

Summary

The use of statistical models derived from monthly average water consumption forms an approach of forecasting future water demand for different municipal purposes. Three forecast models are identified, model parameters estimated, and the forecast models are derived using actual records of municipal water consumption from two cities; Amman and Kuwait.

The purpose of this research was the identification of the most appropriate model out of the three models. All three models; the additive regression model, the multiplicative regression model and Winters' model proved to be effective in forecasting future monthly water demand.

The additive model achieved a coefficient of determination " R^2 91.8 %" for the city of Amman and "98.33 %" for the city of Kuwait. While the multiplicative regression model had a coefficient of determination of " $R^2=92.45$ %" for the city of Amman and "99.21 %" for the city of Kuwait. The econometrics (Winters' model) achieved a slope of best fit line of "0.859" for the city of Amman and "0.997" for the city of Kuwait.

Finally, it was found that no general forecast model can be utilized for all cities which indicated that it is the data which determines the type of model and not the opposite.