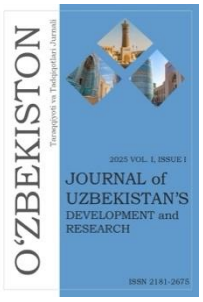

Journal of Uzbekistan's Development and Research (JUDR)

Journal home page: https://ijournal.uz/index.php/judr

DEVELOPMENT PROSPECTS AND ECONOMIC ASSESSMENT OF THE WOOD-POLYMER COMPOSITES MARKET IN UZBEKISTAN

S.S.Sidiqov[1]

A.A.G'ulomov[2]

B.R.Tillayeva[3]

Tashkent State Technical University

KEYWORDS

Polymer composites, recycled plastics, recycling industry, market analysis, decking materials, composites for the automotive industry, fiber-reinforced plastic in the furniture industry, biocomposite materials, Uzbekistan industry, local production, investment potential, processing technology, green economy, raw material diversification, import substitution products, construction materials market.

ABSTRACT

This article talks about the current state of the worldwide wood-polymer composite (WPC) market, what makes it grow, its financial numbers, and Uzbekistan's potential and strategic chances in this area. The research shows that the WPC market, which was worth $7.3 billion in 2023, will reach $11.8 billion by 2032. At the same time, as Uzbekistan sees a rise in the need for eco-friendly, recyclable materials, it is becoming more important to cut down on WPC product imports and start up local production.

2181-2675/© 2025 in XALQARO TADQIQOT LLC.
DOI: **10.5281/zenodo.15801689**

Introduction. Wood-plastic composite is a hybrid material that mixes wood with polymers. Due to its outstanding strength and durability, WPC is quickly gaining favor in the construction, automotive, and packaging sectors. WPC products are developed to give the natural beauty of the wood while also providing the flexibility of plastics, so creating a material that is resistant to weather and moisture, making it excellent for use in applications that take place outside. Wood fibers and polymers are combined in a complicated process during the creation of WPC products, creating a hybrid material that is not only simple to mold and shape but also weather resistant and long-lasting. The utilization of recycled materials, which lowers the environmental effect of creating WPC

Tashkent State Technical University

products, is one of the most significant advances in the WPC market.

Businesses wanting to create new applications and products are investing a substantial amount of money in the WPC market. For instance, IKEA uses WPC materials in some of its furniture products; Ford uses WPC materials in some of its automobile products; and many businesses are using WPC materials in packaging products to create more weather-resistant and long-lasting solutions for customers.

WPC materials are also being utilized to create products that are being printed using 3D technology, which enables businesses to create bespoke forms and patterns. Using WPC to create decking, cladding, and fence products, the construction sector is particularly interested in it. For interior and external components like door panels, dashboards, and bumpers, the car industry is also using WPC materials. In addition, the packaging sector is using WPC materials to create long-lasting and weather-resistant pallets and shipping containers.

Investments are being made in recycled WPC materials and sustainable production techniques as a direct result of the increased demand for environmentally friendly products. Businesses are placing a greater emphasis on openness, accountability, and explainability when it comes to the process of creating WPC products as the market for these products continues to expand. Even while the WPC market has many benefits to provide, there are ethical questions regarding the influence it has on the surrounding environment. These issues are being addressed by the use of sustainable production processes and the utilization of recycled materials. Wood-polymer composites (WPCs) have become popular recently for sustainable construction, cars, furniture, and eco-friendly packaging. They last longer, resist moisture and insects, and can be recycled better than normal wood, which is why they're getting more market share. This growth is also creating new investment chances in Uzbekistan. To really understand the wood-polymer composite (WPC) market, the main things to look at are current articles, industry analysis, reports, and practical tech studies. Below is a review of important stuff that shows different parts of the WPC market.

Wood-Plastic Composites Market Size, Share & Trends Analysis Report 2024–2032, by Grand View Research (2024), looks at the wood-plastic composite market. It says the market was at $7.3 billion in 2023 and is expected to grow by 5.6% each year until 2032. The report talks about how polyethylene, polypropylene, and PVC-based items are the most common. It also looks at decking, car interiors, and consumer goods. Markets and Markets (2023) put out a report called “Wood-Plastic Composites Market by Type, Application, Region – Global Forecast to 2030”. This report says that cities getting bigger, environmental worries, and making things from recycled stuff are big reasons why people want wood-plastic composites. North America and the Asia-Pacific area are seen as the main drivers for this.

Analysis and Discussion. Resources about the Uzbekistan market: T.D. Sodikov's Technology of Polymeric Materials and Composites (2019) covers the theory and practice

of making composite materials using Uzbekistan's polymer resources. It gives scientific reasons for getting wood-polymer composites (WPC) from local materials. Agency of Statistics reports (2022–2024) analyze production and import/export numbers for construction, furniture, plastics, and woodworking. They show the market need for WPC products and how much Uzbekistan relies on imports. Trex Company Inc. Sustainability Report (2022) gives real numbers and ways to cut the carbon footprint by using recycled plastic and wood waste in WPC product making.

