

System of Integrated and Dynamic Water Balance of El Salvador

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Abstract

Between 2003-2005 the Integrated and Dynamic Water Balance was made in El Salvador, specifically in the quantification of superficial water resources component. Having in mind the necessity to update it permanently was developed the systematization of the calculation processes, and several scenarios of land use, climatic variations and variations in demand were included. Subsequently, the system of the calculation of the demand of the different types from consumption and the component of estimation of underground water charge were included. As a final result, the system determines the Index of Shortage at river basin level, which relates the total demand to the water availability, for any period.

Keywords: System, Water Balance, Integrated and Dynamic, Scenarios, Projections, Index Shortage

Introduction

In 2005, the Servicio Nacional de Estudios Territoriales of El Salvador, SNET, made an update of water balance of its water supply component, after 25 years ago that the Water Resources Master Plan was made. This update has the limitation to be a static result for a 30 years period between 1971 and 2001. With the objective of to have more dynamic results, which reflect the hydro-climatic conditions and the variability of land use changes, SNET designed and made the Dynamic and Integrated Water Balance System, in which it is possible to calculate the results of the variables involved in the water balance for any period of time (annual, monthly, year by year or years interval) for surface water, underground water and water demands to calculate a river basin level Shortage Index that reflects the water use condition as a function of its supply. For the development of the Calculate and systematization of underground water and demand modules, the enterprise Nippon Koie was contracted, these modules were linked to the total system. The whole system allows establishing several scenarios of land use changes, hydro-climatic variations and demand changes, which is an analysis tool to asset the impacts due some of these effects.