

Geogrids Market Assessment, By Configuration Type [Uniaxial, Biaxial, Triaxial, Extruded, Others], By Materials Type [Polypropylene, Polyester, Polyethylene, Others], By Manufacturing Process [Extrusion, Knitting/Weaving, Welding and Extrusion], By Application [Road Pavements, Slope Stabilization, Soil Reinforcement, Railroad Stabilization, Others], By Region, Opportunities and Forecast, 2017-2031F

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# **Abstracts**

Global geogrids market is projected to witness a CAGR of 5.7% during the forecast period 2024-2031, growing from USD 1.51 billion in 2023 to USD 2.35 billion in 2031. Geogrids are progressively benefitting in areas such as transportation, waste drainage systems, and road pathways. For instance, according to the recent data published by the Association of American Railroads, freight rail has become an integrated network of trains and trucks across the United States that substantially transports around 61 tons of essential goods per year.

The rising demand for crude oil and gas across the United States is accelerating the growth of the market. For instance, according to the recent statistics published by the Association of American Railroads, in 2022, the United States transported around 650 barrels of crude oil using country's Class I railroads.

The geogrids market is experiencing massive growth due to the rising business of construction, pipeline projects, and erosion control in the soil solution. Geogrids comprise peculiar structures that are extensively used for reinforcement purposes and successively provide the required strength to reinforce the filling material to confine the



soil particles. The newly designed geogrids are optimized with geometrical dimensions for providing maximum confinement of granular fill generating an effective stabilized layer. Severe weather conditions and challenging environment scenarios are disastrous for soil confinement and slopy areas where geogrids are more resilient to such prevailing conditions and can withstand them for a longer period. Consequently, the growing demand to build extensive rail and road networks is propelling the growth of the geogrids market.

Transformation and Development of Long-Range Roads are Accomplished Using Geogrids

The growth and economy of any country depend on the network connectivity covering the entire region. Expressways and highways are significantly bringing every remote location to the upfront and advanced cities which requires massive road construction and its durability. The lifespan of roads and pavements depend on various unfavorable factors, traffic loads, subgrade soil conditions, etc. Geogrids are generally composed of polymers that potentially provide structural integrity by confining granular fill and uniform load distribution over surfaces. In road construction, geogrids provide remarkable tensile strength that subsequently holds the soil together, ultimately enhancing the load-carrying capacity. Companies are progressively developing advanced geogrids for reducing road construction costs, project time, and carbon emissions to meet sustainability goals. Flexible and rigid paved roads prominently require a stable concrete foundation which can be accomplished using sustainable geogrid. Hence, the overall positive market factors like long-range road connectivity are contributing to the growth of the geogrids market.

For instance, in 2022, the Biden administration cleared a huge amount of USD 550 billion to substantially upgrade various infrastructure projects, including roads, bridges, dams, etc. Data published by the International Transport Forum (ITF) progressively states that over the last decade, the European Union government has spent over USD 318 billion every year on transportation networks. In addition, in 2020, around 87.2% of inland passenger transport across the European Union was carried by traveling cars followed by buses, coaches, and trolleybuses accounting for 7.4%.

Incorporation of Geogrids for Stabilizing the Rail Track Substructure

For any country, railway infrastructure is always an economical mode of transportation, especially with the rising traffic congestion that substantially led to the increasing demand for high-speed railway lines. The construction of rail networks involves

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problems associated with the soil composition and prevailing environmental conditions. Geogrids are suitable materials for the construction of massive rail tracks that significantly reduce the deformation over the long network, further reducing necessary maintenance. Under immense load, the deformation and degradation response of applied geogrid is tested to assess and evaluate the performance of stabilized rail structures. Geogrids are generally placed between the existing formation and the ballast layer, significantly leading to structural integrity. Hence, the geogrids market is anticipated to experience massive growth due to the growing infrastructure of rail projects either goods carrier or human movement.

