Analysis of Defects Liability Period for Different Type of Defects Identified in Road Construction Projects

W.A.H Chathuranga[1], H.R Pasindu[2]

Abstract

In any type of construction work there is a possibility for defects. Defects in road construction can be of many categories: road surface defects, base or sub base defects, drainage issues, design failures or construction failures. Failures can be identified using many methods. Visual observation, accident analysis, public complaints, re-testing etc are among the most common ways of identifying these defects.

To minimize these construction defects, in the construction field, contractors have to use high quality materials, better construction techniques and proper machinery. Competitiveness in the construction field leads contractors to try and win the bids by bidding at a low cost. After the lowest bidder is awarded the contract, he tries to generate profits within their budget. Because of this, the contractor might tend to use low quality materials, poor construction techniques and improper machinery to make profit. To mitigate such situations and defend the client against poor construction works, the construction industry has the Defects Liability Period. Defects liability period is a set period of time after a construction project has been completed, during which a contractor has the right to return to the site to remedy defects. A typical defects liability period lasts for 12 months.

However different types of defects appear after different time periods from the completion of the road construction. In common practice, Sri Lanka has one year defects liability period for all the defects in road construction projects. However, some defects may occur after one year, so contractors tend to use of low quality materials and poor supervision in road construction. Therefore employers should give carefully consider the wording and requirements of the defects rectification provisions. Where the client considers hiring another contractor to fix the original contractor's mistakes it will lead to the cost a considerable amount for the rectification of these defects. Therefore the analysing of the defects liability period for different type of defects is very much needed in road construction projects.

In the recent past many roads have been re-constructed all over the country. These works were carried out by different types of contractors using different types of method statements and methodologies. Most of these contracts have had one year defects liability period. It creates many problems to relevant authorities, even though road surfaces were black top.

Also few road construction projects entertain performance based contracts; such a type of contract contractor should maintain the rehabilitated road section for an agreed time period. These types of project rates of bidding items are too high compared to the normal contracts. This cost, sometimes cannot be bared. This may lead to the completion of the project far before their schedule scope due to the unavailability of funds. But most of the developing countries, including our neighbour India, focus on increasing this Defects Liability Period

according to the type of defects.

This study is an attempt to analyse the defects identification period in road construction, and thereby enabling the proposal of a systematic defects liability period for road construction projects. Absence of a proper defects liability period for road construction causes inconvenience to both contractors and clients. Therefore identification of the DLP would minimize imbalances and inefficiency in the construction industry.

The first step is to identify the variants of defects identification. The second step is to analyse different defects with the time of identification. Road construction projects are a major variant and ten different defects components have been identified: such as road surface, base failures, sub base failures, subgrade failures, low quality materials, drainage issues, design failures, construction failures, road marking and signalling issues.

To identify those defects a questionnaire survey was conducted within the Executive Engineers' division in Kalutara District of Road Development Authority. This sample space includes three EE divisions, Kalutara, Agalawatta and Horana. Within these three EE divisions, a 450 km of national highways were maintained. In the last decade 90 percent of the road lengths were upgraded to black tops, in these divisions. Based on the results of the questionnaire, survey charts were developed for these defects, against their occurrence. This will help to identify the DLP for different type of defects in the road construction.

Keywords: Defects Liability Period, failures

---

1. Executive Engineer/Horana, Road Development Authority,

harithchathuranga@gmail.com

2. Senior Lecturer, Transportation Engineering Division, Department of Civil

Engineering, University of Moratuwa, pasindu@uom.lk