

**Assessment of the approximate method used for bridge load rating in Tanzania**  
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The decision to do research in the bridge rating was a result of information obtained from various literature and papers in respect to bridge carrying capacity. In Tanzania the approximation analytical method used for bridge load rating is conservative and so far very little has been done to improve or guide the improvement of the method. The approximation analytical method, may give results which do not represent the true load carrying capacity of the bridges. The aim of the research was to make an assessment of the approximation analytical method as compared to physical test methods. This is achieved through comparison of physical test results and the approximation analytical results (values). As a control for the test load effect the concrete beam deflection and compression strength were sought. In this research, bridge beam model and field bridge tests were used for the investigation to understand the bridge deflections behaviour upon varying load actions. The concrete cubes were also tested for compression strength as physical load test method which was compared with an approximation rebound hammer test. The results of this study showed that the analytical capacity value is very far below the ultimate limit value and it is possible to use physical load test method to determine more accurately the load carrying capacity of a bridge as compared to the analytical method. It was established that the analytical capacity values are half the physical load test values. The results obtained are useful for the improvement of the conservative method, by introducing into the approximation analytical formula a factor deduced from the test results. As conclusion it is recommended that, the physical test method for bridge load rating using load - deflection method can be used for more precise bridge load rating or to establish general factor for modification of the analytical method.