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**GIS BASED MODEL FOR POTENTIAL LOCATIONS OF
MINI HYDROPOWER PROJECTS**

A PROJECT REPORT PRESENTED BY

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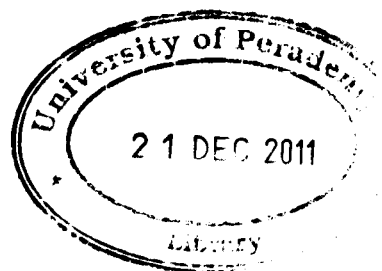
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ABSTRACT

The latest researches revealed that the energy demand of the country is increasing by 7 % – 8% per annum. More than 30% the population in Sri Lanka are living without access to commercial electricity. Therefore, to meet the increasing demand of energy unused energy resources such as hydro, biomass, solar, wind etc. to be exploited in full potential. Today, the international community recognizes renewable resources as fundamental elements of an energy policy whose purpose is to pursue a sustainable development. The accomplishment of such policies has a particular effectiveness at regional scale because of the “local” character of these resources and their positive impacts on socio- economic development and local employment. The minimization of environmental impact is a further important aspect of the use of renewable compared to fossil fuels.

Hilly area in Sri Lanka encompass with natural rivers and streams. Therefore, hydroelectricity is a typical solution for energy scarcity in Sri Lanka. But finding a suitable location with suitable terrain (head), catchment, flow rate, and adequate rainfall is more complicated task.

Although hydropower is the most established renewable resource for electricity generation in commercial investments, it is of great importance that this kind of renewable energy should be further developed and become more attractive to investors of the public or private sector.

This study presents a GIS methodology to perform a preliminary selection of suitable areas and feasible locations for installing small hydroelectric power plants integrating multi-criteria.

Also calculation of the installed capacity of a mini hydropower project is another important and controversial matter that frequently discussed. Therefore, easy to use ArcGIS tool for hydropower capacity has also been built in the current study.

The ultimate result of the study is facilitating Sri Lanka's Sustainable Energy Authority with regard to finding suitable areas for mini hydropower projects and calculation of precise capacity of the proposed projects in order to achieve the sustainable energy goals of the country.