

# **Study of the Sustainable Water Resources Management at the Upper Euphrates Basin, Iraq**

**Sura Mohammed Sameer, Ayad Sleibi Mustafa, Jumaa A. Al-Somaydaii**

This study aims at developing the aspect of sustainable management of water resources in the part of the upper Euphrates basin to extend the year 2035 by using the Water Evaluation and Planning (WEAP) model. Water budget was developed to assess the current water conditions for the reference year 2015 based on available water supply and the increasing demand for water uses. Some of the proposed scenarios have been applied to the WEAP model. The results showed that the total water demand in 2015 was 100 MCM, and it will rise to 400 MCM in 2035. With the emergence of a water deficit, it is expected that 38 MCM, will be fully provided by applying modern irrigation methods. However, when applying the wastewater reuse scenario, it was found that the water deficit reaches 35 MCM. On the other hand, the water deficit has been approximately decreased to 16 MCM when the groundwater scenario was used as an additional source of water supply. The results confirmed the necessity of adopting alternative methods to reduce the water deficit, as well as the ability of the WEAP model to represent the study area.