

## Quality Costs Analysis for Highway Bridges During Their Life Time

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### Summary

In the area of transport infrastructure a main role has the economic component. This is determined by the gap between the request and offer for transport infrastructure. This situation is determined by the state incapacity to financially sustain the request. The solution is determined by the alternative sources of finances and a more efficient organization of the financial allocation between projects alternatives. The analysis of a global cost for transport infrastructure makes reference to the cost component for the construction work during its life time but also the quality cost component. Quality cost analysis for highway bridges construction works represent a heavy process. Identification of the cost components implies conformity with the user needs, requests and expectations.



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The analyzed doctorate thesis theme, by the objective of proposing a new approach of the quality costs components for the highway bridges works, is included in the current concerns of alignment to the national and international researches of optimal costs management for the transport infrastructure works, the discovery of new alternative finance sources, to consider the real importance of the users in the analysis process, to take more into consideration the works quality.

In the first phase, the author has realized a synthesis of the finance sources which can be accessed in the case of complex infrastructure works or bridges. These sources are from national and international level. For bridges works are being presented the evolution phases during their life time and the association of economic methods of analysis.

Secondly are being presented the concepts of economic evaluation in accordance with the determination of total cost reported to the bridges life time. There have been used the methodologies of economic analysis named Life Cycle Cost Analysis (LCCA) and Bridge Life Cycle Cost Analysis (BLCCA) which take into consideration all the cost components determined by a construction creation from the design phase to post/utilization during the entire life time.

Follows the quality costs evaluation starting from the standard approach and developing a new approach for quality costs. The new approach wishes to consider in a more important manner the user and its needs and to prove that the general level of the costs can diminish or be maintained constant if investments are being made at optimal time intervals and in the initial phases of the work. The quality analysis system complexity, the approaches diversity regarding the quality costs has determined the intent to realize a uniform system of cost components which are particular to the area of bridge engineering.

The final part of the paper represents a synthesis of the author contributions to quality costs analysis for highway bridges by the evaluation of the components already known and by new analysis proposes in the area of research.

**KEYWORDS:** finance sources, private finance, public finance, Life Cycle Cost Analysis (LCCA), Bridge Life Cycle Cost Analysis (BLCCA), quality costs, transport infrastructure global cost, traditional approach, new approach, quality optimal cost.

