

Nutrient Recovery System Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Centralized System, Decentralized System), By Technology (Struvite Precipitation, Biogas Production, Composting, Membrane Separation, Ion Exchange), By End User (Agriculture, Fertilizer Industry, Mining Industry, Water Treatment Plants, Food & Beverage Industry), By Region & Competition, 2021-2031F

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Abstracts

The Global Nutrient Recovery System Market is projected to experience substantial growth, rising from USD 8.44 Billion in 2025 to USD 18.42 Billion by 2031, reflecting a CAGR of 13.89%. These systems utilize advanced technology to extract and concentrate essential minerals, specifically nitrogen and phosphorus, from waste sources like municipal wastewater and agricultural manure. Key drivers for this global market include strict environmental regulations designed to prevent water body eutrophication and an increasing focus on circular economy strategies to decrease dependence on finite mined resources. Additionally, the fluctuating prices of traditional fertilizers further encourage the shift toward sustainable alternative nutrient sources.

According to the American Biogas Council, the United States biogas sector saw significant activity in 2025, with 125 new projects launched in the previous year, totaling more than 3 billion dollars in new investments. Despite these promising investment figures, the broader expansion of the market is hindered by substantial challenges, primarily the high initial capital costs and the technical difficulties involved in retrofitting these complex systems into existing waste treatment infrastructure.

Market Driver

The enforcement of strict environmental discharge regulations serves as the main driver for the nutrient recovery system market, forcing wastewater treatment plants to modernize their facilities. Governments around the world are imposing rigorous limits on nitrogen and phosphorus emissions to fight water body eutrophication, which necessitates the adoption of advanced extraction technologies. This regulatory landscape effectively shifts waste treatment from a disposal issue to a resource recovery opportunity, directing significant capital toward compliance-driven projects. For example, the European Commission noted that the revised Urban Wastewater Treatment Directive, effective January 2025, is expected to generate around ?6.6 billion annually in financial benefits by enhancing water quality and promoting resource circularity.

Simultaneously, the diminishing supply of finite phosphate rock reserves and the resulting demand for sustainable fertilizers are major factors accelerating market growth. With geopolitical instability and depleting mines endangering conventional fertilizer supply chains, the agriculture industry is increasingly turning to recovered nutrients to guarantee food security. This transition is reinforced by economic instability in raw material markets, which promotes the use of circular economy models. As reported by the World Bank in November 2025, global fertilizer prices were anticipated to rise by 21% by the end of the year, highlighting the critical need for alternative sources. Veolia's announcement in May 2025 of securing over \$750 million in new water technology contracts further illustrates the growing industrial demand for resilient, sustainable treatment solutions.

Market Challenge

The growth of the Global Nutrient Recovery System Market is significantly restricted by the high initial capital costs and technical complexities involved in retrofitting. Unlike simple filtration updates, nutrient recovery necessitates the installation of engineered crystallization reactors and precise chemical dosing systems, which are expensive to acquire and install. Moreover, incorporating these systems into older wastewater treatment plants creates logistical difficulties; many existing facilities lack the necessary space or hydraulic capacity to accommodate new recovery processes without expensive civil engineering modifications. These complexities increase financial risks for utility operators, often leading them to postpone adoption in favor of cheaper, traditional disposal methods.

Recent industry figures confirm the scale of the financial commitment needed for these nutrient-focused upgrades. In 2024, Water UK reported that the water industry had approved a capital investment plan allocating 6 billion pounds specifically for nutrient pollution upgrades and related asset improvements to satisfy environmental standards. This substantial funding requirement underscores the economic barriers within the market, as the high costs of compliance and retrofitting consume budgets that could otherwise facilitate the broader implementation of sustainable recovery technologies.

Market Trends

Municipal wastewater treatment plants are increasingly rebranding and upgrading to become Water Resource Recovery Facilities (WRRFs). This shift represents a move away from simple waste disposal toward the active production of clean water, renewable energy, and recovered nutrients, making nutrient recovery systems a central component of modern plant design. Utilities are investing heavily in these comprehensive upgrades to transform aging infrastructure into revenue-generating assets that support circular economy goals and ensure compliance. Highlighting this transformation, Smart Water Magazine reported in October 2025 that the Lancaster Area Sewer Authority received \$160 million?part of a record \$547 million investment in Pennsylvania?to modernize the Blue Rock Water Resource Recovery Facility, funding capacity expansion and advanced nutrient removal infrastructure.

At the same time, there is a rising preference for decentralized and modular nutrient recovery systems over large, centralized infrastructure. These flexible units enable smaller municipalities, industrial sites, and individual farms to conduct on-site nutrient recovery, reducing transportation expenses and allowing for local fertilizer application. The agricultural sector is particularly embracing these scalable technologies to handle waste at the source while producing valuable byproducts like vermicompost and cleaner water. For instance, Pulse 2.0 reported in November 2025 that BioFiltro raised \$35 million to expand its modular vermifiltration units within the dairy and food processing industries, demonstrating the commercial viability of distributed recovery solutions.

Key Market Players

Clearas Water Recovery, Inc.

Centrifuge-Systems, LLC

NuReSys NV

Ostara Nutrient Recovery Technologies Inc.

Paques BV

Trident Processes LLC

Veolia Water Technologies

Report Scope

In this report, the Global Nutrient Recovery System Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Nutrient Recovery System Market, By Type

Centralized System

Decentralized System

Nutrient Recovery System Market, By Technology

Struvite Precipitation

Biogas Production

Composting

Membrane Separation

Ion Exchange

Nutrient Recovery System Market, By End User

Agriculture

Fertilizer Industry

Mining Industry

Water Treatment Plants

Food & Beverage Industry

Nutrient Recovery System Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Nutrient Recovery System Market.

Available Customizations:

Global Nutrient Recovery System 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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