

**Development of soaked California Bearing Ratio (CBR) values prediction models based on soil index properties.**

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In highway design, California Bearing Ratio (CBR) is one of the methods for determining the sub grade strength. The conventional method used for determining the soaked CBR of subgrade alignment of soil is the CBR laboratory test. When the number of samples becomes large the determination of soaked CBR values becomes cumbersome as CBR test is laborious and time consuming. This study aimed at establishing an alternative way of determining soaked California Bearing Ratio (CBR) by developing soaked CBR model that would be used for estimating soaked CBR of fine and coarse grained soils without performing the CBR test. This has been achieved by establishing a relationship between laboratory soaked CBR values compacted at 95% of Maximum Dry Density (MDD) and soil characteristics that best suit the type of soils along the study area in Tanzania. A case study was undertaken for soils from three design projects in Lindi and Mtwara regions in Tanzania. The results showed that soaked CBR values of fine grained soils significantly correlate with specific gravity of soil (GS), Plasticity index (PI) and the grading modulus (GM) of the soil and for coarse grained soil, the soaked CBR values significantly correlate with specific gravity of soil and percentage of fines passing 0.075mm sieve size. Based on this study the developed equations has shown better performance compared to the tested models under this study and They give fairly good estimate of soaked CBR values without actually performing the CBR test.