



Evaluation of irrigation,  
infrastructure crop mapping  
and estimation of  
agricultural water use  
in Libya



**PROJECT CODE**  
OSRO/LIB/100/AFB



**RESOURCE PARTNER**  
Government of Libya through the  
African Development Bank

**CONTRIBUTION**  
USD 280 364



**IMPLEMENTATION**  
01/11/2021–30/12/2023



**TARGET AREA**  
The whole of Libya, focusing on  
Fezzan region as a pilot



**BENEFICIARIES**  
300 people



**KEY PARTNERS**  
Ministry of Water Resources,  
Ministry of Agriculture and Livestock  
and the Libyan Centre for Remote  
Sensing and Space Science (LCRSSS),  
and non-governmental organizations



## Objective

To strengthen the national capacity to increase water productivity and monitor water consumption using remote sensing, and improve food security and climate resilience.

## Activities implemented

- Conducted a mapping exercise of national stakeholders in the water and agriculture sector as well as a desk review of available data and capacities.
- Set up the project team comprising 35 members from 28 national institutions and civil society organizations.
- Organized a training of trainers (ToT) programme for 24 trainers from the Ministry of Water Resources, Ministry of Agriculture and Livestock and LCRSSS on field data collection, who then trained six field data collection teams (72 members).
- Conducted a baseline study on agricultural water uses to facilitate the monitoring, evaluation and rationalization of the water system.
- Assessed and mapped irrigation practices and their efficiency, identifying best practices.
- Prepared an assessment report on national water use, including recommendations for improved efficiency and monitoring of agricultural water uses.
- Evaluated the damages to irrigation infrastructures, producing an infrastructure damage status report with corrective measures for their rehabilitation.



- Developed an innovative methodological approach to monitor water productivity using remote-sensing technology.
- Procured satellite imagery, field data collection tools and information processing hardware and software to facilitate the assessment of water management infrastructure, crop and water productivity.
- Organized two national and local stakeholder consultations in Tripoli for the 35 project team members representing the Ministry of Agriculture and Livestock, Ministry of Water Resources, other ministries, national and local institutions.
- Organized a study tour in Tunisia for the three core members of the national multidisciplinary team to enhance their capacities and build consensus around the expected results of the project.
- Undertook a local agricultural cropland estimation, assessment and mapping, including land cover and crop productivity and conducted a water consumption assessment at the national level, producing an assessment on water consumption efficiency by crop type.
- Carried out a needs assessment to identify knowledge gaps and the training needs of the project stakeholders and inform the design of the Capacity Development Programme (CDP).
- Developed the CDP and trained the 300 project participants on field data collection, data analysis, land cover, water efficiency, crop mapping and productivity.
- Organized a workshop for 90 of the project participants to develop technical guidance and recommendations to build institutional capacity and exchange knowledge on the use of FAO tools, standards and approaches for land cover and crop-type mapping.
- Developed the Operational Country Action Plan.
- Established the MerWat-Libya Geospatial Platform to enable access to crop and water consumption information as well as sustainable practices using advanced geospatial information and data.
- Organized a training workshop for 28 female participants, delivered by three female trainers, on the use of FAO's water productivity open-access portal (WaPOR).



## Results

- Enabled 24 participants to become certified trainers, thanks to the organization of the ToT programme.
- Facilitated the mobilization of resources and investments in the rehabilitation and modernization of the damaged irrigation infrastructure, thanks to the production of various assessments.
- Enabled monitoring and reporting on agricultural water productivity at different scales in Africa and the Near East through open access to remotely-sensed data using FAO's WaPOR.
- Strengthened the capacity of national stakeholder institutions in field data collection and processing, and the use of geospatial data, thanks to the implementation of the CDP.
- Enhanced agricultural water management performance, especially water consumption and productivity.
- Enabled access to information on crops, water consumption and sustainable practices, leading to improved and better-informed decision making in agricultural development, thanks to the development of the MerWat-Libya Geospatial Platform.
- Increased the availability of quality and reliable data on agricultural cropland estimation, irrigated areas, land use, land cover and crop type.
- Contributed to improving food security and climate resilience through improved performance of water harvesting, conveyance and use in the agriculture sector.

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