



Coastal reinforcement in Cape Lopez

Definition of technical solutions

May 2015 – On-going



GABON - Port Gentil

Client

TOTAL GABON



The Project

Cape Lopez is the point of Mandji island, Gabon, extending the furthest into the Atlantic Ocean. It consists of mainly-sandy delta deposits, underlain by a very dense layer located at a depth of more than twenty metres.

The main ocean currents flow around the cape from West to East, carrying sediments eroded from the West coast towards the East coast. When they enter Princes' Bay, the currents are protected by the cape and slow down. Very fine sands, of very uniform grain size, are then deposited along the East coast, resulting in its growth. Submarine landslides of varying magnitudes (up to several million cubic metres) occur frequently on the East coast. The slides take place along very gentle slopes (less than 5°). A possible explanation of these recurrent landslides is that the relative densities of the local sands are lower than the critical densities. This makes them very sensitive to the generation of excess pore pressures, which may be referred to as "lateral spreading" phenomenon.

Under the action of growth or of any other load generating excess pore pressures, the sands lose their shear strength and flow.

Our Services

In this context, TERRASOL has worked with TOTAL SA and TOTAL GABON to reinforce the East coast, where erosion by recurring landslides is threatening the oil terminal located on Cape Lopez.

TERRASOL carried out the studies for the basic engineering phase, covering the choice, the definition and the justification of the technical solutions to be implemented.

Two areas were particularly concerned by the implementation of the protection system: the area of the beach to the north of the facilities, accounting for two-thirds of the coast to be protected and which is some distance from the vulnerable structures, and the area of the old quay, which extends for 200 metres along the coast and is located in the immediate vicinity of the oil terminal facilities.

The studies conducted by TERRASOL will be used as the basis for the tender documents issued to the contractors, which will be awarded an overall design-and-build contract.

Key features

- Studies for the basic engineering phase covering the choice, the definition and the justification of the technical solutions to be implemented
- Preparation of the tenders documents
- Tenders' analysis

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