

## **Factors which Influence Non-recreational Cycle Use in the Urban Context of Sri Lanka**

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### **Abstract**

Non-recreational cycling has been promoted for Colombo and other urban areas in Sri Lanka mainly through promotional campaigns and the provision of cycling infrastructures such as bicycle lanes or paths. However, there are no studies on real factors which influence the non-recreational cycling behaviour in the Sri Lankan context, suggesting that most of these infrastructure developments are not supported by studies. Information on non-recreational cyclists' preferences and behaviour is important for the effective planning of cycling infrastructure. This paper presents the findings to identify the most relevant factors which influence non-recreational cycling behaviour in the urban context of Sri Lanka. The factors which influence non-recreational cycling behaviour were initially captured through a comprehensive literature survey, and following that, the most influential cycling infrastructure-related factors as applicable to Sri Lankan urban context were identified through an online questionnaire survey. About 60 influential factors were identified in the literature, and among these, 16 cycling infrastructure-related factors, which were assumed to be applicable to a context where cycling is in the promotional stage, were selected to include in the questionnaire survey in the form of ranking questions. The questionnaire survey covered a sample of 400 online respondents, including 15% of existing non-recreational cyclists and 33% of existing recreational cyclists. The sample consisted of 61% of female respondents and 63% of respondents belonging to the age category of 26-35 years and 14% the 36-45 years. 79% of respondents were full-time employed either in the public or private sector. 44% of respondents use a car, van or jeep as the main mode of transport, while 32% use public transport. The selected 16 influential factors were divided into four categories, and the respondents were supposed to rank the set of factors in each category and finally assign the ranking for the four categories separately. Results revealed that the 'type of road facility is the most important category of influential factors, followed by 'safety attributes', 'supportive cycling facilities' and 'characteristics of cycling facilities. Among the four types of road facilities, 'riding on a dedicated bicycle pathway free of pedestrians or any other traffic' was the most preferred having 61% of respondents ranking it as their 1st choice and 'riding in mixed traffic' was the least preferred having 82% of respondents ranked it as their 4th choice. 2nd and 3rd ranked were 'riding on a demarcated bicycle lane on the road' and 'riding on a bicycle pathway shared with pedestrians' respectively. Among the three safety attributes, 'having a smooth, non-slippery riding surface' was ranked 1st, followed by 'having adequate lighting on bicycle pathways during night-time' and 'having overpasses to avoid complex intersections'. Among the six attributes under the 'cycling supportive facilities' category, 'availability of secured parking facilities at destinations' ranked 1st, followed by; 'availability of relaxing areas with basic facilities, 'availability of bicycle-friendly public transport', 'availability of locker facilities at the destinations', 'availability of a bicycle renting and sharing system' and 'availability of showers and changing facilities at destinations. The remaining six attributes under the 'characteristics of cycling facilities' had been

ranked in the order of; 'having adequate shade and trees' as 1st followed by 'direct connection to the target destinations via shortest paths', 'the route having direct connections to multiple uses like banks, shopping and schools etc.', 'having a continuous route without gaps in between, 'the route to ply along pleasant scenic views' and 'high security guaranteed with CCTV monitoring' as 6th. In the overall ranking of attributes regardless of the category of influential factors, 'having a smooth, non-slippery riding surface' was ranked 1st, having a relative score of 11.3% and factors such as 'adequate lighting' (9.2%), 'having overpasses' (7.7%), 'secured parking facilities' (5.0%), 'adequate shade and trees' (4.2%) and 'direct connection to the target destinations via shortest paths' (4.0%) were among the first top ten ranked influential factors along with the four types of road facilities for cycling. However, respondents had given relatively less priority in their preference for attributes such as 'availability of relaxing areas with basic facilities' (3.8%), 'bicycle-friendly public transport' (3.5%), 'route having direct connections to multiple uses such as banks, shopping and schools etc.' (3.3%), 'bicycle renting and sharing system' (3.1%), 'locker facilities' (3.1%), 'showers and changing facilities at destinations' (3.0%), 'having a continuous route without gaps in between' (3.0%), 'having pleasant scenic views' (3.0%) and 'high security guaranteed with CCTV monitoring' (2.3%), although most of these are perceived as important factors in similar studies conducted in contexts where non-recreational cycling is a more frequent mode of transport. The reason why some of the factors, such as availability of lockers, showers, changing facilities, direct connections, relaxing areas with basic facilities, bicycle-friendly public transport and bicycle renting and sharing systems which are highly demanded in other bicycle-friendly cities, had been given less importance by the respondents could be because they are not existing cyclists and that they may find it important once they start non-recreational cycling. The future works of this study include a stated preference survey and analyzing stated preference observations with logit choice estimations in order to identify the relative importance of identified most relevant influential factors.

**Keywords:** *Non-recreational Cycling, Influential Factors, Cycling Infrastructure*

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