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## **FREEWAT a water management tool enhancing the participatory approach in the Stampriet aquifer system region**

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FREEWAT - FREE and Open Source Software Tools for WATER Resources Management - is an EU Horizon 2020 project run by a consortium of 19 organisations cooperating to integrate, test and propagate the use of existing and new computational tools for water management. FREEWAT main deliverable will be an open source GIS-integrated modelling environment for quantitative and qualitative aspects of surface- and groundwater management. The core of the FREEWAT platform is a framework based on MODFLOW 2005 and integrated within the QGIS desktop [1]. The platform integrates the following components amongst others: a dedicated module for calibration, uncertainty calculation and sensitivity analyses of the model; a module for solute transport in the unsaturated zone; a module for crop growth and yield and rural water management, and tools for the analyses, interpretation and visualisation of the hydrochemical data [2]. Most of the codes integrated in FREEWAT come from the USGS family (such as the new MODFLOW – One Water Hydrologic Flow Model, OWHM).

IGRAC role in the FREEWAT consortium is to contribute to capacity building, data preparation for the Stampriet case study and to dissemination of project-related information. IGRAC and UNESCO-IHP are working in close cooperation on the Stampriet case study and will bring to FREEWAT their expertise in groundwater governance and experience gained in the GGRETA project (Governance of Groundwater Resources in Transboundary Aquifer). IGRAC will also introduce the GGIS - Global Groundwater Information System - to the consortium partners.

Stampriet case study is a large transboundary aquifer system shared by South Africa, Namibia and Botswana. Groundwater is the mayor sources of domestic and agricultural water supply in this region. This aquifer is considered to be relatively vulnerable to overexploitation and contamination [3]. The management of the aquifer system is even more challenging because of its transboundary nature that hampers data availability and exchange. Through promoting a cooperative environment among water specialists, policy-makers and implementing agencies, FREEWAT will encourage and enhance a scientific and participatory approach in water resources management. Large stakeholders' participation in FREEWAT case studies will provide sound feedback about the platform functionality and ensure its further use, also once the FREEWAT project is concluded.

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### References:

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