Geotechnical characterization and Development of local materials: use of clay from the Goudomp department in construction

DORO NIANG[1], IGNACE GBAGUIDI[2],PAPA GOUMBO LO[3]

[1]Geology Department, Cheikh Anta Diop University of Dakar-SENEGAL, doro1.niang@ucad.edu.sn
[2]Earth Science Institute, Cheikh Anta Diop University of Dakar-SENEGAL, gbaguidi.ignace@yahoo.com
[3]Centre Expérimental de Recherches et d'Etudes pour l'Equipement, papaglo@ucad.sn

The main objective of the experimental study carried out on samples of raw clay and after stabilization by compaction and with the incorporation of stabilizers is the improvement of social housing by using local materials such as clay. The samples were subjected to identification tests (particle size analysis, Atterberg limits, methylene blue etc.) and to mechanical tests. The results show that it is a very plastic clay (the plasticity index IP reaches 70) but not swelling, with a high water content of up to 41%. For the purposes of valuation, stress tests and water sensitivity of BTC (compressed earth brick) and briquettes were made: BTC were crushed to 28 days of age and briquettes (4x4x16 cm) 72 hours after cooking at 500 ° C.

It appears that the clay sample stabilized with 30% of sand alone gives excellent results in particular in terms of compressive strength Rc and sensitivity to water Rc ': For BTC, Rc is equal to 34.03 bars;For briquettes, Rc is equal to 50.09bars and Rc 'is equal to 37.69 bars.

The use of clay bricks stabilized with sand for the construction of buildings is possible and appears as a solution to the recurring problems of access to housing in our countries.