

India Off Highway Vehicle Tire Market By Vehicle Type (Construction Equipment, Agricultural Vehicles, Mining Vehicles, Material Handling Equipment, Others), By Tire Type (Radial, Bias), By Demand Category (OEM, Replacement), By Region, Competition, Opportunities, and Forecast, 2020-2030F

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Abstracts

The India Off Highway Vehicle Tire market was valued at USD 1.16 Billion in 2024 and is expected to reach USD 1.60 Billion by 2030 with a CAGR of 5.52% during the forecast period. The India Off-Highway Vehicle Tire Market is experiencing robust growth, driven by the country's ongoing infrastructure boom, agricultural advancements, and mining sector expansion. Significant government initiatives, such as the National Infrastructure Pipeline (NIP), are leading to an increase in construction projects, including roads, bridges, and urban infrastructure. These projects require heavy machinery, which in turn drives the demand for durable, high-performance tires capable of withstanding rugged terrains. Alongside construction, the agricultural sector's ongoing mechanization is also a key contributor. As farmers adopt more advanced machinery like tractors, harvesters, and plows, the need for specialized tires designed for diverse soil conditions and improved traction is expanding. The growing mining industry, with its need for robust tires capable of supporting heavy loads and handling abrasive environments, further propels the market.

The market is witnessing several key trends, including the shift towards tires with enhanced durability and performance. Innovations such as radial tires with better fuel efficiency and increased lifespan are gaining popularity, especially in the construction and agricultural sectors. Tires with features like self-cleaning treads and advanced rubber compounds are being introduced to cater to the harsh working conditions found in mining and construction. Manufacturers are also focusing on offering tires

that provide better traction and stability, which are critical for vehicles operating in off-road environments, such as farms, construction sites, and mining operations. However, there are challenges that may impact the market's growth. One significant concern is the high cost of premium tires, which can be a barrier for small-scale farmers or businesses with limited budgets. While larger enterprises in construction and mining can afford the advanced, higher-quality tires, smaller operations may struggle with the upfront cost, limiting tire upgrades and replacements. Furthermore, the demand for tires is closely linked to the economic cycles of construction and mining activities, meaning any slowdowns in these sectors could affect tire sales. Additionally, tire manufacturers must contend with issues like raw material price volatility and sustainability concerns, as demand for eco-friendly and recycled tire options rises. These factors create uncertainties that businesses must navigate to remain competitive in the market. Nonetheless, innovation in tire design, along with increasing demand from key industries, will continue to drive growth during the forecast period 2025-2030.

Market Drivers

Infrastructure Development and Construction Boom

India's rapid urbanization and government-driven infrastructure projects are a major drivers for the Off-Highway Vehicle Tire Market. Large-scale initiatives, such as road construction, urban development, and smart cities, require construction machinery that operates in tough, off-road conditions. The demand for heavy-duty equipment like bulldozers, cranes, and excavators grows, leading to increased tire sales. As cities expand and rural areas see more infrastructure investments, the requirement for durable tires capable of withstanding harsh environments accelerates. Tires used in these vehicles must offer superior traction, load-bearing capacity, and longevity, which bolsters the market's growth. For instance, as of 2024, India launched a major infrastructure initiative, allocating USD 130 billion, 3.4% of GDP to boost its economy, a fivefold increase over the past decade. Most growth occurred in the last five years, with a 27% annual growth rate. Key advancements include a 1.6-fold expansion of the National Highways network, 94% railway electrification, 100 high-speed Vande Bharat trains, modernization of 1,318 railway stations, and a nearly fourfold increase in metro rail networks across 21 cities. Additionally, 84 airports are operational, and power generation capacity has risen by 70%. These efforts are supported by the National Infrastructure Pipeline, National Monetization Pipeline, PM GatiShakti National Master Plan, and various sector-specific programs, including Bharatmala, Sagarmala, and the Smart Cities Mission. The fourth phase of the PMGSY aims to enhance connectivity for 25,000 rural residents.

Agricultural Mechanization

The shift towards mechanization in Indian agriculture is another significant growth driver

for the off-highway tire market. As farming practices evolve, the adoption of modern machinery like tractors, harvesters, and plows becomes more common. This transition demands high-quality tires that can perform well across diverse terrains ranging from soft, muddy soil to hard, rocky ground. Tires for agricultural machinery are designed for traction, flotation, and durability, directly driving demand in the market. This growing mechanization ensures consistent tire sales as agricultural equipment requires regular tire replacements to maintain performance.

