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**AVAILABILITY OF WATER RESOURCES WITHIN  
THE ATTANAGALLA OYA BASIN – A REVIEW**

A PROJECT REPORT PRESENTED BY

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to the Board of Study in Earth Sciences of the  
**POSTGRADUATE INSTITUTE OF SCIENCE**

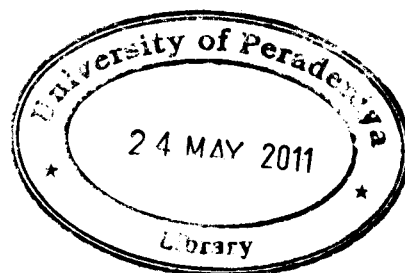
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# **AVAILABILITY OF WATER RESOURCES WITHIN THE ATTANAGALLA OYA BASIN – A REVIEW**

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Water resources in a given area mainly categorized as surface water and groundwater. Surface water occurs as streams, lakes, and wetlands, as well as bays, oceans and solid forms as snow and ice. Available amount of ground water in an area depends on soil types, land use patterns and underground hydrogeological set up with rain fall patterns.

The Attanagalla oya drainage basin in Sri Lanka is situated between two major river basins Kelani ganga and Maha oya. Main administrative district within the basin is Gampaha. It has increasing water demand due to higher population growth, rapid industrialization and urbanization. Main objectives of the study are to estimate available water resources and give proposals to improve intake capacities of existing water supply systems within the Attanagalla oya basin.

Water balance principal was applied to the basin to calculate water balance components using existing hydrological and hydrogeological data. Annual availability of surface water and groundwater resources within the basin for future usages was evaluated from the same principal. Annual runoff value as

available surface water is changing from 719MCM to 725MCM. Annual change of groundwater storage including groundwater in the unsaturated zone and excluding groundwater extractions is from 174MCM to 181MCM. Annual available surface resources for use are ranging from 450 to 455 MCM and annual available groundwater resources for use are ranging from 186 to 193 MCM including groundwater recharged during irrigation.

Surface water runoff to sea, groundwater discharge through underground flow paths to sea and other basins, natural water quality variations and industrial water pollutions are identified as main limitations for usage of available water resources. Attention should be paid to water conservation aspects such as storage of water through construction of surface water reservoirs, domestic rain water harvesting techniques, and groundwater recharge in suitable geological formations and pollution control to maintain sustainability of the available water resources of the basin.

The study approach could be used for other catchments during planning stage of water supply projects or schemes as well as expansion of existing water supply schemes.