Food and Agriculture Organization of the United Nations

FAO DIGITAL SERVICES PORTFOLIO

Working together for **Zero Hunger** through **digital innovation**

WATER PRODUCTIVITY THROUGH OPEN ACCESS OF REMOTELY SENSED DERIVED DATA PORTAL (WaPOR)

The WaPOR portal provides publicly accessible, near real-time data to monitor agricultural water productivity, using innovative satellite technology.

ISSUE

Achieving food security while using water resources sustainably represents a major challenge for our and future generations. Agriculture is a key water user: it is responsible for 70 percent of all freshwater withdrawals worldwide. Careful monitoring of water productivity in agriculture will be essential to optimize water use and explore opportunities for improving productivity. Remote sensing can help monitor how efficiently water is used in agriculture in an objective and cost-effective manner.

For this purpose, FAO has developed a new open-access database called WaPOR, tapping into a wealth of satellite data to help farmers optimize irrigation systems and achieve more reliable agricultural yields.

ACTION

WaPOR sifts through satellite data and uses Google Earth Engine computing power to produce maps that show how much biomass and yield is produced per cubic metre of water consumed. The portal also allows direct data queries, time series analyses, area statistics and data download of

- **Water productivity is defined as the quantity or value of output in relation to the quantity of water consumed to produce this output.**
- **Water productivity in agriculture can be expressed as amount of product per unit of water. consumed by the crop.**

key variables associated with water and land productivity assessments, from a catalogue of more than 6 000 data layers, with direct access through application programming interfaces (APIs). Maps are available for all of Africa and the Near East and can be rendered at resolutions of as low as 30 to 250 meters, and updated every one to ten days.

Capacity development activities are being carried out to explain the concepts and methodology behind WaPOR and to train people on using the database.

The project is supported by the Ministry of Foreign Affairs of the Netherlands and implemented in partnership with the UNESCO-IHE Institute for Water Education and the International Water Management Institute.

MORE INFORMATION

WaPOR portal: wapor.apps.fao.org/home/1

WaPOR project information:
www.fao.org/in-action/remote-sensing-for-water-productivity/en/

IMPACT

In-depth water accounting and auditing assessments are being carried out using WaPOR in several locations, providing an overview of availability and use of water resources by different sectors, and insight into the scope and possible impacts of water productivity increase. Assessments have been completed for the Litani River Basin and are ongoing for the Jordan River, Nile River, Niger River and Awash River basins.

In Mali, Ethiopia and Lebanon, WaPOR data has been coupled with land cover and crop maps to determine productivity and identify potential gaps for irrigation schemes and smaller watersheds. This will help irrigation managers, extension workers and others follow up with water users, close existing gaps and generate “more crop per drop”.

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