Expansion of the Mining Industry

India's mining industry is undergoing significant expansion, driven by increased demand for raw materials such as coal, minerals, and metals. Mining vehicles, including dump trucks, loaders, and drilling equipment, require specialized tires designed to handle extreme conditions such as high abrasion, weight-bearing capacity, and rough terrains. Tires in this sector are critical to operations, as they face constant wear and tear in challenging environments. The growth in mining activities, particularly in coal-rich regions, significantly drives the demand for off-highway tires.

Key Market Challenges

High Cost of Premium Tires

The high upfront cost of premium off-highway tires is a significant challenge in the market. These tires are often built with advanced materials, enhanced durability, and superior performance features, making them costly. Small to medium-sized farms, construction firms, and mining companies may find it difficult to justify the expense of these high-end tires, especially if they have limited budgets. This can result in a reluctance to invest in premium tires, which could affect sales in certain market segments. Manufacturers must find ways to offer cost-effective solutions without compromising quality.

Raw Material Price Volatility

The tire manufacturing industry faces challenges related to the volatility of raw material prices, such as rubber, steel, and other composites. Fluctuations in the cost of these materials can directly impact tire prices, making them unpredictable and difficult for businesses to budget for. This uncertainty can affect both manufacturers and end-users, as businesses may hesitate to purchase large quantities of tires due to concerns about future price increases. Companies in the tire sector must manage their supply chains effectively to mitigate the risks associated with raw material price volatility.

Maintenance and Replacement Cycle

Off-highway vehicle tires require regular maintenance and timely replacements to ensure optimal performance. However, the maintenance cycle can vary greatly depending on the vehicle's usage, terrain conditions, and the type of tire. Tires used in mining and construction equipment, for example, often wear out faster due to harsh

conditions. The demand for tire replacements can be unpredictable, which makes it challenging for manufacturers to maintain a consistent market presence. Companies must anticipate demand and develop strategies to manage inventory effectively to address this issue.

Key Market Trends

Growing Demand for Bias Tires

Bias tires are gaining traction in the off-highway vehicle market, especially within the construction and agricultural sectors. These tires offer excellent traction, stability, and are particularly well-suited for tough, off-road environments. Unlike radial tires, bias ply tires have a crisscrossed layer of nylon or polyester cords, which makes them more resistant to cuts and punctures. Due to their sturdiness and ability to handle uneven surfaces, bias tires are favored in construction and agricultural applications, where machinery often operates in rugged conditions. As industries continue to expand, the demand for bias tires is expected to grow, as they provide cost-effective, reliable solutions for vehicles operating in harsh terrains.

Customization and Specialized Tires

As different off-highway vehicles have unique operational needs, the trend of customizing tires to specific vehicle requirements is growing. Tires are being designed for applications, such as tires for construction machinery, agricultural equipment, or mining vehicles. Customization allows for better performance, safety, and durability, catering to the exact conditions each vehicle faces. Manufacturers are also offering specialized tires that focus on specific features like high traction, low compaction, and resistance to punctures, further enhancing the overall efficiency and longevity of off-highway vehicles.

Eco-Friendly and Sustainable Tires

The push for sustainability is a key trend in the off-highway tire market. Manufacturers are increasingly focusing on producing eco-friendly tires made from recycled or renewable materials. These sustainable options not only help reduce environmental impact but also cater to the growing consumer preference for environmentally responsible products. The development of tires that offer better fuel efficiency and longer lifecycles aligns with global sustainability goals. As governments and businesses implement stricter environmental regulations, the demand for sustainable tire solutions is expected to rise. For instance, In 2024, JK Tyre & Industries, a leading player in the Indian tire industry, presented its array of innovative products, underscored by technological prowess, at the inaugural Bharat Mobility Global Expo 2024 in India. This unprecedented global expo convened the entire mobility value chain in a single venue. Under the theme 'Innovation For The Future,' JK Tyre's exhibition emphasized its dedication to integrating technological advancements. The company showcased its environmentally friendly tire, 'UX Green,' which is composed of 80% sustainable

materials.

Segmental Insights

Vehicle Type Insights

The India Off-Highway Vehicle Tire Market is segmented by vehicle type into construction equipment, agricultural vehicles, mining vehicles, material handling equipment, and others. Construction equipment includes a wide range of machinery such as excavators, bulldozers, cranes, and loaders, which are commonly used in large-scale infrastructure and construction projects. These machines require tires with high durability and performance to withstand rough, uneven terrains and heavy loads. Tires used in this segment are designed for enhanced traction, load-bearing capacity, and resistance to wear, ensuring that construction vehicles operate efficiently over long periods.

