Chanthaburi River Basin , located in the Eastern Region , has a catchment area of 1,722.00 square kilometer. The natural flow at the basin outlet is approximately 2,103.97 MCM per year (Million Cubic Meters per year). At present , there are only a few completed water resources development projects in the basin.

This research is to develop a flow forecasting program using Visual Basic based on statistical methods , namely , Adaptive Filtering , Lag-One Markov Process , Winters' Method and Decomposition model. The results from each model are compared in order to find an appropriate flow forecasting model to be used for a generic river basin. The research is also to manage related data in a database form and simulate a mathematical model using RiverWare , a software program for water resources management.

The results of the research show that none of the flow forecasting models using Adaptive Filtering , Lag-One Markov Process , Winters' Method or Decomposition method gives good results when they are compared to observed data. The multiple regression analysis method is then selected to forecast the flow.

The study of river basin system shows that the total amount of present water demand of the basin is 286.79 MCM per year and the existing reservoir storage of 96.118 MCM is sufficient enough to serve such demand. However , the river flow of 1,771 MCM per year is still unused. From the study of the potential of water resources development in the basin , it is found that the total amount of water demand will be increased to 501.60 MCM per year in the future and the future reservoir storage of 179.872 MCM will be sufficient enough. However , there will be unused river flow of 1,627 MCM per year.