

A Multi Criteria Approach for Prioritization of Low Volume Rural Roads for Maintenance and Improvement

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Abstract : Low Volume Rural Roads (LVRRs) constitute an integral component of the road system in all countries. These encompass all aspects of the social and economic development of rural communities. It is known that on a worldwide basis the number of low traffic roads far exceeds the length of high volume roads. Across India, 90% of the roads are LVRRs, and they often form the most important link in terms of providing access to educational, medical, recreational and commercial activities in local and regional areas. In the recent past, Government of India (GoI), with the initiation of the ambitious programme namely 'Pradhan Mantri Gram Sadak Yojana' (PMGSY) gave greater importance to LVRRs realizing their role in economic development of rural communities. The vast expansion of the road network has brought connectivity to the rural areas of the country. Further, it is noticed that due to increasing axle loads and lack of timely maintenance, is accelerated the process of deterioration of LVRRs. In addition to this due to limited budget for maintenance of these roads systematic and scientific approach in utilizing the available resources has been necessitated. This would enable better prioritization and ranking for the maintenance and make 'all-weather roads'. Taking this into account the present study has adopted a multi-criteria approach. The multi-criteria approach includes parameters such as social, economic, environmental and pavement condition as the main criterion and some sub-criteria to find the best suitable parameters and their weight. For this purpose the expert's opinion survey was carried out using Delphi Technique (DT) considering Likert scale, pairwise comparison and ranking methods and entire data was analyzed. Finally, this study developed the maintenance criterion considering the socio-economic, environmental and pavement condition parameters for effective maintenance of low volume roads based on the engineering judgment.

Keywords : Delphi technique, experts opinion survey, low volume rural road maintenance, multi criteria analysis

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