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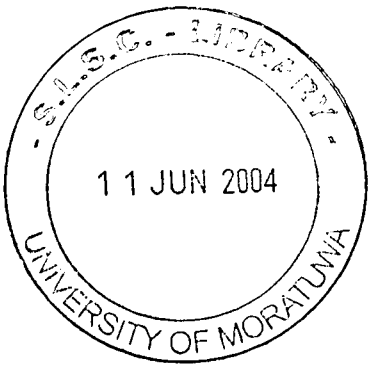

THE STUDY OF THE FEASIBILITY OF WATER TRANSPORTATION IN COLOMBO METROPOLITAN REGION

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This thesis was submitted to the Department of Civil Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Science.

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DECLARATION

The work included in this thesis is part or whole, has not been submitted for any other academic qualification at any institution.

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ABSTRACT

The rich history of water-based transportation that existed in the past in the country has diminished over the years. The waterways that were used mainly for freight transportation are neglected and under utilized. Thus a transport infrastructure, which is readily available for use is an asset for the transport planners, searching for alternatives to ease the ever-increasing congestion on roads where mere expansion of infrastructure has become difficult.

The objective of this thesis was to investigate the technical and financial feasibility of a waterborne public transportation system on existing inland waterways in the Colombo Metropolitan Region. The research starts by first looking abroad, where inland water transports systems area more familiar concept to find on what capacity they operated. Secondary the study area was defined so that continues waterway links can be formed. Data on physical parameters were gathered on which water way systems in the CMR were identified. A complete technical feasibility on five selected waterway systems were presented under which the two systems; Wellawatte – Kirillapone Canal and Biera Lake were identified as meeting the criterion defined for technical feasibility, out of which the former system was selected as the best route for a public transport system in CMR. Non-availability of demand estimation models and vehicle operating costs for boats deprived a complete assessment on financial feasibility.

The conclusion arrived is that it is technically feasible to make a connection over water, certainly in the in Wellawatte- Kirillapone link where the daily passenger movements are considerably high. Its financial feasibility depends on the estimation of demand and operational parameters for the ferry service, which require further research.

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ACKNOWLEDGMENT

It is my desire to acknowledge my supervisor Professor Amal S. Kumarage, for his constant encouragement and guidance at all stages of this research without whose invaluable commitment and dedication this research might not have been a reality. The valuable suggestions made by Dr. J.M.S.J. Bandara, Senior Lecturer, Department of Civil Engineering, University of Moratuwa and Dr D.S. Jayaweera, Deputy Director of Planning, Ministry of Transport are also acknowledged.

A special thanks goes to the Asian Development Bank for providing financial support for this research through the Science and Technology personnel Development Project and the Director Postgraduate Studies, Dean Faculty of Engineering, Head of Civil Engineering Department, Research Coordinator Department of Civil Engineering and all the academic staff members of the Department of Civil Engineering for providing the opportunity to complete this research.

I extend my heartfelt gratitude to the Surveyor General Mr. Ranasinghe Silva and the Senior Deputy Surveyor General Mr. B.J.P. Mendis of Survey Department for providing the digital data on Colombo Metropolitan Region to be used for the research. The assistance extended by Dr R. Galappatti and Mr. L.V. Talagala of Lanka Hydraulic Institute LTD (LHI) by arranging the boat trips in Bolgoda Lake on company expense is gratefully acknowledged. The cooperation extended by the officials of Sri Lanka Land Reclamation and Development Corporation (SLLRDC) arranging boat trips in canals in Colombo is appreciated and acknowledged.

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The completion of the field survey was made possible due to the enthusiasm and support given by fellow researchers and staff members of Transport Engineering Division in the Department of Civil Engineering, especially Mrs Namali Sirisoma, Ramesh, Gamini and Indika owes a special thanks. I would like to thank all the staff members of the Transport Engineering Division and the Computer Service Division in the Department of Civil Engineering for their assistance extended for this research.

Finally, a special thank you goes to my wife Minoka, my parents and my sister for their constant encouragement and support extended throughout the study to make this research a reality.

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LIST OF ABBREVIATIONS

β	-	Mode independent parameter.
ADT	-	Annual Daily Traffic
CKE	-	Colombo Katunayake Expressway
CMC	-	Colombo Municipal Council
CMR	-	Colombo Metropolitan Region
CMRSP	-	Colombo Metropolitan Regional Structural Plan
D_T	-	Total Travel Distance
ESCAP	-	Economic & Social Commission for Asia and the Pacific
h	-	Headway
h_C	-	Headway of Canal service
h_B	-	Headway of Bus service
F_B	-	Fare in Bus
F_b	-	Fare in Boat
F_T	-	Total Far
GC_i	-	Generalized cost of travel by Mode i
GC_1	-	Generalized cost of travel by mode 1
GC_2	-	Generalized cost of travel by mode 2
LHI	-	Lanka Hydraulic Institute
n_B	-	Total number of bus links used in travel.
O-D	-	Origin Destination
P_1	-	The proportion of trips by mode 1
P_2	-	The proportion of trips by mode 2
SLLRDC	-	Sri Lanka Land Reclamation and Development Corporation
T_B	-	In Vehicle time in Bus
T_b	-	In Vehicle Time in Boat
T_T	-	Total in Vehicle Time
TT	-	Transfer Time
UDA	-	Urban Development Authority
VOT	-	Value of Time
VOC	-	Vehicle Operating Cost
VOC_{Demand}	-	The feasible vehicle operating Cost of boat
VOC_{Supply}	-	The supply vehicle operating Cost of boat
WT_T	-	Total Waiting Time

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