Agricultural vehicles encompass machinery used in farming, including tractors, harvesters, plows, and sprayers. The tires for agricultural vehicles are built to handle diverse soil conditions and provide excellent traction, flotation, and minimal soil compaction. These tires are essential for farming operations, especially in rural areas where agricultural machinery is widely adopted. The demand for these tires is driven by the increasing mechanization of farming practices, which reduces the dependency on manual labor and improves the overall efficiency of agricultural activities.

Mining vehicles are used in the extraction of raw materials such as coal, minerals, and metals. These vehicles, including dump trucks, loaders, and drills, require specialized tires that can endure extreme conditions like abrasive terrains, heavy loads, and challenging weather. Tires in this category are engineered for high endurance, offering resistance to punctures and damage while maintaining performance under harsh operating conditions. The demand for mining vehicle tires is closely linked to the expansion of the mining industry in India, particularly in regions with abundant natural resources.

Material handling equipment includes vehicles such as forklifts, reach trucks, and pallet jacks used in warehouses, ports, and manufacturing facilities. Tires for material handling equipment prioritize stability, maneuverability, and load-bearing capacity, ensuring that these machines can operate effectively in confined spaces and high-traffic areas. Tires in this segment are designed for durability and comfort, reducing the risk of operational delays due to tire wear and minimizing the need for frequent replacements.

The 'others' category includes various off-highway vehicles not covered by the aforementioned segments, such as all-terrain vehicles (ATVs), recreational vehicles, and golf carts. These vehicles require specialized tires that offer traction, performance, and durability for off-road use, typically in less demanding but still challenging environments. Tires for these vehicles are designed for both performance in

recreational settings and robustness in various terrains. The diversity of these vehicles contributes to a niche yet steady demand in the market.

Region Insights

In 2023, the North region of India became a dominant player in the Off-Highway Vehicle Tire Market, with key states such as Uttar Pradesh, Haryana, Punjab, and Delhi leading the charge. The North has seen significant growth in infrastructure, agriculture, and mining, all of which contribute to the strong demand for off-highway vehicle tires.

One of the major drivers in this region is the rapid expansion of transportation infrastructure, including highways, expressways, and metro projects, which has led to increased usage of construction machinery such as cranes, bulldozers, and excavators. These heavy-duty vehicles require specialized tires to ensure efficiency and durability in rugged, off-road environments.

Agriculture is another key factor contributing to the dominance of the North region. States like Punjab and Haryana are known for their vast agricultural lands, and the growing trend of mechanization in these areas has significantly boosted the demand for agricultural vehicle tires. Farmers are increasingly adopting advanced machinery, such as tractors, harvesters, and sprayers, to enhance productivity. Tires designed to withstand diverse soil conditions, offering traction and flotation, are in high demand to support the needs of mechanized farming. As agricultural mechanization continues to grow, the need for specialized tires capable of performing in challenging terrains is expected to keep rising.

The North also holds an important position in the mining sector, particularly in areas like Rajasthan and Uttar Pradesh, which are rich in mineral resources. Mining vehicles, including dump trucks, loaders, and drilling machines, require specialized tires designed for high load-bearing capacity and resistance to extreme conditions. The growth in mining activities in the region drives tire demand for vehicles that operate in harsh, abrasive environments. These factors combine to make the North region a significant contributor to the off-highway vehicle tire market in India, with sustained growth expected due to the ongoing infrastructure development, agricultural expansion, and mining activities.

Key Market Players

Apollon Tyres Limited

Balkrishna Industries Limited

Bridgestone Corporation

CEAT Limited

Continental AG

JK Tyre & Industries Limited

Michelin

MRF Limited

The Goodyear Tire & Rubber Company

Pirelli & C. S.p.A.

Report Scope:

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

· India Off Highway Vehicle Tire Market, By Vehicle Type:

Construction Equipment

Agricultural Vehicles

Mining Vehicles

Material Handling Equipment

Others

· India Off Highway Vehicle Tire Market, By Tire Type:

Radial

Bias

· India Off Highway Vehicle Tire Market, By Demand Category:

OEM

Replacement

· India Off Highway Vehicle Tire Market, By Region:

North

South

East

West

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India Off Highway Vehicle Tire Market.

Available Customizations:

The India Off Highway Vehicle Tire Market report with the given market data, TechSci 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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