CASE STUDY

SOLMAX

ALMACEN RIVER IMPROVEMENT, BATAAN, PHILIPPINES

Flood mitigation structures with GEOTUBE® GT Marine

Industry:	Water
Application:	Rivers
Location:	Bataan, Philippines
Product:	**GEOTUBE®**

Overview

The Almacen River, located in Bataan, Philippines, is one of the major rivers in the area. However, it experiences annual flooding during the rainy seasons, causing concern for the residents of Orani, Hermosa, and Dinalupihan Bataan. This flooding is primarily due to severe siltation caused by a lahar deposit from the upstream river heading to Mt. Pinatubo.

Challenge

To effectively address the issue of severe siltation, the Department of Public Works initiated the use of **GEOTUBE®**. These are deployed as silt depots at the river mouth and used to dredge the 2.5-mile (4.0 km) river, removing the lahar deposit and deepening the river channel. This allows for a greater volume of water to flow during the rainy season, helping alleviate the recurring problem of severe flooding in the surrounding municipalities of Hermosa and Orani, Bataan.

The Almacen River improvement project utilizes **GEOTUBE®** GT 750M as riverbank protection. The dredged material from the river is used as filling soil for the river embankment and slope protection. By using **GEOTUBE®** GT 750M on-site, there is no need to source materials from off-site, saving time and resources. Additionally, the project includes the improvement of waterways leading to the Almacen River, diverting floodwaters away from farmlands in the villages.

The installed GEOTUBE® GT 750M acts as gravity-based building blocks for erosion protection along the river.

Solution

The construction involves the placement of **GEOTUBE®** GT 750M, scouring apron, and protection geotextiles. These structures act as erosion-resistant revetment protection, with a primary function of serving as a mass gravity structure. The **GEOTUBE®** GT 750M is filled by hydraulically pumping a sand/water slurry through the filling ports. The fill material is a mixture of sand and water, allowing for easy flow. Water from the river can be used for this purpose. The **GEOTUBE®**, being permeable, allows excess water to pass through the geotextile skin while retaining the sand within. The installed **GEOTUBE®** GT 750M acts as gravity-based building blocks for erosion protection along the river.

The use of **GEOTUBE®** GT 750M speeds up project completion, requiring less manpower as the installation process is fully mechanical.