	**Title: The Use of Economic Water Allocation Models in Regional Planning – Tulkarm Governorate a case study**
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Abstract:

The shortage of water resources in Palestine in addition to the political situation makes the efficient and sustainable water resources management very difficult and faces many challenges to fill the gap between the demand and the existing and available supply. This thesis focuses on developing a model using the MyWAS/WEAP tool which is an optimizing tool designed specifically for Palestine, Jordan and Israel. This model is a powerful and innovative tool that enables the cost- benefit analysis and can be used as a DSS to guide decision makers at all levels of water management. The Tulkarm governorate was divided into four clusters (Al Kafriyyat, Deir Al Ghusun, Tulkarm, and Anabta) and the needed data to build the current account model were collected and analyzed. Three proposed future scenarios were suggested and they are: Status Quo scenario, Full Application of the Oslo Agreement scenario, and Water Spring scenario.

Under each scenario of the above, a set of management options were suggested, such as development of new renewable water resources, wastewater reuse, rainwater harvesting, water import from Mekorot, and demand management. In the Status Quo scenario, the current conditions in Tulkarm governorate is not feasible to continue as it is. The average shadow values for each cluster in the governorate decreased to reasonable values after applying the management options. Under the Water Spring scenario, the shadow values are accepted and feasible. The average shadow value for domestic is 5 NIS and for the agriculture is 3.25 NIS.

Based on the three scenarios, the wastewater reuse is a necessary management option in Tulkarm governorate. Also, the rainwater harvesting is a preferable management option as it has a very low operation and maintenance cost. A leak reduction program should be adapted as soon as possible from the Tulkarm Municipality to reduce the water loss in the governorate.