



KnoWat: Knowing water better

Towards a more equitable and sustainable access to natural resources to achieve food security

Improved information on water resources

Located in western Africa, Senegal is bordered by Mauritania, Mali, Guinea and Guinea-Bissau. It has a population of around 17 million. In rural areas, agriculture plays a major role in supporting the livelihoods of many households.

Senegal has significant water resources, but they are threatened by excessive use, including the overexploitation of groundwater. Insecure land tenure rights complicate subsistence food production. Poverty and food insecurity are significant problems. Equitable access to water resources is a major challenge as competition and conflict between users increase, coupled with a lack of clarity around access rights.

Senegal's climate is marked by extreme weather events such as floods and droughts. This circumstance has been greatly exacerbated by climate change. Water reservoirs often run dry due to intense periods of drought, affecting people's food security and livelihoods.

Efforts are underway to develop corporate and industrial irrigated agriculture especially in the Senegal River Basia area, where there is easy access to Dakar's main urban market and export markets.



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Project area

The KnoWat project focuses on the Senegal River Basin, an area of strategic importance for the irrigated production of rice, vegetables and other food crops.

Due to multiple challenges, such as climate change, population growth and increasing food needs, there have been significant deficits in cereal production, especially rice, in recent years.

To reduce these deficits, the government started to promote irrigation development in the basin in 2003.

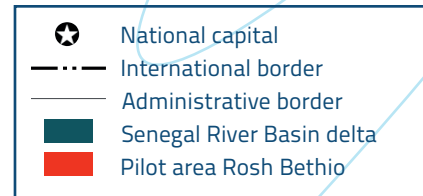


Better data for better decisions

Between April 2021 and January 2022, Senegal's Directorate of Water Resources Management and Planning (DGPPE), supported by the KnoWat project, carried out an inventory of hydraulic works and water withdrawals in the Senegal River Delta. DGPPE carried out three missions in the delta. The inventory included water accounting and auditing and was undertaken to improve the available information and knowledge about water resources and withdrawals.

The inventory made it possible to update information on 67 percent of the hydraulic structures listed in the Senegal River Delta, as well as the volume of water withdrawals. It found that almost all freshwater withdrawals in the area are used either for agriculture or for drinking water. Water users mostly rely on surface water to meet their needs.

The inventory of water resources in the Senegal River Delta will facilitate evidence-based decision-making to improve water governance in Senegal. Based on new knowledge on water catchment points, DGPPE can advise decision-makers on how to protect these water sources from pollution and the proliferation of aquatic invasive plants. In addition, DGPPE aims to support water supply and agricultural enterprises, including family farms and business led by women and young people, through training and providing water-saving technologies.



Source : United Nations' Department of Field Support, Geospatial Information Section with added information from Natural Earth, Global Delta Risk and Hydrosheds

Capacity building for informed use of water information

Training is a fundamental to improving information dissemination on water resources and, ultimately, to enhancing water use. In July 2021, DGPRE organized a training session on monitoring Sustainable Development Goal (SDG) Indicator 6.4 (increase water-use efficiency across, sustainable withdrawals and supply of freshwater and reduce the number of people suffering from water scarcity) and the AQUASTAT platform, as well as FAO's WaPOR and PROGRES databases. As a result, more than fifty national experts from Senegal were able to improve their knowledge of methodologies for calculating indicators related to water use efficiency and water stress levels.

The management of data and information related to water resources is also of critical importance. To date, Senegal has established the PROGRES database, which contains data on all hydraulic structures and their hydrogeological and hydrological characteristics as well as their localization. DGPRE, with support from KnoWat, updated this database and created a link to FAO's AQUASTAT information system on water and agriculture. As a result, the PROGRES database now better meets information needs on water resources in Senegal and facilitates international reporting requirements under the SDGs.

A group of experts – drawn from several organizations – has been established to coordinate the monitoring of water resources and withdrawals in Senegal and to ensure the regular updating of information on Senegal in the AQUASTAT global information system. The group facilitates the collection, tracking and analysis of data on water resources.

Long-term availability and up-to-date data

The KnoWat project and its national partners in Senegal have designed and adopted an action plan to strengthen and sustain the achievements of the project in terms of water accounting and auditing. This action plan provides for considerably improving the system for collecting, monitoring and using data and information on water resources. Further data collection missions are planned regularly to cover the whole country.

Further information

Use the QR code to learn more about the activities implemented in Senegal.



www.fao.org/in-action/knowat

Voices from the field

“In Senegal, the achievements of the KnoWAT project have been very useful for the water and sanitation sector, in particular for the DGPRE, one of the main beneficiaries of the project. This project has made it possible to improve knowledge on the withdrawals of surface and underground water resources in the Senegal River delta area through inventory missions, to identify all the agricultural users of the area, to categorize them depending on the volumes withdrawn, but also to monitor the variables of the water resources of the AQUASTAT platform.”

Mr. Bocar Abdallah SALL, Agronomist, Water and Sanitation Operations Officer for Program Planning, Coordination and Monitoring (CPCSP) of the Ministry of Water and Sanitation.

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Towards fairer and more sustainable access to natural resources for greater food security

Rwanda, Senegal and Sri Lanka (2019–2022)

All around the world, countries are struggling to adapt their agricultural and food systems to conditions of climate change and to extreme weather events such as long periods of drought or heavy rains. Water scarcity is expected to increase as is competition for water resources among users. Smallholder farmers are particularly vulnerable to changes in water access and availability: a sudden lack of water due to drought can mean lost income and food, threatening their lives and those of their families. For these reasons, major efforts are needed to address the links between water scarcity, food security and livelihoods in our changing climate.

The KnoWat project takes an integrated approach to water resources management that includes water accounting, water productivity, water governance and water tenure assessments. **Water accounting** is the systematic study of current status and future trends in water supply and demand in a given spatial domain. **Water productivity in agriculture** signifies the ratio between yield and the water consumed by a crop. To support water accounting and productivity assessments, the KnoWat project built the capacities of key partners to apply FAO's Water Productivity Open-access Portal (WaPOR). This tool assesses water consumption in agriculture and the water productivity of agricultural production using remote sensing.

Water governance assessment looks at the broad framework of institutions, finance and the political economy. To better understand water governance processes, the project developed and tested a **new methodology to assess water tenure**, the formal and informal arrangements used to access water. The assessment of water tenure aims to understand the different relationships between people and water resources.

Enriching our knowledge around water through accounting, productivity, governance and tenure assessments helps policy and decision-makers to plan and implement **better policies**, with the ultimate goal of ensuring equitable water allocation for **better livelihoods, food security and healthy ecosystems**, even under conditions of growing water scarcity.



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National activities were implemented in collaboration with the National Council for Consultation and Cooperation of Rural People (CNCR), the Directorate of Management and Planning of Water Resources (DGPRE) and the *Société d'Aménagement et d'Exploitation des terres du Delta et de la Vallée du fleuve Sénégal (SAED)*.



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