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# RAINWATER HARVESTING IN THE CONTEXT OF CHANGING SOCIAL AND ECONOMIC TRENDS IN COLOMBO METROPOLITAN AREA, SRI LANKA.

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This dissertation was submitted to Department of Civil Engineering of the  
University of Moratuwa in partial fulfillment of the requirement for the Master of  
Engineering degree in Environmental Water Resources Engineering and  
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University of Moratuwa



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**DEPARTMENT OF CIVIL ENGINEERING,**  
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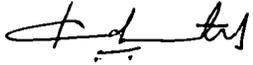
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## DECLARATION BY THE CANDIDATE

I declare that the work included in this dissertation in part or whole has not been previously presented for any other academic qualification at any institution for a higher degree.



Eng. Anusha Adhietty

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## ABSTRACT

The objective of this research work is to investigate whether rainwater harvesting can satisfactorily reduce the social and economic impact on the population, resulting from development and increasing water tariff within the Colombo metropolitan area of Sri Lanka.

The vision of the government of Sri Lanka is to stimulate substantial growth, by developing the Colombo metropolitan area, which will be a hub of economic and development activities in the 21<sup>st</sup> century. This will result in a major increase in the demand for suitable water, which is presently met by surface water resources. The population in the area will encounter serious problems of using ground water due to lack of lands to dig wells and the issue of increasing ground water pollution.

Thus people will have to depend on pipeborne water for their domestic needs. However due to increasing water tariff, many have found difficulty in paying their water bills. Non-payment of water bills result in disconnection of water supply. Unlike other services such as electricity and telecommunication, water is a critical human need and people experience adverse social pressures without access to adequate amounts of water. Hence it is vital to seek alternative measures urgently.

The use of rainwater as a supplement to pipeborne water to fulfill the non-potable water demand, will be an attractive alternative for the water problem in Colombo metropolitan area. Developing a spreadsheet based method on past rainfall data is a valuable tool for decision makers to make a rapid preliminary assessment about the likelihood of success of a rainwater harvesting project. The methodology requires daily rainfall, roof area harvested, storage capacity and daily demand as parameters.

The cost effectiveness of using rainwater harvesting as a supplementary source to pipeborne water to alleviate the social and economic burdens of the population, is demonstrated by a cost analysis.

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