The Sand Drift Treatment and Land Reclamation Project at the Taichung Port, Taiwan

Background

Taichung Harbor, located at the south side of the Dajia River outfall, was suffering from siltation of drifting sand. There was a silt deposition area between the harbor and the outfall to trap drifting sand and prevent sedimentation at the navigation channel and inside the harbor.

The Problem/Task

The increasing load of sand drift led to saturation of the silt deposition area, which decreased its function in providing a place for sedimentation. Sand drift went further and crossed the groin into the harbor and silted at the navigation channel and inside the harbor. Consequently, navigation of vessels and port operation were affected. Other than cleaning the siltation, the capacity of the silt deposition area should be improved in order to slow down the siltation process at the navigation channel and the harbor. Moreover, since the project range was wide, any recommended solution must put the budget constraint in mind.

The Solution/ Design & Construction

The idea of dredging silt deposit for land reclamation at the nearby coast was adopted. Considering the budget of the project, geotextile tubes (ACETube®) was determined to be the most cost-effective material to construct a cofferdam along the coast as sand-trapping barrier. A cofferdam with 2,600 meters in length and 2 meters in height was built by geotextile tube (ACETube®), with tube circumference from 14 meters to 16 meters and tube length from 40 meters to 61 meters. Filling material was extracted from the sand deposit area; along with the sand sediment at the silt deposition area, the sand dredging scale of this project was about 1,000,000 m^3.

Result

This treatment not only effectively recovers the function of the sand deposit area, but also expands its capacity. Furthermore, it reclaims nearly half a million square meters land from the sea for future plan and use.

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