

**MULTIPLE USES OF SUB-URBAN TANKS:
A CASE STUDY BASED ON BORALESGAMUWA LAKE**

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Degree of Master of Science

Department of Civil Engineering,

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Declaration

I declare that this is my own work and this does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or Institute of higher education and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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This is to certify that this thesis submitted by Eng. Medhani A. Jayakody is a record of the candidate's own work carried out by her under our supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

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Abstract

Among inland water bodies, lakes are relatively stable in contrast to rivers. This has favoured local residents using the lakes in fulfilling their needs for a number of uses and services such as sources of drinking and other domestic purposes, agriculture, energy production, mode of transport, very attractive opportunity for recreation and leisure space. The lakes provide fishing opportunities and irrigation facilities for the community as a source of living.

Boralessgamuwa lake is situated within the Colombo suburbs giving an aesthetic value to the area. This is a valuable water body in several aspects and there are requests and proposals arising from the surrounding community, political authorities and governmental and non-governmental organizations to improve the Boralessgamuwa Lake for several uses such as irrigation, recreational activities, leisure space for community as to develop ecotourism, aquaculture and flood detention. Even though there are such uses, water pollution, solid waste disposal in and around the lake and negative social impacts from visitors could have to be managed in a social and environmental friendly manner, in order to minimize the negative impacts happening to the lake.

In this research, the Boralessgamuwa Lake resources are valued towards determination of its **Total Economic Value** considering the values of the lake resource such as Direct Use Value, Indirect Use Value, Option Value, Bequest Value and the Existence Value. A questionnaire survey has been conducted, among the users of the lake resources and surrounding community as a methodology for obtaining such values. There, people were asked directly to state their **Willingness To Pay** towards each value. Then the Total Mean Willingness To Pay was obtained by averaging the Aggregate of individual Willingness To Pay Values. It was estimated at Rs.379.11.

Finally, the negative impacts of this valuable water body are discussed in detail proposing a **Management Plan** for the Boralessgamuwa Lake. Therefore, the study provides an example for the environmentally sound Management Plans of suburban lakes while highlighting their Total Economic Value.

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