



Assessment of the current and future water balance of the Ouémé catchment (Benin) for an integrated water resource management by using the WEAP water planning model

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Today, fresh water has already become a critically scarce resource in many regions of the world. In many developing countries insufficient water supply infrastructure aggravates this problem. With the ongoing global change and population growth water security will become one of the major problems in the 21st century.

Regarding the annual water balance the West African Country Benin is not suffering from physical water scarcity. Nevertheless, investigations show that water scarcity occurs at the local scale, especially at the end of the dry season. This is caused by reduced water availability in this period and particularly by the inadequate water supply infrastructure. Facing the impacts of climate and socio-economic change, an assessment of the national water resources is an important step to assure a sustainable water resource management and to satisfy the raising water demand of Benin in the future.

In the presented study the WEAP water planning model was used to analyse the current and future water balance of Benin's largest catchment Ouémé. To take into account the possible impacts of climate and socio-economic change, two IPCC scenarios (A1B and B1) and three socio-economic scenarios were simulated for the time period 2002-2025.

The results show that the pressure on Benin's water resources will increase, due to population growth and changing socio-economic conditions. This leads to a greater competition for surface water especially during the dry season. Improving the access to groundwater is an alternative; however, financial and institutional constraints hinder such a development. Furthermore, declining catchment inflows and groundwater recharge aggravate the situation and require an adapted groundwater management.

Beside the scenario results the presentation will also examine the uncertainties of the modelling process with WEAP. Furthermore, the suitability of the model in supporting a sustainable and integrated water resources management in developing countries will be discussed.