

CONDITION EVALUATION OF BRIDGES IN THE NATIONAL ROAD NETWORK OF SRI LANKA

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National road network, being the most important one includes nearly 11,650 km of roads and about 4000 road bridges. Road Development Authority (RDA) mostly administrates this road network in all of its phases including design, maintenance and upgrading etc. The need of well-connected and widespread road network is inevitable to fill the aspiration of its all people ever since. This paper describes common problems visible in different types of bridges in Sri Lanka.

As the road transport system is overly used in Sri Lanka such that in 94% of passenger transport and in 98 % of freight transport, it is in general agreement that deterioration and degradation is inevitable. This study is based on condition survey of road bridges in 10 districts over 2000 bridges in the national road network. In each district, more than 95% of bridges were visited and their current conditions were estimated. Most of inspected bridges were reinforced concrete bridges. There were a sufficient number of steel bridges and prestressed bridges as well. In different types of bridges, different deteriorated components are visible. In prestressed concrete deck bridges, wearing surfaces are damaged at expansion joints owing to the differential settlement thereby having streaks of floor cracks on wearing surface is a quite common fault. In steel bridges, being constructed mostly in colonial period now aged nearly 50 to 100 years or more than that in some special cases, have been showing the effect of corrosion. In some cases, the degree of corrosion has reached to an alarming stage as such some critical members and reverts have corroded severely. In some steel girder bridges, original deck plates have been removed due to corrosion and reinforced concrete layer has been laid on top of girders. In addition, some girders have badly corroded. In reinforced decked bridges, due to some inaccurate construction procedures followed, in some cases, reinforcement has corroded. The degree of corrosion in some of these bridges is at a critical stage that urgent attention is very much needed. The leakage of water through abutments and supporting shoes is visible in reinforced concrete bridges as well as prestressed concrete bridges. The excessive vegetation cover on spandrel walls is the main problem associated in arch bridges. In some of masonry arch bridges, mortar bond has been dissolved to a fair degree by the water passage through the compacted fill. In addition to those, there are special cases of pier subsidence, pier tilting, sagging of concrete decks, prestressed beam corrosion and abutment cracking at specific locations in the national road network of Sri Lanka. In conclusion, it can be expressed that those damages mentioned above are common irrespective of size of the bridge and their locations.

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