

NEWSLETTER

Project: Flood Mitigation & River Bank Protection using Tech Geomattress along Brahmaputra River Bank, North Lakhimpur, Assam

Mr Arjun Kanoi was an integral member of the design team that worked on a project on flood mitigation and river bank protection using sand-filled geotextile mattress along the Brahmaputra River bank, North Lakhimpur, Assam during his six-month internship at Techfab India Industries Ltd. from October 2022 to May 2023.

This project aimed to provide flood mitigation and river bank protection system on the left banks of the Brahmaputra river near North Lakhimpur, Assam. This region is often influenced by the frequent floods in the river. The river water spills out of the banks and affects lives, damages the infrastructure, and agriculture significantly. Due to the region's steep topography, the river's flow velocity is high, especially during the monsoon period. The high flow velocity in the river tends to erode the river banks and cause floods. With given brief of products and possible solutions, Mr Arjun Kanoi understood the field characteristics and the fact that the soil available at the northern plains of the Brahmaputra Riverbanks is sandy and silty soil, which often does not possess adequate cohesive properties. This type of soil can be used as an infill material in sand-filled bank protection systems. It was required to provide a flexible river bank protection system which should be robust, sustainable and can be rapidly installed. Given the site requirements, Mr Arjun Kanoi and other design team members recommended to provide a 100mm thick sand-filled geotextile mattress on the slopes for approximately 700m stretch length. The bank slope was dressed to a slope inclination of 2H:1V for the maximum protected bank height of 12.0m. Top and bottom trenches of size 1.00mX0.75m were provided for additional stability of the system against sliding. The upper and lower layers of the geotextile mattress are made up of green-coloured high-strength woven geotextile.

The application of tubular-shaped geotextile mattress performed well on the slopes since the lower layer of the mattress acted as a filter and released excessive pore water pressure from the embankment fill. Geotextile mattress system being a flexible system, can attain the shape of minor undulations at the site. This system always gives a workable warning before it is damaged. Mr Arjun Kanoi, during his internship period, learned the subject very easily and his suggestions were valuable to consider for the betterment of the project. Mr Kanoi also assisted in designing and drawing of the geotextile mattress protection system. Mr Kanoi gathered the knowledge for the various features of the geotextile mattress, their specifications and site installation.