ASSESSMENT OF WATER RESOURCES IN DHAMAR GOVERNORATE, YEMEN REPUBLIC

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Abstract:

Being a country with limited freshwater resources, Yemen facing a water crisis due to rapid depletion of groundwater and the lack of surface water availability. Dhamar governorate, which is located about 100 km from the south of Sana'a (the capital), is one of the arid regions in the country. This research aims to explain the current situation of water resources and to get better planning for water resources management in the governorate. The rainfall is low and have spatial and temporal variation as well as the non-renewable groundwater abstraction is high. Previous studies in Dhamar plain showed that the total inflow and outflow were approximately 659.36 and 771.51 MCM/year respectively, which gives negative change in storage of about 112.15 MCM/year. Groundwater table declined in the last 40 years at a rate of 2.0 to 2.5 m/year, because of the high abstraction of groundwater from the entire area. It is predicted with the growth rate of 2% in water abstraction, which is normally expected in developing the economy, the shallow groundwater would be exhausted within the next 30 years. In Dhamar plain, it was found that the irrigation supply for irrigated areas of single, double and perennial crops were about 90, 95 and 95% from groundwater while the remaining percentage supplied from surface water. In general, the classification of cultivated area according to the sources of irrigation not only in Dhamar plain but in all the governorate in 2013 was about 27 and 73% from groundwater and surface water respectively, which was changed in 2015 to 39 and 61% respectively. This means that there is a probability stress on groundwater in the future in agriculture sector. Better water resources management and conservation with planning are very important to apply in the governorate to solve the problem of water shortage in the future and conserve the non-renewable water resources. From this study, different scenarios suggested to adopt with the scarce in water resources.

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