EcoFuture Pilot Demonstration in Israel

Descriptive Summary

The Israeli Pilot focuses on fishpond farming. Two innovative systems are being demonstrated. An open, large pond is used as a reservoir for regulating and treating water, while small satellite ponds are used to grow fish in a larger biomass to water ratio with more control over water quality and temperature, and less food waste. In addition, a Recirculatory Aquaculture System (RAS) is used with regulated water temperature to produce higher quality of fish (i.e. Salmon) in a controlled environment.

Background

The Israeli area of the Jordan Valley extends from south of the Sea of Galilee to the north border of the West Bank (the Green Line) and from the Jordan River in the east to the Jezreel Valley in the west. 60% of the aquaculture farms in Israel are in the Jordan Valley. The pools are fed from a large number of springs in the area (known as the "Valley of Springs") as well as saline water collected from springs below the Sea of Galilee in order to reduce the salinity of the lake. Till recent time, following sedimentation of pollutants, the wastewater has been discharged into the river. No use is made with the collected sludge. The Israeli government allocated this year about 20M€ for wastewater treatment facilities. On top of that the new regulations oblige that more than 10Mm^3 has to be treated up to spring water quality. Therefore, the recent restrictions in the water regulations put many of the farms under threat of closure.

Aims and Goals

The objective of the pilot is to reduce the water use in aquaculture, incorporate innovative water treatment methods to reduce the environmental pollution, improve both the quantity of production as well as the quality of the fish produced and cover the energy needs with renewable energy to minimize the energy cost of the production.

Actions taken

The open fishpond pilot demonstrates the nexus between water, energy, food security and environmental services. The large reserve pond can be covered by solar panels to provide electricity for the water pumps and will reduce water loss from evaporation. Algal growth in the large pond will increase the dissolved oxygen of the water and increase the ability for recirculation. Converting large fishponds into regulation reservoirs reduces the negative environmental externalities while preserving the status of the ponds as natural habitats for species in the area. The use of solar panels will provide clean energy to run the circulation pumps and will reduce evaporation in the ponds.
The RAS pilot demonstrates the nexus between water, energy, food security and environmental services. By enabling fish farmers to grow high value fish, such as salmon, sea bream and crabs, the RAS pilot can demonstrate improved profitability and attract a new generation of fish farmers in the Valley of the Springs while providing locally grown fresh fish to the Israeli market. Floating solar panels on the reservoir will reduce evaporation, cool down the water and provide enough clean electricity for the pumps, air conditioning and heat exchange systems.

Main Achievement to date

The construction and instrumentation of both pilots have been implemented. The monitoring devices have been installed and the pilot is in the initial stages of operation. Data will be collected to assess the benefits and co-benefits to the four WEFE dimensions. This demonstrator will be updated as data become available.

Partners
AIES TUC

Lessons, replicability and scalability potential

The Israeli pilot addresses fish farming practices in the region that use significant quantities of water by reducing water and energy uses while improving the quality of the discharged water and the quality of the fish produced.

The technologies used in this demonstrator can be upscaled in the other aquafarms in the Jordan valley and can be used as prototypes for the whole Mediterranean region.

Affiliation
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Acknowledgement of funding source
PRIMA

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10 - 100k €

Environmental
High

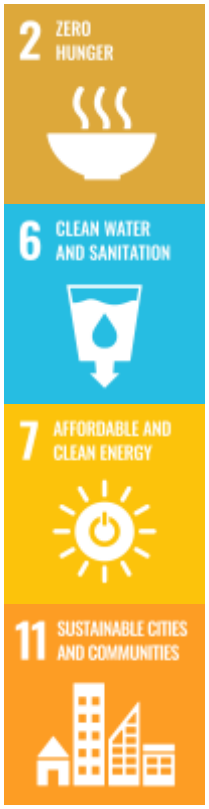
Social
High

Technological
Medium-High

Financial
Medium

Institutional
Medium

SDGs



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