

India Geotextiles Market By Type (Non-Woven, Woven & Knitted), By Material (Polypropylene, Polyester & Others), By Application (Erosion Control, Road, Drainage & Others), By Region, Competition Forecast & Opportunities, 2018-2028F

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Abstracts

The India Geotextiles Market was valued at USD 614.46 million in 2022 and is anticipated to experience robust growth in the forecast period with a CAGR of 5.24% through 2028. Geotextiles are permeable fabrics widely used in construction projects in conjunction with soil to perform a range of functions. They are typically composed of polyester or polypropylene polymers. Geotextiles possess the remarkable ability to separate, filter, reinforce, protect, and drain when incorporated with soil. By enhancing the strength and stability of the soil, geotextiles provide crucial reinforcement to structures such as roads, embankments, and retaining walls. Geotextiles are available in diverse forms, shapes, weights, and sizes to cater to various construction requirements. Additionally, geotextiles facilitate proper water flow and drainage, preventing the clogging of underlying soil layers. This pivotal feature aids in the prevention of water accumulation and contributes to the overall longevity of structures.

Key Market Drivers:

Expansion of the Road Construction Industry:

The expansion of the road construction industry in India has emerged as a key driver for the growth of the geotextiles market. Geotextiles, which are permeable fabrics made from polypropylene or polyester materials, have become an essential component in road construction projects due to their numerous benefits and applications. As of December 31st, 2023, India successfully completed and operationalized over 35,000

kilometers (22,000 mi) of four or more lane highways, connecting numerous major manufacturing, commercial, and cultural centers. According to the Ministry of Road Transport and Highways, as of March 2021, India had a total of approximately 151,019 kilometers (93,839 mi) of national highways and expressways, in addition to another 186,528 kilometers (115,903 mi) of state highways. The Indian Road Congress has published guidelines and standards for the use of geotextiles in highway construction, highlighting the importance of incorporating geotextiles to enhance the quality and longevity of road infrastructure. Geotextiles also play a crucial role in erosion control. They prevent soil erosion by providing a barrier that retains soil particles while allowing water to pass through. This is particularly important in road construction projects where slopes, embankments, or areas prone to erosion need protection. By mitigating erosion, geotextiles help maintain the integrity of road structures and reduce maintenance costs.

Increasing Usage in Infrastructure Development

India's construction industry has experienced robust growth, with a focus on building new roads, highways, railways, airports, and other civil infrastructure projects. In June 2022, the Minister of Road Transport and Highways inaugurated 15 national highway projects valued at Rs. 13,585 crores (USD 1.7 billion) in Patna and Hajipur, Bihar. Geotextile offers quicker and easier installation compared to stone layers, while its factory-controlled properties ensure consistent efficiency. Robust geotextiles effectively minimize material loss into the soft subsoil at the toe and mitigate differential settlement. The applications covered include marine revetments, basal filters, basal reinforcement, breakwaters, containment dykes, seawalls, protection dykes, reinforced dunes, artificial reefs, submerged breakwaters, and miscellaneous offshore use. For each of these applications, the geotextile solution is presented with significant performance aspects. The Nhava Sheva Port Project near Bombay, India, stands as a notable example where geotextiles have been extensively specified, covering an area of 106 m² for general reclamation, roads, reclamation bunds, and guide bunds. Woven geotextiles of varying strengths have been utilized as separation and drainage layers, as well as for soil reinforcement.

Government Initiatives and Policies

The Indian government has taken several initiatives to promote the geotextiles market. The government has implemented textile parks to enhance the textile industry, including the geotextiles sector. These parks strive to enhance the global competitiveness of the Indian textile industry, attract investments, and create employment opportunities.

Moreover, initiatives have been taken to promote the benefits and advantages of geotextiles in different sectors such as infrastructure, construction, and agriculture. To boost the technical textiles market, the government has introduced the Production Linked Incentive (PLI) scheme. This scheme provides incentives and support to manufacturers and encourages the production of technical textiles, including geotextiles. On December 14, 2020, the Government of India announced that the Ministry of Road Transport and Highways issued a circular emphasizing the importance of technology in road construction. The circular includes a dedicated section on the utilization of geosynthetic products for the construction of National Highways and other structures. Several codes and standards have been developed to guide the use of different geotextiles for road development, embankments, and more. In 2023, the union minister of India announced that India aims to elevate its technical textiles market to USD 40 billion within the next 4-5 years, a significant increase from the current USD 22 billion. The textiles minister also expresses optimism in establishing a domestic technical textiles market of up to USD 300 billion by 2047. Natural geotextiles, composed of agricultural materials such as jute, coconut coir, straw, and rubber, are promoted by the government to support jute production. As part of the Pradhan Mantri Gram Sadak Yojana, select state governments encourage the utilization of natural geotextiles for rural road construction. These geotextiles offer the added advantage of being environmentally friendly. In cases where durability is crucial, synthetic geotextiles are anticipated to provide greater benefits compared to their natural counterparts.

Key Market Challenges

Lack of Technical Expertise and Skilled Labor

The geotextiles industry necessitates specialized technical expertise and skilled labor for manufacturing, installation, and project implementation. However, a lack of significant technical expertise in the country has been identified as an additional challenge. Skilled workers are indispensable for tasks such as stitching, welding, and handling specialized equipment used in geotextile projects. Investing in training programs and skill development initiatives is imperative to enhance the knowledge and capabilities of professionals in the geotextiles sector. As a result of the scarcity of skilled labor, India heavily relies on imports for specific geotextile products and technologies. This dependence can lead to elevated costs and impede the development of the domestic geotextiles industry.