For instance, according to the Association of American Railroads, the United States has invested in freight railroads averaging over USD 23 billion every year for the past five years. The freight rail network across the United States is nearly 140,000 miles covering the entire country, comprising 49 states where the short lines complete over 44,000 route miles and Class I railroads running over 92,000 route miles. Likewise, the Federal Highway Administration estimated that the total United States freight movements will substantially increase from around 19.3 billion tons in 2020 to a huge 25.1 billion tons in 2040, which is a massive 30% rise.

Asia-Pacific is Progressively Contributing to the Growth of Geogrids Market

The higher demand for transportation in India and China is attributed to the rapid increase in the population, which has increased highway traffics, therefore leading to the development of the long-range rail network across the county. The growing infrastructure construction, including oil and thermal power plants, has also increased the traffic of heavy trucks on roads, which has led to the foundation of paved roads on soft and wet soils. Geogrids contribute significantly to building such highway roads for efficient transportation. The paved roads, highway stabilization, railway construction and ballast stabilization, and roadside drainage systems work are growing across the Asia region, which is accomplished by incorporating geogrids that provide long-term stability while simultaneously taking care of environmental concerns.

For instance, under the China Belt and Road Initiative (BRI), the investment for road projects in 2022 was USD 67.8 billion. In addition, the China State Railway Group in August 2022 progressively commissioned huge investments to enhance the railway network across the country by 2035. Moreover, China has always been involved in the list of water-scarce problems experiencing aggravated water scarcity situation. Jiangsu and Fujian provinces in China have commenced a "water-saving loan" service to encourage and implement water-saving renovation projects with an interest rate of



3.85%. Also, according to the data released by Modern Railways 2023 in China about the prospects of the railway industry development across China, with the 14th Five-year Plan (2021-2025), China will successively develop a total mileage of 165,000 km of railway lines to fulfil the the objective to transport 4.1 billion passengers and 4 billion tons of freight every year by 2025. Therefore, with such a definite investment, Asia-Pacific region is considered a prominent contributor to the growth of the global geogrids market.

#### Impact of COVID-19

The reduction in mobility and transportation, due to the imposed lockdown in response to the COVID-19 pandemic, the industry experienced deteriorated economic stability in 2020. The revenue for road, rail transportation, and construction industry were drastically reduced during the pandemic. The unavailability of resources and manpower for highways and roads also significantly affected the geogrids market growth. The COVID-19 pandemic had a devastating impact on various countries' demands, along with numerous geopolitical uncertainties. The closure of the traveling network significantly affected sectors like tourism and travel, which is considered a prominent revenue-generating sector. The ease of China's COVID-19 measures led to firm demand for commencing new rail and road projects while maintaining the existing ones. In the 2nd quarter of 2022, the supply of geogrids increased as there was a surge in the import and export activities at the global level. Consecutively, the ease in restrictions and removal of lockdown shifted the worst phase of the market to probable growth, deriving impeccable market opportunities for the geogrids market.

#### Key Players Landscape and Outlook

The rising geogrids market has encouraged prominent companies to develop geogrids that has extensive applications in developing massive road and rail networks. The leading global companies in the geogrids market are progressively developing geogrids that are benefitting prominent sectors. For instance, the Tensar International Corp, a leader in the business for the last 50 years, is subsequently assisting engineers and contractors in delivering successful rail and road projects while reducing construction costs, enhancing worksite efficiency, and promoting sustainability. The company's InterAx geogrids, which are very suitable for subgrade stabilization, pavements, and working platforms, have assisted in speeding up the construction and saving up to 70% in aggregate. The company incorporates advanced material science to improve compaction and restrict movement over time, leading to performance enhancement.



In October 2023, Tensar International Corp. accomplished a project on a railyard using its InterAx geogrid, providing a stable foundation for a new container yard where Ray-Mont Logistics owned the project under the Terracon Consultants Geotech advisor. It was successively designed with two layers of a composite biaxial geogrid and geotextile fabric with 12" ALDOT 825B aggregate placed on the bottom layer. Accounting to related massive efforts, the market is generating huge potential for geogrids and encouraging more companies to organize it into their operations. Thus, the increasing supply of geogrid is boosting the market's revenue growth.



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\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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