INFILTRATION ASSESSMENT OF TRANSFERRED WATER IN THE MANAGEMENT OF A MEDITERRANEAN ARTIFICIALLY MAINTAINED WETLAND: LAS TABLAS DE DAIMIEL NATIONAL PARK (SPAIN)

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INTRODUCTION

The Tablas de Daimiel National Park wetlands (Central Spain) had their main origin in discharges from the West La Mancha aquifer. Once inflows ceased due to aquifer intensive exploitation, the progressive deterioration of the wetlands brought about several attempts of remedial actions like building of little dams and groundwater pumping to Las Tablas basin. The main one of such actions is the transbasin transfers from Tajo basin, although part of the water is lost within the wetland due to infiltration.

Current studies exist in order to assess CO variations, which are significant due to general geographical settings and sedimentary nature of the area. In order to carry out this characterisation, it is essential to know natural and human-induced variations in the hydrological state of the wetland. In this case, water losses from the system have a direct impact upon storage volume and flooded surface.

INFILTRATION AND PONDING ASSESSMENT

Infiltration becomes an essential parameter in the attempts to maintain water in the basin and, therefore, in the integrated management of wetland-related water resources. The actual extent of infiltrated losses is difficult to quantify due to the poor quality of existing data as well as to the indetermination of various important parameters.

A methodology for estimating a preliminary infiltration coefficient has been developed (Martínez-Alfaro and Castaño, 2001). Such methodology works on the calculation of daily water balances while taking into account the geometry of the basin and the flooded area. A two-years period under influenced-regime conditions was considered: 1996, when water from Tajo basin was transferred to Las Tablas, and 1997, when extraordinary surface runoff took place. The calculated infiltration coefficient was 10 mm/d. Complementarily, PEST software has been applied to a specific program designed to calculate the water balance in Las Tablas. The estimated parameters were the infiltration coefficient and some geometrical values. The results were similar to that used in the preliminary balance. The balance was calculated using the flooded area, so the program can be utilised for the integrated management of water in the National Park, in the aquifer where part of the infiltrated water recharges and in the Tajo basin, where the transferred water comes from.

RECOMMENDED BIBLIOGRAPHY


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