

**TO PERFORM AN ECONOMIC ANALYSIS OF
MICROTUNNELING WITH SPECIAL REFERENCE
TO THE COLOMBO CITY**

U.W.V. DE. S. Kanakaratne
158967E

Degree of Master of Science in Construction Project Management

Department of Civil Engineering

University of Moratuwa
Sri Lanka

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Declaration

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.....

.....

Signature

Date

U.W.V.DE S Kanakarathne
Department of Civil Engineering
University of Moratuwa
158967E

The above candidate has carried out research for the Masters under my supervision.

17.08 2019

.....

.....

Signature

Date

Prof. Asoka Perera
Senior lecturer
Department of Civil Engineering
University of Moratuwa

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Abstract

The city growth taken place with the economies, there had been a development of the infrastructure facilities such as water, electricity, sewer, storm water, gas, and telecommunication. Some of these services were in the form of overhead lines and some were underground. All of these services had to be provided in congested areas where no proper planning had been done in the past. Therefore, it is a tedious task for service providers to carry out open cut excavation and lay the necessary service lines as it would interfere with other facilities provided by the state such as roads and railways. In order to avoid public disturbances, various techniques have been developed by Engineers. One of the feasible solutions is Microtunneling technology without performing open cut excavations. Although tunnelling is expensive, comparatively, it causes minimum disturbances to the general public. It also minimises the interruption of other facilities and interference with routine traffic flows are minimum. Further in the recent past microtunnelling was used in a few project in the Colombo city. Therefore, it is important to perform research on the technology used and cost of construction to give information and guidance for future projects.

The study is a combination of case study method and document analysis of available survey data. Three case studies based on construction projects in Sri Lanka were chosen for the study. Qualitative interviews were also conducted with five key decision makers of these projects in order to collect unquantifiable and unmeasurable data. The findings revealed that even though the direct costs incurred in open-cut constructions are lower than Microtunneling constructions, when all the indirect costs are considered the total cost of open-cut construction method is significantly higher, unmeasurable and the cost-impact is very long-term compared with the open-cut construction method. The pipe jacking and thrust boring methods have been used in Colombo city projects. The microtunnelling is successful without much technical issues. This research study will provide insightful cost evaluations in terms of the direct and indirect costs (total cost) of the Microtunneling projects conducted in Sri Lanka, which in turn will support the decision-making process.

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