

## Fast emergence for geotechnical and geosynthetic textiles

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06 June 2016

The manufacturing of geotechnical geotextiles started in India nearly three decades ago, in 1985-86. Today, the landscape for geotextiles in India is marked by major players such as Garware Wall Ropes, Technofab India, Kusumgar Projects, and others including Strata GeoSystems and Skaps Industries. Some key players have also started providing design assistance to users in the infrastructure sector.

In addition, there is a strong presence of international corporates and MNCs, such as the names of Fibertex Nonowovens, Maccaferri Environmental Systems, Tencate, Terram and Heuskar. An interesting recent phenomenon has been renewed focus on the use of natural fibres such as jute and coir, especially for geotextiles as underlay for rural roads, and under the technical support of the National Jute Board and the Coir board.

Geosynthetics are increasingly used for all conceivable situations in civil engineering and infrastructure projects, namely the construction of roads and expressways, airport runways, railway embankments, seaside platforms, retaining walls, drainage and seepage control works, as well as water management, including river training projects. However, despite the inherent and performance-enhancing qualities, the use of geosynthetic materials in India is yet to pick up, due to low awareness of its utility and end uses vis a vis conventional materials.

Considering India has the second-largest road network in the world (of around 23 million km in length), the growth for geosynthetics and geotextiles would surely have far-reaching and multi-disciplinary applications. Overall demand for geotextile materials is expected to grow due to its cost-effectiveness of the product use life cycle, and its engineered and technical parameters, which retain enhanced performance amid all terrain and weather conditions. The use of geosynthetics and geotextiles in the civil engineering segment has touched 100 million sq m, and is projected to grow steadily at 10-12% each year.

### **The potential**

Though the beginning of the last three decades has been slow and small, it has been steady. The civil engineering sector alone has reached a consumption level of 100 million sq m of geotextiles.

India, today, is the fastest-developing economy, with an average GDP rate of 6.5-7%. The ongoing liberalisation and reform of the economy has brought on to the national horizon large infrastructure projects for new highways and roads, railway tracks, airports and seaports, power plants and water management systems like dams and canals.

The planned spending on infrastructure alone, in the ongoing 12th national plan, is estimated at US\$1tn; which will surely promote the use and consumption of geotechnical products into higher orbits of demand and production.

The growth in demand and applications for geosynthetic and geotextiles materials can truly be exponential once the government takes the bold steps of making mandatory the use of such advanced materials in sectors such as road constructions, airports, seaport projects,

dams and canals. This will surely give a boost to domestic production and reduce the ongoing large imports under the government's Make in India initiative.

This would, of course, require development and propagation of quality standards and performance codes for such structured materials, under the umbrella of the BIS or any other designated body/council.

Technology for the production of geosynthetic textiles, including geotechnical sheets, geomembranes, geo cells and geo-tubes, is evolving fast and, especially, finding increasing use in civil construction of rapidly expanding infrastructure projects in India. This has been clearly endorsed in the recently held 2nd Global Summit on Geo Synthetics, on 19-20 May in New Delhi, which was attended by the international and domestic leading manufacturers in the field, as well as key institutions including the IITS (Indian Institutes of Technology), the CCRI, the IRC, NJB, railways and, of course, the Ministry of Textiles, Ministry of Road Transport and a battery of domain experts.

### **The future**

The road map for increased applications, leading to growth in domestic demand and production, lies in addressing the needs of some key sectors that are already experiencing the benefits of the end-use of geosynthetics and geotextiles, and benefiting from quality and effective cost.

The Indian railways system, with a network of 61,000 km, is among the largest in the world, with nearly 99% in broad gauge. New tracks for dedicated freight corridors and high-speed trains are already on the ground for implementation by or before 2021. This opens huge opportunities for expanded demand and consumption of geosynthetics and geotextiles, especially for use as soil underlays and for rail embankments.

Other equally important and bulk consuming segments are for roads and highways, where the usage for reinforced walls, road under bridges and road over bridges is also on the rise. In addition to the perceived increased use of geotechnical materials by the defence and military projects, the other new and promising area to further open up the demand for geosynthetics and geotextiles are to be Inland Water Transport systems, Interbasin Water transfer, landfills for solid waste management, canal and coastline protection, and landslide mitigation in the hilly areas with unstable terrain etc.

Finally, India is also a large producer of natural fibres like jute and coir, and their use in geotextiles, especially for rural road applications, has led to cost savings and good technical results. Greater focus needs to be directed to these natural resources in India for production of environmentally friendly geotextiles that are locally sourced and consumed – for example, into the construction of rural roads.