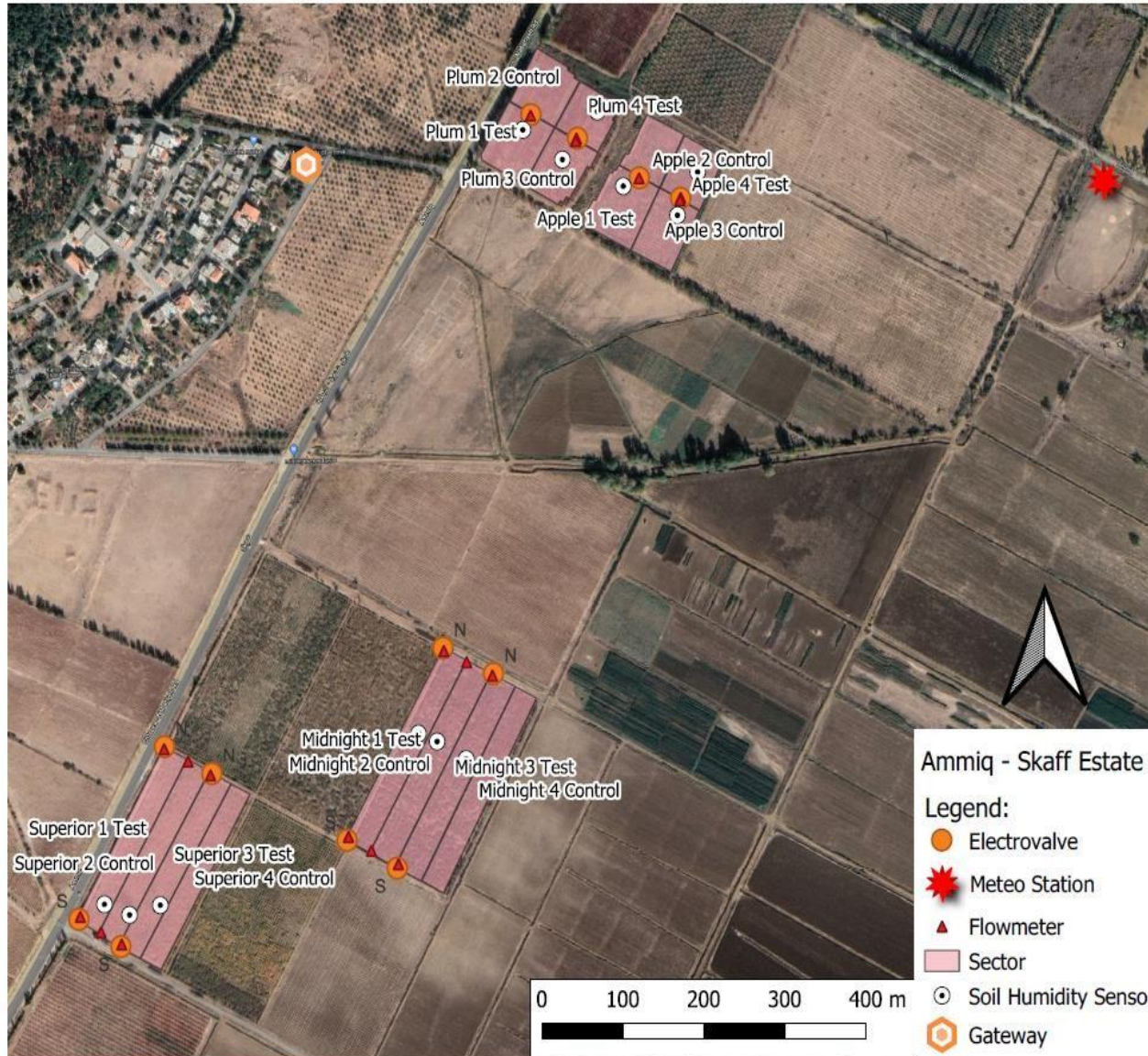
Main Water Resources:

- Rain Water harvested into artificial agricultural hill lakes
- Al-Shawi Well located at a 50 m lower altitude than the ponds

**Small Scale agricultural producers:
93 connected to the system**



The Municipality of Ammiq



Altitude: 900 m a.s.l.