Jadval-1

Global Economic Indicators

№	Indicator	Value
1.	Market Size (2023)	USD 7.3 billion
2.	Annual Growth Rate (2024–2032)	5,6%
3.	Projected Market Size (2032)	USD 11.8 billion
4.	Leading Region	North America
5.	Leading Application	Decking (23% market share)

The plastic market is growing these days, based on materials like polyethylene, polypropylene, PVC, and others. The demand for bio-based and recycled materials is rising, because of environmental rules.

A look at Uzbekistan's market today and where it’s going. Right now, here’s what people really want and what’s possible. In Uzbekistan, there's a big need for wood-plastic composite (WPC) products in these areas: Construction, for things like fences, terrace floors, and ceiling stuff. Interior design, like doors, windows, and wall panels. Furniture making, where they want light, waterproof, nice-looking materials. Farming, such as greenhouse frames and coverings, and fence parts. What problems are there in the market; Over 80% of the WPC products are brought in from other countries. Even though there's plenty of local material like wood scraps and plastic waste, the ways to get that stuff into factories aren't really worked out yet. Also, the system for making sure things meet standards and are eco-friendly isn't great.

Competitive Edge and Investment Potential. Local production benefits: Uzbekistan has a lot of wood industry and plastic waste (especially in the regions of Tashkent, Andijan, Syrdarya, and Navoi). There are affordable labor resources and existing infrastructure. Economic zones and technology parks provide incentives for value-added processing production.

Table-2

Investment areas

№	Field	Recommendations
1.	Production of WPC based on local raw materials	Utilization of wood chips and waste materials
2.	Decking, siding, and fencing components for construction	Import-substituting products
3.	WPC panels for the furniture industry	Moisture-resistant, environmentally friendly products
4.	Consumer goods and toys	Eco-friendly goods made from recycled materials

Table-3

Major Global Companies and Knowledge Exchange

№	Company	Field
1.	AERT	Recycled plastic-based composites
2.	Axion Structural Innovations	Structural composites for infrastructure
3.	Trex Company, TimberTech	Decking and construction products
4.	Fiberon, CertainTeed	Facade and barrier products

For Uzbek manufacturers, working with these companies on tech stuff, licenses, and sharing know-how could really speed up getting into the market.

Strategic Recommendations. Let's get local raw materials going by setting up places to gather and sort wood and plastic waste. Then, we can make cool stuff that can compete with others: decking, door and window stuff, furniture parts, and plastic bits for farming. We need to get our product quality up to international standards with a good rating system. We can send our products to places like Central Asia, Afghanistan, Kazakhstan, and the Middle East because there's a potential market there.

Conclusion. The global economy is growing, opening up new things for Uzbekistan, like wood-polymer composites. Making these composites can really help Uzbek industry branch out, meeting needs for green and tech stuff on the market. With government help like industry zones, good loans, and research projects, Uzbekistan can bring in advanced tech to make wood-polymer composites for export. Looking at what's out there, some things are key to growing this market: understanding global money stuff and tech trends (Grand View, Markets&Markets), being eco-friendly and following the rules (UNEP, EU Reports), knowing what's needed locally and what Uzbekistan can make (Uzbekistan

statistics, Sodikov), and learning from top companies to adapt their tech. These things can help you make smart choices, do research, and plan investments in wood-polymer composites.

References

1. Grand View Research. (2024). Wood-Plastic stuff Market Size, Share & Trends Analysis Report, 2024–2032. Over in San Francisco, CA, USA.
2. Markets and Markets. (2023). Wood-Plastic stuff Market by Type (Polyethylene, Polypropylene, PVC), What it's used for (Building & Construction, Cars, Consumer Goods), Region – the World Looking Ahead to 2030.
3. Mohanty, A. K., Misra, M., & Drzal, L. T. (2005). Natural Fibers, Biopolymers, and Biocomposites. CRC Press, USA.
4. Ashori, A. (2008). Wood–plastic materials as potentially good eco-materials for car companies. Bioresource Technology, 99(11), 4661–4667. https://doi.org/10.1016/j.biortech.2007.09.043
5. European Bioplastics. (2022). Bioplastics Market Numbers for 2022: Global Production Keeps Growing. [Online report].
6. United Nations Environment Program (UNEP). (2021). Recycling Plastic in Asia and the Pacific: A Plan for being Sustainable. Bangkok.
7. Trex Company Inc. (2022). What they are doing to be Sustainable. found at https://www.trex.com
8. Fiberon Press Room. (2021–2023). New places to send out their stuff and making more products. https://www.fiberondecking.com/newsroom
9. Sodikov, T. D. (2019). Polymer Materials and Composites Technology. Tashkent: Science and Technology Publishing House.
10. Republic of Uzbekistan Statistics Agency. (2023). Statistical Indicators of the Construction Materials Industry of the Republic of Uzbekistan. Tashkent: Stat. Edition.
11. CertainTeed Corporation. (2022). Vinyl and composite siding innovations. www.certainteed.com
12. Axion Structural Innovations LLC. (2021). Recycled structural composites for infrastructure projects. Company White Paper.
13. Beologic N.V. (2020). Innovations in WPC extrusion. Belgium: Technical Report.
14. GOST 15.004-2019. Composite materials and products based on them: General technical requirements. Moscow.