Cost Competitiveness

The cost competitiveness of geotextiles in comparison to conventional construction methods can occasionally pose a hurdle to their broader adoption. While geotextiles do provide long-term advantages and mitigate maintenance expenses, the initial investment may discourage certain stakeholders. To address this challenge, there is a requirement for cost-effective manufacturing processes and enhanced economies of scale to make geotextiles more financially accessible.

Key Market Trends

Advancements in Material Technology

The geotextiles market is witnessing advancements in material technology as a significant trend. This development is driven by the numerous performance and functional advantages that geotextiles offer over other materials in construction and infrastructure projects. The use of advanced materials in geotextiles enhances their strength, durability, and resistance to environmental factors, making them highly suitable for Indian conditions. In rural areas of India, there is a growing adoption of natural geotextiles for strengthening the subgrade of rural roads. Natural geotextiles, such as jute and coir, offer sustainable alternatives while providing reinforcement and stabilization to the soil. Innovations in geotextiles are being developed and introduced in India to address worsening floods caused by climate change. These advancements aim to enhance flood control measures, protect vulnerable areas, and minimize damage caused by excess water.

Adoption of Sustainable Construction Practices

Geotextiles offer several environmental benefits, making them an ideal choice for sustainable construction practices. Geotextiles help prevent soil erosion, protect natural habitats, and improve water quality by filtering pollutants. The integration of geotextiles into infrastructure projects reflects a commitment to conserving the environment and preserving India's natural resources. Moreover, the utilization of geotextiles in construction can greatly contribute to a significant reduction in carbon emissions. In comparison to conventional construction methods, geotextiles necessitate less excavation, employ fewer natural resources, and generate minimal waste. Furthermore, geotextiles have the potential to enhance the durability of structures, minimizing the need for frequent repairs and reconstruction. By embracing geotextiles, construction projects in India can effectively achieve reduced carbon footprints and actively contribute to overall sustainability objectives. Geotextiles provide energy-saving benefits by optimizing resource utilization in construction. For instance, in road construction, the

use of geotextile reinforcements reduces aggregate layer thickness, resulting in reduced material usage and energy consumption. The geotextiles industry in India prioritizes waste reduction and recycling practices. Geotextiles can be manufactured from recycled materials, such as post-consumer plastic waste, diverting them from landfills and reducing the demand for virgin materials. Moreover, geotextiles can be reused or repurposed after project completion, further minimizing waste generation. The integration of waste reduction and recycling practices within the geotextiles market contributes to a circular economy approach in construction.

Segmental Insights

Material Insights

In 2022, the geotextiles market was dominated by the polypropylene segment and is predicted to continue expanding over the coming years. The expansion is attributed to the exceptional properties of polypropylene, such as high chemical resistance, durability, and inorganic compounds. Moreover, its cost-effectiveness compared to other raw materials has contributed to its popularity, especially in the building and construction industry. The increasing demand for polypropylene from emerging economies, notably China, India, and several other Asian countries, is anticipated to influence the trends in raw material costs throughout the forecast period.

Type Insights:

In 2022, the geotextiles market was dominated by the non-woven segment and is predicted to continue expanding in the coming years. Nonwoven geotextiles are highly permeable geosynthetics composed of nonwoven materials. They are commonly used in construction projects in conjunction with geotechnical materials such as clay and rock. These polymers are typically derived from synthetic materials such as polyamide, polyethylene, polypropylene, polyester, etc. Due to their extensive applications in construction, decoration, automotive, agriculture, hygiene products, and packaging, this segment dominates the market. Furthermore, the growing utilization of nonwoven geotextiles in stormwater runoff subsystems and the increasing lifespan of landfills are anticipated to drive future growth.

Regional Insights:

The West region has established itself as the leader in the India Geotextiles market. The western region of India, particularly states like Maharashtra and Gujarat, has

experienced substantial infrastructure development projects in recent years. This encompasses the construction of highways, bridges, ports, and urban infrastructure. Key industries such as construction, oil and gas, and textiles have a robust presence in this region, resulting in a heightened requirement for geotextiles for various applications such as filtration, separation, and reinforcement. Geotextiles find extensive use in coastal protection initiatives to mitigate erosion and stabilize the coastline, thereby generating significant demand for geotextile products in the region.

Key Market Players

Garware Wall Ropes Ltd.

TechFab India Industries Ltd.

Maccaferri Environmental Solutions Pvt. Ltd.

Terram Geosynthetics Pvt. Ltd. (TGPL)

Hrishikesh Industrial Fabrics Pvt. Ltd.

Jeevan Nonwoven

Skaps Industries India Private Limited

Virendera Textiles

Manas Geo Tech India Pvt. Ltd.

Khator Technical Textiles Pvt. Ltd.

Report Scope:

In this report, the India Geotextiles Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

India Geotextiles Market, By Type:

Non-Woven

Woven & Knitted

India Geotextiles Market, By Material:

Polypropylene

Polyester

Others

India Geotextiles Market, By Application:

Erosion Control

Road

Drainage

Others

India Geotextiles Market, By Region:

North

South

West

East

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India Geotextiles Market.

Available Customizations:

India Geotextiles market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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