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**IMPACT OF LAND USE ON THE WATER QUALITY
OF THE BATTICALOA LAGOON**

Thesis presented by

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ABSTRACT

Water bodies support life and civilization. However due to modern lifestyles the life of water bodies is threatened. There are many types of water bodies in Sri Lanka, such as meandering rivers, lagoons, ponds and ancient historic tanks, many of which were built for paddy cultivation and for ceremonial bathing of our former queens.

The Batticaloa lagoon is of much interest because of the 'Singing fish', Giant size of lobsters and its aesthetic beauty. It is part of the livelihood of the people along the lagoon. However a stench of hydrogen sulfide and of decaying fish arise from some parts of the lagoon during dry seasons and rainy seasons respectively. In addition, settlements and industries surrounded the lagoon in the municipal areas discharge their effluents into the lagoon. It has now become very important to investigate the hygienic conditions of this precious lagoon.

The present study "Impact of land use on the water quality of the Batticaloa lagoon" investigates the water quality of the lagoon as affected by different land uses. The main purpose of this study is to find answers to the following questions.

1. Does the land use affect the water quality of the Batticaloa lagoon?
2. What are the different aspects of land use, which affect the water quality of the Batticaloa lagoon?
3. How do the different aspects of land use affect the water quality of the Batticaloa lagoon?
4. What are the conservation strategies to improve the water quality of the Batticaloa lagoon?

In this study the information about land use changes, water quality and quantity problems and economic activities of the people surrounding the lagoon were gathered through interviews, questionnaires and fieldwork and from government departments and utilities. To this end the land use patterns were investigated over the last 18 years, both by interviews and investigation of land use through the technique of Geographical Information Systems. The pollution pattern of the lagoon water was studied by chemical analysis. Twenty-five sample sites were selected for the water analysis according to the land use distribution from Eravur (Batticaloa District) in the north to Periyaneelavanai (Amparai District) in the south.

It was found that the pollution levels varied seasonally due to high agricultural activities, unplanned human settlements and industrial activities around the lagoon. To preserve the life and aesthetic appeal of this lagoon, it may be necessary to keep the sand bar open even during the summer. This will prevent the drying of water wells in the region as well. In addition to the monitoring of sewage treatment and garbage dumping along the lagoon, selection of suitable sites for agriculture, settlements and industries will also help to improve the water quality of the Batticaloa lagoon.