Mediterranean Wetlands Inventory

SCIENTIFIC LEAFLET

MedWet

"Save our wetlands, keep it healthy for the next generation"

Tamer Saber Mohamed Ismael - member of the Inventories-SG

Improving wetland knowledge for a more effective management and conservation

Wetlands are one of the most fragile and threatened ecosystems and are among the fastest declining ones worldwide. At the same time, they are hotspots of biodiversity and provide a wide range of ecosystem services that contribute to human well-being. In the Mediterranean Basin, the pressure on wetlands is likely to intensify in the coming decades due to increased demand for land and water and to climate change impacts. Mediterranean countries can help to slow, stop and reverse that process with the involvement of stakeholders at all levels of governance. Nevertheless, the information on wetlands location and extent, on their ecological character and their services, is often scattered, underestimated and difficult to find and access.

To fill this gap, the Mediterranean Wetland Initiative (MedWet) has established, as part of its **Scientific and Technical Network**, the **Specialist Group in Wetland Inventory (MedWet/STN/SG/Inventories)**.

Importance of wetland inventories

Wetland inventories are vital components of effective wetland management because:

- They provide essential information to support wetland management and conservation decisions at local, national and international levels;
- They are essential tools for countries to meet their commitments in wetland protection and monitoring under global agreements (the Ramsar Convention, Convention on Biological Diversity (CBD), EU Directives, Sustainable Development Goals (SDGs), etc.) as well as to support the development of national sectorial policies;
- The development and the implementation of wetland-related strategies require some baseline knowledge on wetland ecosystems (e.g., location, delineation, conservation status);
- The assessment of wetland ecosystem condition and trends is essential to improve the understanding of their capacity to provide ecosystem services, and to propose conservation measures that maintain their capacity to provide those services.

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Wetland Inventory Specialist Group (Inventories-SG)

The Inventories-SG is one of the five Specialist Groups that make up the MedWet/STN. It comprises 14 experts in complementary disciplines and practices related to wetland inventories in the Mediterranean region.
The mission of the Inventories-SG is to contribute to the development of a harmonized and comprehensive database on the inventories of Mediterranean wetlands across all MedWet countries.
The term "wetland inventory" follows the Ramsar definition, which is to locate and delineate wetlands and to define their main ecological characteristics (baseline inventory).

To know more about the Medwet/STN and its Specialists Groups :

http://bit.ly/MedWetSTN

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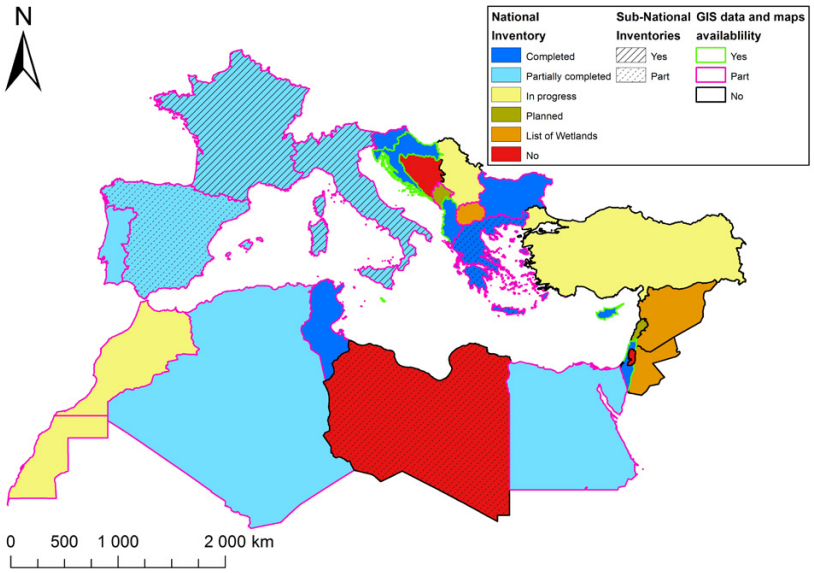

Wetland inventory status in the Mediterranean countries

According to the information reported by the Mediterranean countries to the Ramsar Secretariat for COP12 (2015), many of them have already implemented national inventory programs (Figure 1).

However, most of these inventories are partially completed (e.g., only with location and descriptions of wetland sites without any delineation) and/or too old (need to be updated).

