# Comparison of geotube and stone cemented wall stability as coastal protection system [case study and 2D limit equilibrium and FEM modeling analysis]

## ABSTRACT

Geosynthetic structures for shore protection have demonstrably lower construction and lifetime costs than those of hard structures. This paper outlines the effect of scouring on banks protection structures stability in case of comparison between sand-stone wall and a geosynthetic structure that is commonly used for shore protection: geotextile wraparound revetments (GWRs). Different 2D Limit Equilibrium and FEM modeling analysis were carried out on a case study of sandstone example. As a result, GWRs have been shown to adapt extremely well against differential settlement and scour erosion. Analyses show that many advantages of sand-stone structures remain, but that geosynthetic structures should not be regarded as an alternative shore construction method. Rather, they are a preferable solution for numerous coastal problems.

**Keyword:** 2D limit equilibrium analysis; Coastal protection; FEM; Geotube; Stability