

Underground and Superficial Water Extraction Impact in Jordan

Abu-Rukah. Y. Dept. of Earth and environmental sciences-Yarmouk University, Irbid – Jordan Fax: 00962-2-7274725 E-Mail: yaburukah@yu.edu.jo

Jordan lies in the Mediterranean sea region, with arid to semi-arid climatic condition. Jordan total land is 89.800 Km² with a population of about 4.41 million. Rainfall is considered the main source of water resources. The distribution of rainfall in time and space is regular, due to topographic features. Rainfall varies from 500 mm to less than 50 mm. The quantity of average rainfall which falls on Jordanian territories was calculated to be 8.425 MCM / yr, whilst it ranges between 6.235 MCM in dry years, and 10.630 MCM in wet years of which 92.2% evaporates back to the atmosphere, and the rest flows in rivers or wadis as flood flows, and recharge to groundwater, Hegazein (1991). Groundwater consumption for all purposes amounted to 484.207 MCM in 1997 as shown below: 177.557 MCM for drinking. Purposes -35.343 MCM for industrial purposes. -266.189 MCM for irrigation purposes. -5.118 MCM for pastoral purposes. Water demand in Jordan is rapidly increasing due to increased demand for development and the high rate of growth in population (more than 3.5%). Groundwater is used by industry, and agriculture throughout the country. Legislation relating to the environmental protection and conservation of water resources is included in the "Water Authority's law of 1983", regulation N (. 26/1977 on groundwater monitoring and standard specification N (202. Enforcement of the regulations is entrusted to Water Authority of Jordan (WAJ). All major industries are required to have appropriate waste treatment facilities. The volume of private groundwater abstraction for industry, and for agriculture is increasing, and there is concern that resources are being depleted; accordingly controls have been introduced. Well drilling licences are issued only by WAJ for specific volume of water to be extracted per year. The number of new licenses granted has greatly decreased over recent years and cover an area of more than 80% of the country, Hegazein (1991).