

Municipal Wastewater Treatment Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Treatment Process (Physical Treatment, Chemical Treatment, Biological Treatment, Membrane-Based Treatment, Others), By Application (Residential, Commercial, Others), By Treatment Technology (Primary Treatment, Secondary Treatment, Tertiary Treatment), By Region, and By Competition, 2020-2030F

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Abstracts

Market Overview

The Global Municipal Wastewater Treatment Market was valued at USD 30.41 billion in 2024 and is anticipated to reach USD 41.76 billion by 2030, registering a CAGR of 5.27% during the forecast period. Urbanization, environmental regulations, and the rising demand for clean water are significantly reshaping the municipal wastewater landscape. With over half the global population now living in urban areas—and projections indicating this figure will exceed 68% by 2050—municipalities face growing pressure to upgrade wastewater infrastructure and enhance treatment efficiency. Municipal wastewater treatment encompasses critical processes like sedimentation, biological treatment, disinfection, and sludge handling, designed to remove pollutants before safe discharge or reuse. Governments are adopting advanced technologies such as membrane bioreactors (MBRs), UV disinfection, and advanced oxidation processes (AOPs) to comply with strict environmental standards. Simultaneously, climate-driven water scarcity is prompting a shift toward water recycling and reuse strategies. As digitalization spreads, smart sensors, IoT, and AI-based systems are revolutionizing

operations by improving plant performance, monitoring, and regulatory compliance. These factors collectively underpin the market's dynamic expansion.

Key Market Drivers

Rising Urban Population and Expanding Municipal Infrastructure

The increasing urban population is exerting pressure on existing wastewater systems, driving the need for expanded and modernized municipal treatment infrastructure. According to the United Nations, urban residents accounted for 56.2% of the global population in 2023—a number projected to reach 68% by 2050. This urban influx leads to greater sewage volumes, compelling municipal authorities to invest in new treatment facilities and network upgrades. In developing regions, like India, where treatment capacity covers only about 38% of daily sewage generation, the demand for wastewater solutions is critical. Simultaneously, older infrastructure in developed nations, such as the U.S. and Germany, requires significant rehabilitation to meet rising volumes and compliance standards. These combined pressures are propelling investments in municipal wastewater management on a global scale.

Key Market Challenges

High Capital and Operational Costs

One of the main constraints in municipal wastewater treatment is the high cost associated with plant development and ongoing operations. Constructing full-scale treatment plants involves significant expenditure on civil works, mechanical installations, and control systems—often amounting to millions of dollars. Furthermore, operating expenses, particularly for energy and chemical usage, can account for a large portion of annual budgets, with energy alone representing up to 40%. These costs are especially challenging in low- and middle-income countries where financial resources are limited and electricity prices are high. Many municipalities lack access to adequate funding, and retrofitting outdated systems to meet modern regulatory requirements further exacerbates the financial burden. Smaller municipalities face additional economic pressure due to their limited scale, making per-unit treatment costs disproportionately high.

Key Market Trends

Integration of Smart Water Technologies and IoT in Wastewater Management

The adoption of smart technologies is transforming municipal wastewater operations, improving efficiency, reliability, and compliance. Utilities are incorporating IoT sensors, SCADA systems, and cloud-based platforms to monitor water quality, energy use, and plant performance in real-time. These tools enable predictive maintenance and early detection of operational issues, significantly reducing downtime and repair costs. Predictive analytics further enhances decision-making by forecasting equipment failures and optimizing treatment processes. Digital twins are also emerging as valuable tools, simulating plant operations under various conditions to support design and performance optimization. These innovations are enabling municipalities to build more resilient and cost-effective wastewater treatment systems.

Accelerated Emphasis on Water Reuse and Circular Economy

The global shift toward sustainable resource use is placing emphasis on water reuse and circular economy principles in municipal wastewater treatment. Cities are increasingly adopting systems that recycle treated wastewater for non-potable purposes such as irrigation, industrial cooling, and toilet flushing. In regions facing water scarcity, such as the Middle East, Singapore, and California, advanced technologies are even enabling indirect or direct potable reuse. Circular models also include recovering energy from sludge digestion and extracting nutrients like phosphorus for fertilizer production. These practices not only reduce environmental impact but also create new revenue opportunities and improve the economic viability of wastewater treatment investments. As global focus intensifies on sustainability, these approaches are expected to become integral to municipal wastewater strategies.

Key Market Players

Veolia Water Technologies

SUEZ Water Technologies & Solutions

Xylem Inc.

Ecolab Inc.

Evoqua Water Technologies LLC

DuPont Water Solutions

Kurita Water Industries Ltd.

Aquatech International LLC

Pentair plc

Fluence Corporation

Report Scope:

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

Municipal Wastewater Treatment Market, By Treatment Process:

Physical Treatment

Chemical Treatment

Biological Treatment

Membrane-Based Treatment

Others

Municipal Wastewater Treatment Market, By Application:

Residential

Commercial

Others

Municipal Wastewater Treatment Market, By Treatment Technology:

Primary Treatment

Secondary Treatment

Tertiary Treatment

Municipal Wastewater Treatment Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

South America

Brazil

Argentina

Colombia

Asia-Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Municipal Wastewater Treatment Market.

Available Customizations:

Global Municipal Wastewater Treatment 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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