

NEWSLETTER

Project: Flood Protection Works on the Downstream of River Ghaghara at Lakhimpur Kheri, Uttar Pradesh

Mr Arjun Kanoi was part of a team that worked on a project on flood mitigation by river bank protection on the right-side river bank on Ghaghara River in Lakhimpur Kheri, Uttar Pradesh. Mr Kanoi was an integral part of the design team of Techfab India during his six-month long internship from October 2022 to March 2023.

The project required to provide flood control measures on the right bank of the river Ghaghara. Several dense villages such as Naribehad, Hulaspur, Rudrapur Salim, Nihampur, and Hatwa are situated close to the flow area of the river. These villages are frequently inundated due to spillage of water out of the river banks. Also, in the monsoon season, the Ghaghara River in this region flows at a higher velocity which causes progressive soil erosion and settlement of river banks. It was required to provide a flexible river bank protection system which should be robust and sustainable. Mr Kanoi envisaged the site conditions very well and was involved in the finalization of the flexible solution having woven geotextile bags on the dressed slope of the river bank since conventional solutions such as CC Blocks or stone riprap may require more time for the construction work. The need of the hour was to stabilize the river bank with locally available material and to complete the work as soon as possible. The woven geotextile bags are filled at the site with locally available sand. High-strength geotextile bags of size 1.09m X 0.69m manufactured by using TFI 1200 grade woven geotextile were used at the site after filling with sand. The filled thickness of the bags was around 150mm. After understanding the drainage requirements at the site, Mr Arjun Kanoi along with the design team recommended to provide a layer of nonwoven geotextile on the interface of the soil and geotextile bags which act as a separator and a filter. The nonwoven geotextile prevents the migration of the soil particles from either side of the embankment but allows the flow of water, thus facilitating the release of pore water pressure.

The river bank protection system with woven geotextile bags performed exceptionally well and was well appreciated by the concerned authorities and localities. The amount of hard work and dedication put in by Mr Kanoi was really commendable. Several valuable insights given by Mr Kanoi, along with the team Techfab India decided to go for flexible solution, which is best suited for such application. During his involvement in the project, Mr Kanoi learned about the technical specifications of the woven and nonwoven geotextile and their use for various application areas.