

Project pilot Areas: Menemen Plain in Gediz Basin (Turkey)

ENHANCED WATER-ECOSYSTEM-FOOD-CLIMATE NEXUS SYSTEM FOR GEDIZ BASIN

There is a periodic water shortage due to drought, affecting producers and frequent in recent years due to climate change. The use of irrigation methods is unconscious and excessive, so producers in the outflow parts of the irrigation network cannot access sufficient water. High groundwater levels are observed in the lower parts of the basin due to winter rainfall hindering production and causing drainage problems in the crop plots. In addition, soil salinity caused by excessive summer irrigation is another challenge. The pilot focuses on adopting basin-wide agricultural management systems to ensure sustainable agriculture and food supply and contribute to socio-economic development within the framework of environmental awareness and cooperation.

GENERAL CHARACTERIZATION

Menemen Plain in Gediz Basin →

- ✓ **Area of Menemen:** 694.49 km².
- ✓ **Population:** 193,229.
- ✓ **Main income:** Agriculture and polyculture (carried out on an area of 16.500 ha).
- ✓ **Main crops:** Cotton, wheat and maize also types of vegetables and fruits.
- ✓ **Mediterranean climate** is dominant.
- ✓ **The Gediz River** is the main source of water for irrigation in Menemen Plain. Irrigation is mainly furrow-irrigation, and **less than 10% comes from groundwater**.
- ✓ Home to the **“Bird Paradise”**, which is a RAMSAR site since 1998, accommodating various bird species, some of which are in endangered or threatened status.



LENSES GOALS

- ✓ Contributing to Nexus analysis using data from tools such as **Ecosystem-based hydrological models, surveys, terrestrial observations, remote sensing and GIS.**
- ✓ **Improving Nexus management** for the assessment of ecosystem services coupled with a Hydrological model in order to determine priority areas in pilot area.
- ✓ More **effective use of irrigation water** to cope with drought management and feasible planning of water allocation with cooperation. Groundwater resource levels and usable water quality will be determined and their effective use will be ensured.



HOW WILL LENSES WORK?

Planning of **Nature-based Solutions (NbS)** to address the challenges experienced

- ✓ Limit or prevent specific uses and practices.
- ✓ Maintain and enhance natural wetlands.
- ✓ Natural protected area network structure.
- ✓ Agro-ecological practices.
- ✓ Change crop rotations.
- ✓ Soil improvement and conservation measures.
- ✓ Agro-ecological network structure.
- ✓ Increase soil water holding capacity and infiltration rates.
- ✓ Incorporating organic matter
- ✓ Use soil conservation measures - Deep-rooted plants and minimum or conservation tillage.
- ✓ Integrated coastal zone management.

Work to improve Nexus dialogues It is aimed to create Active Learning Action Alliances with the participation of stakeholders and decision makers from all relevant sectors.



FUTURE PERSPECTIVE “CALL TO ACTION”



It is necessary to identify needs and develop suggestions to solve existing problems of all components within the Nexus. The harmonization of knowledge sharing, and data allows a further step towards solving the problem areas. Stakeholders need to embrace sustainable production by applying good practices; questioning commonly known truths and using innovative techniques is vital. Learning and action partnerships should occur where the ideal method with a nature-based solution can be determined for stakeholder and decision-maker engagement. Dissemination of good practices that strengthen the Nexus in the Gediz basin will be ensured.”

UTAEM Team



PILOT TEAMS



The International Agricultural Research and Training Centre (UTAEM), Menemen-Izmir, operates within the General Directorate of Agricultural Research and Policies of the Ministry of Agriculture and Forestry with experience in conducting several international projects as a partner in sustainable soil and water management, water resources systems, climate change and remote sensing.

Ea-Tek is a spin-off company with roots and still active links to the Water Resources division of the civil engineering department of Dokuz Eylul University in Izmir-Turkey. The team members have expertise in water resources management, sustainability and multi-criteria decision making in water resources systems, remote sensing and image processing, water balance and quality modelling, environmental data management and GIS applications.