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A Study of Combined Mechanical and Chemical Stabilisation of Fine Grained Dredge Soil of River Jhelum

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Abstract : After the recent devastating flood in Kashmir in 2014, dredging of the local water bodies, especially Jhelum River has become a priority for the government. Local government under the project name of 'Comprehensive Flood Management Programme' plans to undertake an increase in discharge of existing flood channels by removal of encroachments and acquisition of additional land, dredging and other works of the water bodies. The total quantity of soil to be dredged will be 16.15 lac cumecs. Dredged soil is a major component that would result from the project which requires disposal/utilization. This study analyses the effect of cement and sand on the engineering properties of soil. The tests were conducted with variable additions of sand (10%, 20% and 30%), whereas cement was added at 12%. Samples with following compositions: soil-cement (12%) and soil-sand (30%) were tested as well. Laboratory experiments were conducted to determine the engineering characteristics of soil, i.e., compaction, strength, and CBR characteristics. The strength characteristics of the soil were determined by unconfined compressive strength test and direct shear test. Unconfined compressive strength of the soil was tested immediately and for a curing period of seven days. CBR test was performed for unsoaked, soaked (worst condition- 4 days) and cured (4 days) samples.

Keywords : comprehensive flood management programme, dredge soil, strength characteristics, flood
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