Chapter VII

SCOPE AND AREAS FOR FURTHER RESEARCH

Presently advancement in the most sophisticated technology can bring specific magnitudes for many parameters which are having direct and indirect impact on the watershed management. More advanced technology in the field of GIS and remote sensing techniques can be use for the demarcation of areas having more thrust has to be bestowed as there the lacuna in management techniques are visible. Water quality analysis can also be improved using the advancement in the water quality analysis techniques and the modelling techniques can be incorporated for the anticipatory management techniques for the distribution and allocation of water resources. The following aspects have to be studied more micro level so that the changes in the variables mentioned in the analysis part can be qualified and qualified more precisely.

(1) Base maps with more precise scale ie 1:10000 or more than that of 1:5000 scale has to be used for analysing in the cadastral level so that more accuracy can be assured while analysing the direct and indirect variables.

(2) More advanced softwares have to be incorporated for the topographical analysis so that the micro level features have to be evaluated for depicting out thematic maps according to the requirements. The spatial data and attribute date analysis can be done more accurately according the availability of these data

(3) More direct variables have to be included so as checking the trends of the variables with respect to the corresponding changes. These variables have to be quantified by collecting the primary as well as the secondary data by incorporating more departments according to the requirements
(4) More water quality analysis have to be done by taking random samples from more places and more frequency and the parameter analysis have to be incorporated with more advanced and sophisticated technologies so that the unidentified parameters can be analysed and the trends of these can be analysed according to the changes in each variable with respect to time.

(5) More forecasting techniques like fuzzy analysis and fuzzy neural networking have to be envisaged so that anticipatory management techniques can be done for the formulation of an Early Warning System.

(6) More agencies in this field have to be incorporated such as Irrigation Department and Kerala Water Authority so that they can directly measure the seasonal changes in the water consumption and distribution patterns consistently. Collecting the reliable data from these agencies can be analysed for the development for the management system so that the policy measures can also be worked out in accordingly.

(7) More studies can be conducted to the distribution of population and transmigration of the people from different parts to Thiruvananthapuram City so that the anticipatory system can be predicted according the status of the water resources and the population distribution. The conventional water use pattern can also be worked out using the advanced relational database analysis.

(8) More analysis should be conducted according to the anomalies in the present water distribution system and find out all possible ways to resolve the problem using the comprehensive watershed management system of the near by river basin also. For that more similar studied have to be incorporated so that those methodologies of the similar conditions can be adopted for the formulation of management techniques.
Advancement in the field of Remote Sensing techniques and the Digital Image Processing can also be incorporated to furnishing more precise and accurate results in both spatial and non-spatial data analysis. More ground truth surveys have to be conducted in those areas which are already demarcated as the areas where the water scarcity is predicted according to analysis conducted.

Development of a comprehensive software according to the dynamics in Hydrology Geology Geomorphology, Population studies, Hydro Chemistry and Environment Management so that direct interactive system can be developed and that can be attached with internet so that management experts can get the assistance of this from any part of the world.

More concentration has to be imposed on finding out the anomalies of the present water use management also. An extensive expert opinion studies incorporating more departments and experts so that the comprehensive brainstorming exercise have to be done for the final analysis of the direct and indirect variables associating with the river basin. More reliable data also to be collected in the micro level so that this gives an outlook on the current environmental status and there by the variables can be quantified for developing a decision support system.