CHAPTER 8

SUMMARY AND CONCLUSIONS

8.1 SUMMARY

The study on wastewater reuse has clearly demonstrated that treated wastewater of urban and industrial origin could be used successfully in agriculture.

The studies in the laboratory and fields have shown that treated wastewater reuse show better yield and efficient utilisation of nutrients in wastewater thus reducing the requirements of artificial fertilisers.

The studies to find the long term effects of urban and industrial effluents have shown that crop cultivation is beneficial. Forage grasses are found to be ideally suited for urban wastewater irrigation. Heavy metal accumulation in soil and plants were well within permissible limits. Ground water contamination with nutrients or heavy metals were not detected.

The collective opinion of experts on the issues of wastewater irrigation has also indicated clearly that reuse for irrigation is a clear option for better management of our water resources, since the volume of wastewater is projected to increase significantly in future. The development of industries, urbanisation, increased population and need for more agricultural uses will lead to stiff competition for the precious water resources. As agricultural could still use suitably treated wastewater, the reuse could be thought of as augmentation of an alternate source of water.

The populations and the water supply and wastewater generation scenario for India and Tamil Nadu, by experts have included that the area under
wastewater irrigation will increase. The specific case on Madras city, where water supply position will improve with the completion of Krishna water project it has indicated that the present net work of wastewater collection and treatment has to be strengthened.

Treated wastewater when used for forage grass cultivation can fully meet the forage requirement in the city and partially meet the industrial water requirement. Any additional quantity of wastewater available could be treated and used for landscape irrigation, as better quality water will not be available for this purpose in future.

8.2 CONCLUSIONS

The following are the conclusions of the studies on wastewater reuse in irrigation carried out in the laboratory, fields and future scenario based on Delphi study and using Geographic Information System.

a. The crops like paddy and ragi are suitable for cultivation under treated wastewater irrigation. Fertiliser requirement is considerably reduced.

b. The soils of difference textures when subjected to wastewater application show changes in SAR, CEC and ESP however the changes were not alarming.

c. Treated urban and industrial effluent use even after prolonged periods in soil do not cause deleterious effect on soil physical and chemical properties, yield of crops and on ground water quality.

d. The consolidated opinion of experts on the future of wastewater reuse, found through a two round Delphi has shown that, wastewater reuse in agriculture is alternate source of irrigation water.
e. The use of GIS in studying the future reuse options for Madras City has also shown that forage cultivation using treated water and industrial wastewater use are to be continued in future. Apart from these, landscape irrigation could be attempted to utilise any excess treated wastewater that is available.

Thus the study has demonstrated the use of wastewater in agriculture as equivalent to creating an alternate source of water.