

## ABSTRACT

The Hebron stream has been suffering for over three decades from a variety of domestic, agricultural and industrial pollution sources together with development pressures in the city of Hebron and illegal Israeli settlement “Kiryat Arba” in the open spaces that surround the stream.

The stream entails discharges from 172 stone cutting firms in total, 145 only covered by this study concerning the consumption and discharge of an amount 1252 m<sup>3</sup>/day into the stream with more than 2000 mg/L of TSS and more than 10000 NTU of turbidity, and that was reflected into GIS maps describe the daily consumption and discharge, type of treatment, and how the wastewater discharged.

The study also covers the current situation of treatment units in industrial zone of Hebron and it concludes that the decentralized treatment system is the better and more affordable than the centralized system.

In this study an investigation done to check the technical feasibility of using two types of coagulants (Polymer, and Ferric) using lab jar test to investigate their effects on both TSS and turbidity under certain rotation, waiting time for each sample.

It was found that the best coagulant to be used is the Electro-Polymer with a concentration of 0.5 mg/L at 120 RPM for 1 min and waiting time 12 minutes.

It was recommended to implement a full-scale decentralized treatment project that includes all the stone cutting firms in Hebron industrial area is required before building and developing a municipal treatment plant on the stream, and benefit from the solid cake that discharge after the treatment into local industries.