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**SOCIO-ENVIRONMENTAL AND ECONOMIC IMPACTS OF
THE UPPER ELAHERA CANAL PROJECT**

A dissertation submitted by

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ABSTRACT

Socio-environmental and economic impacts of the Upper Elahera Canal Project (UEC) - ICB-2A were studied with special reference to Tunnel 3 and Tunnel 4 from 27+509 km to 55+600 km. The study was undertaken in the first place to identify and inventory the environmental, social, and economic impacts associated with tunnel construction and to evaluate the effectiveness of mitigation measures implemented for these impacts.

The literature review was undertaken first in the research, to analyze the international and local findings on impacts from tunnels. Primary data were collected through a questionnaire survey and in-depth interviews among 150 randomly selected residents and project personnel from various areas around tunnel portals and road crossings. Secondary data were taken from project documents, EIA, and other published resources. Inductive content analysis was run to analyze the qualitative responses and identify arising common themes.

The findings indicate significant benefits, especially in the management of water resources that impact higher agricultural productivity, rural livelihoods, and infrastructure development. Being close to the tunnel portals, some families reported improved household income because of employment generated by the project and development of small local businesses. The workers' influx in turn created demands for housing and trade, and social interactions between local and foreign workers further enhanced mutual cultural awareness. On the other hand, tunnel boring and controlled excavation works reduced the level of noise, vibrations and fumes emissions, and there were no recorded incidents of any problems due to blasting. Problems, however, arose in many other respects. Existing practices on inappropriate disposal of sewage and wastewater, lack of baseline agricultural data, and lack of budget for environmental mitigations have contributed considerably to a series of tensions and inefficiencies. Apart from one temporary displacement, there were no major relocations, and the human-elephant conflict remains a threat to the area.

In terms of recommendations, the study underscores enhancing baseline data collection particularly in respect of crop yields for fairer compensation, as well as improving wastewater and solid waste management systems, because these remain largely insufficient. Other recommendations include increasing funding for environmental protection and greater

community engagement in grievance redress so that community concerns are addressed at the earliest possible stage. Operational effectiveness can be further enhanced through greater continuity in foreign personnel coupled with clear communication of regulations. Findings further underline that, although the Upper Elahera Canal project offers large-scale development potential, its realization is highly dependent on better linkage between environmental planning, community participation, and institutional accountability to secure long-term sustainability.