

Overview of Quantity and Quality of Water Resources in the Faria Catchment, Palestine

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Abstract:

This paper presents, describes, and discusses the quantity and quality of the water resources in the Faria catchment. Faria catchment (320 km²), located in the northeastern part of the West Bank, Palestine is characterized as arid to semi-arid region. In the catchment, water resources are either surface runoff or groundwater. Surface runoff in the Faria catchment is considered high compared to other catchments in the West Bank. Most surface runoff generated in the catchment is usually lost in winter as there are no storage structures in the catchment to store that excess water. The groundwater aquifer system of the Faria catchment is usually utilized through springs and wells. Within the catchment, there are 13 fresh water springs and about 65 groundwater wells. Based on the available data, annual discharge from springs varies from less than 4 to almost 40 MCM with an approximate average amount of 14 MCM. While the total annual utilization of the groundwater wells ranges from 4.4 to 11.5 MCM. During wet years when the springs discharge are high, abstraction from wells reduces while pumping increases in dry years. Sampling and analyzing water quality for different water resources in the catchment revealed that most of these resources are polluted with different levels of potential environmental risks. The upper catchment springs, which are far away from the pollution source of untreated municipal wastewater, are polluted from cesspits. Detected Fecal coliform bacteria, in these springs, indicate cesspits are the potential source of pollution. In the middle areas, wells and springs water qualities were increasingly affected from untreated municipal wastewater. An increasing trend of chemical and biological pollution was found in groundwater wells and springs therein. Downstream of Ein-Shibly spring, the last spring in the middle part of the catchment, streamflow (spring flow and the remaining untreated municipal wastewater) is diverted into a conveyance pipeline. Therefore, the risk of pollution of the downstream wells is eliminated.

Keywords: Faria Catchment, Groundwater Wells, Springs, Water Quality, and Untreated Municipal Wastewater

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