



**GMES
AND AFRICA**



Support for the fishing community in the Tocc-Tocc Community Natural Reserve in Senegal by regularly monitoring the dynamics of invasive aquatic plants.

BACKGROUND:

As part of the implementation of the GMES&Africa Program, the Centre de Suivi Ecologique (CSE), has been coordinating the Sustainable Management of Wetlands for the Strengthening of Food Security and Ecosystem Resilience in West Africa (GDZHIAO) project since 2017.

This project implemented in ten (10) West African countries, has developed a service entitled Wetlands Monitoring which is focusing on five applications/indicators to monitor: 1) surface water dynamics; 2) extent of mangroves; 3) extent of invasive aquatic plants, 4) soil moisture and 5) water turbidity. This service, which was primarily designed for the sustainable management of protected areas and RAMSAR sites in particular, facilitates the day-to-day work of technical services in charge of natural resource management, as well as indirectly that of ministerial departments required to make decisions. The case study presented in this document to the monitoring of aquatic vegetation in the Tocc-Tocc Community Nature Reserve managed by the *Direction des Parcs Nationaux (DPN)*.





END-USER'S PROFILE (BENEFICIARY ORGANIZATION):

The DPN is the Senegalese institution responsible for state policy on the management and conservation of biodiversity. Its main mission is to conserve the fauna and flora heritage of protected areas and wetlands, and to ensure the integrity of the country's National Parks, Nature Reserves and Marine Protected Areas, as well as compliance with regulations in protected areas.

To this end, it ensures regular bio-ecological monitoring of all Senegal's protected areas, including the RNC of Tocc-Tocc, a wetland site of exceptional ecological interest with RAMSAR label, adjacent to Lac de Guiers.



END-USER'S NEEDS:

In Senegal, the DPN is the main beneficiary of this wetland monitoring service, in particular with the application to monitor invasive aquatic plants in the RNC of Tocc-Tocc. In fact, fishing is the third most productive activity in the area around Tocc-Tocc, providing a main source of food for around 1,700 villagers, but it currently plays a minor role in the local economy due to a number of limiting factors, including the invasiveness of the water body by aquatic plants, which form a barrier around almost the entire perimeter of the lake, thus restricting landing points for fishermen, degrade fish habitat, and decrease water open area.



In this context, the DPN's main need is to have near-real-time access to maps showing the location of aquatic plants, in order to facilitate mechanical control by mowing, thus allowing the fishing community to be able to navigate in safety, reduce time spent navigating and limit the trapping of fish.

INFORMATION PROVIDER:

To meet the DPN needs, CSE Consortium has developed, from Copernicus data (Sentinel images), an application, accessible via the GDZHIAO platform (<http://gdzhao.gmes.cse.sn>), which makes it possible to assess the extent of invasive aquatic vegetation in near-real time, and to generate maps and histograms every 6 months which show its spatial distribution and temporal dynamics.





**GMES
AND AFRICA**

African
Union



CSE
Centre de Suivi Ecologique

**Supporting Local Municipalities of Bobo-Dioulasso
and Ouagadougou to Deal With Vulnerability to Flooding**

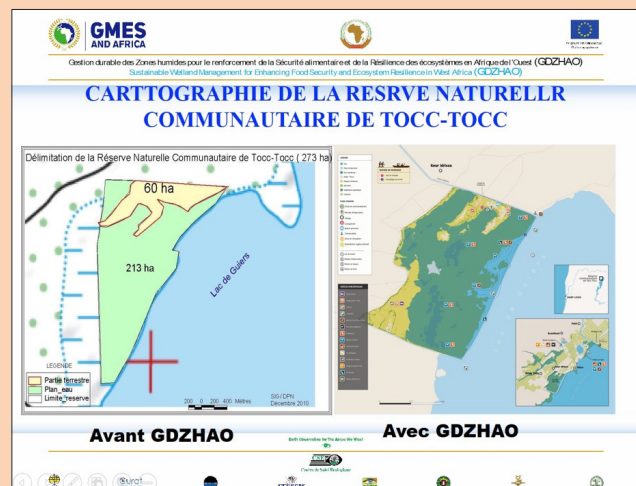
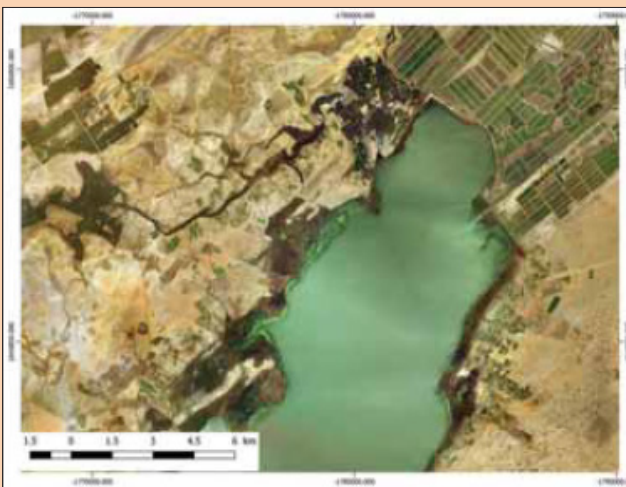
USAGE:

Thanks to various capacity-building sessions on the use of earth observation data and the GDZHIAO Geoportal, DPN curators can now connect to the platform to either visualize the distribution of invasive plants, or download and print maps and histograms directly showing obstructed areas. This information is used not only to inform fishermen about possible passageways for pirogues, but also to identify priority areas for invasive plant removal (mowed or burnt) in order to reduce the risk of eutrophication.



IMPACT:

With this application, the DPN services have better visibility of the spatial extent and temporal dynamics of these invasive plants. This considerably reduces the time needed to identify the areas to be burnt or mowed, with the reduction of the number of people involved in situ, and in the amount of fuel used by mowing vehicles. Thanks to this information shared regularly, fishermen are less exposed to possible accidents due to the presence of these invasive plants; the use less fuel to navigate because the lanes are clear.





**GMES
AND AFRICA**

African
Union



CSE
Centre de Suivi Ecologique

**Supporting Local Municipalities of Bobo-Dioulasso
and Ouagadougou to Deal With Vulnerability to Flooding**

OUTREACH:

The GDZHIAO Consortium has received positive feedback from the Tocc Tocc conservation team, notably by email, via the Geoportal, during capacity-building or raising awareness sessions. Some sessions were organized in collaboration with the DPN to raise awareness several users of earth observation data at national level, on the existence of this application among others. Overall, the feedback has been useful for improving the products provided for monitoring invasive aquatic plants in all relevant sites of the project.



Surat
Centre National de Recherche et d'Innovation



CERSGIS