Figure I: Wetland inventory status in MedWet countries (information reported by each country for the Ramsar COP12)

EO based approaches for wetlands inventory

Mediterranean wetlands are dynamic ecosystems that require frequent observations in order to delineate their extent and determine their ecological characteristics.

The dense time series of HR satellite imagery freely available from Space Agencies (Sentinel 1 and 2, Landsat) combined with Very High Resolution (VHR) images from commercial vendors provide essential sources of information for the development of reliable wetland inventory and monitoring tools, especially for wetland delineation at wide scales.

They are an excellent basis from which to map wetland areas and to derive information on their ecological status and changes (e.g., change in inundation regimes and vegetation dynamics).

A number of European projects and initiatives are developing EO-based methods that can be integrated into cost-effective wetland inventories at different scales (local, national, and regional), making best use of EO technologies and complementing traditional field survey approaches.

The MedWet/STN/SG/Inventories is developing such an integrated inventory approach to lay down the foundation for a large-scale MedWet inventory initiative

GlobWetland-Africa

The GlobWetland Africa project from the European Space Agency has developed an innovative method with end-to-end software tools to automatically delineate wetlands over large geographical areas.

The wetland inventory is based on a multi-temporal classification of optical and radar satellite imagery, complemented with topographic information. Water and wetness frequency parameters are derived for both datasets and fused to give an accurate delineation of wet areas as a support to wetland inventories.
The output product is a probability map of wetland presence, which can be used as an inventory reference to reduce costs associated with large wetland inventorying campaigns (Figure II).

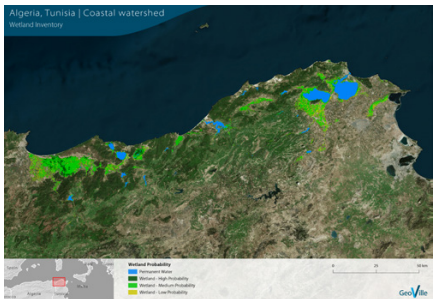

Figure II: Probability map of wetland over the coastal transborder catchment between Algeria and Tunisia (projet GlobWetland Africa).

The Mediterranean Island Wetlands project (MedIsWet)

This regional Mediterranean project aims to complete the inventories of all Mediterranean island wetlands, with a method based on VHR image processing combined with field surveys.

The project also promotes dissemination of knowledge and conservation measures in local and national scales and in all Mediterranean islands. It will contribute to the full implementation of Ramsar Resolution XII.14 "Conservation of Mediterranean Basin island wetlands" and to the achievement of Ramsar Convention's and MedWet's objectives. (Figure III)

Figure III: MedIsWet's team processing a wetland inventory in Sicilia, Italy. Photo © Pietro Minissale CUTGANA

Supporting SDGs and Ramsar reporting obligations

In Addition to the two previous initiatives, the H2020 SWOS project (Satellite-based Wetlands Observation Service) from the European Commission has also developed an EO-based tool to support wetland inventory (location, delineation and classification of main wetland habitats), that also provides a set of standardized indicators for the monitoring of wetland status and trends. Some of these indicators can be applied directly for Ramsar and/or for SDG 6.6.1 reporting (Figure IV).

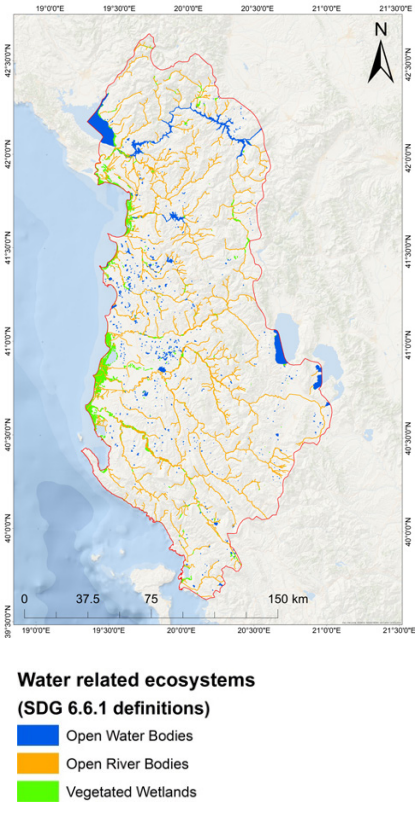

Figure IV: SDG 6.6.1 metrics (derived from Landsat-8 2014 time series) in Albania (SWOS project)