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## **Extended Abstracts**

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title: **Transboundary water resources management between  
Tunisia, Algeria and Libya Aquifer NWSAS**

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The North Western Sahara Aquifer System (NWSAS), shared by Algeria, Libya and Tunisia contains considerable water reserves, which are nevertheless lowly renewable and not fully exploitable. During the last thirty years, the exploitation of NWSAS waters by drilling increased from 0.6 to 2.5 billion m<sup>3</sup>/an. Because of the non-concerted withdrawal multiplication, the resources is now confronting many risks such as water salinity, artesianism reduction, natural discharge depletion, piezometric level fall, or interferences between countries, thus seriously threatening the sustainability of socio-economic development in the entire zone.

In the face of such risks, a cooperation process between the three countries sharing the NWSAS water resources is crucial. This is the spirit of the NWSAS project facilitated and implemented by the Sahara and Sahel Observatory (OSS) in collaboration between the three countries. The joint work has focused its program on the scientific stakes in the first place, enabling a significant knowledge improvement of the aquifer system, based on information exchange and a joint definition of working hypotheses among the three countries. The simulations by the mathematical model built within such framework have highlighted the most vulnerable areas in the medium and long terms. They have also enabled identifying new withdrawal zones that could increase the current exploitation while ensuring risk control through a reinforced consultation among the three countries.

To this effect, the scientific cooperation is gradually leading to the establishment of a formal institutional framework for the management of shared water resources among the three countries, i.e. the consultation mechanism.

This paper presents the main obtained results from the implementation of the different components of the project: Hydrogeological data collection, analysis, and synthesis; elaboration of a common database and an information system; development and exploitation of the NWSAS mathematical model and the regional sub-models; establishment of a consultation mechanism for the basin joint management, socio-economic study; and environmental study.



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