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As a curious observer who has closely watched the emerging trends in concrete works in Kenya, I take great pleasure in undertaking this project. Scarcity of natural resources has broadened the interest of alternatives to conventional materials used in concrete production. The key aim of studying the various properties of concrete is to allow a choice to be made of the appropriate mix constituents. However, an attempt has to be made to balance the necessity for quality control vis-à-vis the economics and environmental consideration of producing concrete. This has seen in the recent years an attempt to replace the use of river sand as fine aggregate. In certain parts of Nairobi, especially in Eastlands, and in Nakuru County a more economical material is being used as a substitute for river sand. Locally and commonly called "Mchanga ya Mai Mahiu". The study of Mai Mahiu fine aggregate has thereby grown out of the recognition that it is commonly being used in construction in certain parts of Kenya. This has inspired me to carry out a diligent inquiry and critical examination of its effects on the strength, workability of concrete and to make inferential comments on the rheology of concrete therein. Silt and fine dust should not be present in large proportions owing to their fineness and therefore large specific surface (Neville, 1981). They form surface coatings which hinder the bond between cement and aggregate thereby lowering strength of concrete. Moreover, they increase the amount of water necessary to wet all the ingredients in the mix proportion. In lieu of these effects, I got curious enough to warrant studying the effects of silt and fine dust in Mai Mahiu fine aggregate using river sand for comparison. The properties of concrete under scrutiny are strength and workability. This study will serve as a reference in concrete production and quality control of Mai Mahiu fine aggregate and river sand in Kenya with regard to the amounts of silt and fine dust in fine aggregates and their effects thereof on strength and workability.