Total project area: 9 ha

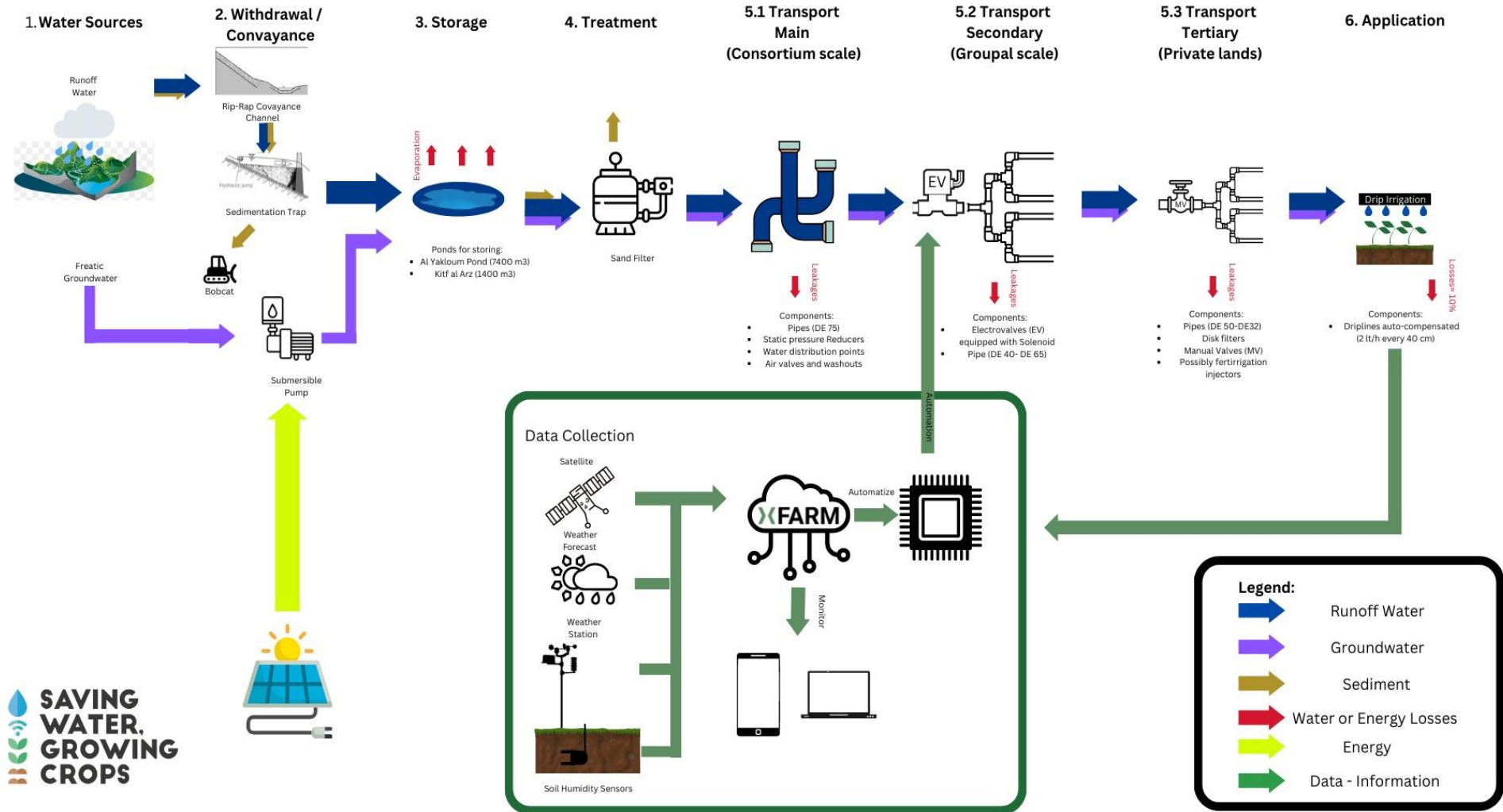
**Main Water Resources:
2 wells (Mar Georious and
Alzeitun)**

**Big Scale agricultural producers:
Skaff Estate**



The Smart Technology

New System





Results



Introduction of drip system and precise irrigation:

- Gross Water Savings (-47% per ha);
- Net Irrigation similar to prior but with more frequent application (-6 per ha);
- Increase in the irrigated area (+100%)

Water Harvesting Enhancement:

- Runoff Harvesting (+165%)

Introduction of a new pumping system:

- Energy Savings (-57% kWh per ha);
- More complex management of the system.



SAVING WATER, GROWING CROPS

Main Challenges



- Covid-19 and the economic crisis
 - Absence of a cadastral plan
 - **Farmer's acceptance** of non traditional techniques (precise irrigation, drip irrigation)
 - Small farmers are landowners (production is an additional income)
 - Ability of farmers' to pay a tariff that sustains the project
Lack of punctual Monitoring Heterogeneous cultivation in small farms
- Import material** in the Lebanese Context is a **costly** and **time requiring** procedure, local suppliers involvement takes a relevant role