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ECONOMIC EVALUATION OF SELECTED ENVIRONMENTAL IMPACTS OF SAMANALAWEWA HYDRO ELECTRIC PROJECT

BY

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ABSTRACT

The Samanalawewa Hydro Electric Project and its water commanding area is the subject of this study. This project is a single purpose hydropower project, which harnesses the waters of the Walawe Ganga by damming the river at the confluence of the Belihul Oya and Walawe Ganga at an elevation of 400m Mean Sea Level. The reservoir covers an extent of 897 ha at normal high water level and its catchment covers an area of 341.7 km^2.

As this was a single purpose project, much attention was not paid to other aspects such as supplying irrigation water for down stream and other environmental impacts. Therefore this study sought to estimate the economic loss due to the reduction of land area and paddy yield at selected down stream areas. In addition, it aims to estimate the economic value of lost carbon sequestration function of the Samanalawewa reservoir submerged area and to carry out an extended Cost/Benefit analysis for the Samanalawewa project.

Primary and secondary data were used for this study, which involved a farm household survey. This research disclosed that the scarcity of water due to the dam has resulted in 11.64% of yield reduction (equivalent to 36944.38 bushels or Rs.10.5 million) and 24.89% of land become uncultivated (equivalent to 404.27 acres or Rs.11.7 million) annually. The global warming damage costs due to the lost carbon sequestration function of the submerged area is estimated to be $ 2046579.1 annually. The estimated economic value of surplus water in terms of foregone power generation from the leak at paddy harvesting periods (April, September and October) is Rs. 95.33 million.

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