

- National Rural Drinking Water Programme (NRDWP) and Jal Jeevan Mission (JJM) aim to provide potable tap water to every rural household
- The National Mission for Clean Ganga (NMCG) or Namami Gange programme is another initiative aimed at rejuvenation of the river Ganga and effective abatement of pollution
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims to provide basic services like water supply and sewerage to households in urban areas
- Global agencies like the World Bank, Japan International Cooperation Agency (JICA), and the Asian Development Bank (ADB) are actively involved in funding water infrastructure projects in India
- State Governments fund various water & wastewater projects through their own budgets
- Private sector investments are promoting wastewater treatment, particularly in the PPP/HAM projects in municipal and industrial sectors

Water business opportunities are also arising in Eastern European Countries, South Asia, several African countries and MENA region.

## Triveni Water Business

### Triveni Water Business: Overview

Triveni Water business has pan-India presence, besides operations in Maldives and Bangladesh. The Water Business

Group (WBG) of Triveni offers complete range of Water & Wastewater solutions, utilising innovative and advanced equipment and technology across a wide spectrum of applications. As tightening water and wastewater quality regulations are challenging the limits of conventional treatment systems, the Company provides cost-effective systems and services to optimise operational efficiency and lower the life-cycle costs.

In-house Equipment department of Water Business adds to its strength in EPC business. The business also boasts of a strong in-house Design & Engineering team. Triveni's good financial health is a key strength for participating in PPP/HAM concession projects, and it is actively exploring opportunities. The Company is geared up to undertake medium and large sized projects in India and overseas.

The various business sub-segments are detailed below:

### Turnkey/Engineering Procurement and Construction (EPC) solutions

- Manufacturing of equipment for the entire spectrum of water and wastewater treatment Industry
- Water and wastewater collection and distribution networks, including their design, construction, operation and management
- Water treatment based on Conventional processes, Ultra Filtration, Reverse Osmosis, Demineralisation, and Sea Water Reverse Osmosis



- Wastewater/sewage treatment based on advanced technologies like Sequencing Batch Reactor (SBR), Moving Bed Biofilm Reactor (MBBR), etc., both for municipal and industrial effluents
- Design, Build, and Operate water & wastewater treatment plant, based on Ultra Filtration, Reverse Osmosis, Zero Liquid Discharge and Reuse
- Design, Build and Operate (DBO) water & wastewater management systems on Engineering Procurement and Construction (EPC)/ Public Private Partnership (PPP)/ Hybrid Annuity Model (HAM)/ Build Own Operate Transfer (BOOT) models
- Operations & maintenance of water and wastewater treatment plants

**Water Treatment, Wastewater Treatment, Tertiary Treatment, Recycle & Reuse, and Zero Liquid Discharge**

The Company is committed to contributing sustainable solutions for water treatment, wastewater treatment, tertiary treatment, recycle & reuse, and zero liquid discharge, along with environmental protection with enhanced quality of life. It strives to provide a growing number of people with access to clean drinking water, and to secure environmentally-compatible disposal of municipal and industrial wastewater. This task drives the Company towards the development of new technologies, besides the ongoing optimisation of existing processes with a focus on emerging markets.

The wide range of water & wastewater treatment plants supplied by Triveni in India includes:

- Municipal Water Treatment Plants
- Sea Water Desalination Plants
- Brackish Water Desalination
- Industrial Process Water Treatment Plants
- Sewage Water Treatment Plants
- Common Effluent Treatment Plants
- Tertiary Treatment Plants using UF/RO
- Recycle and Reuse of Wastewater
- Zero Liquid Discharge

Triveni is a leading player in the Indian market, and also has presence in international locations such as Maldives and Bangladesh. The Company constantly endeavours to deploy advanced technological solutions to contribute towards the growing needs of the society.

**Operations and Maintenance (O & M)**

Operation and Maintenance (O&M) of water and wastewater systems encompasses decisions and actions taken for control and upkeep of infrastructure and equipment. Triveni provides O&M to keep the water supply safe. It is focussed on achieving the following outcomes related to operations & maintenance, and ensures that its client's system remains sustainable and affordable:

- Reduction in Non-Revenue Water (NRW) through metered water supply and consumption to estimate water usage and losses and, if necessary, implement a leak detection programme
- Maintain the source water from intake point from river, sea, dam, raw water reservoir, or wellhead site
- Monitor any internal and external corrosion of piping and equipment and, if necessary, implement measures to reduce the rate of corrosion
- Monitor and maintain the condition of the water system
- Maintain a stipulated disinfection residual before discharge point
- Maintain positive water pressure under foreseeable operating conditions
- Implement a backflow prevention and cross-connection control programme
- Ensure the use of proper disinfection and flushing procedures for repairs and new construction
- Swab and/or flush the water mains
- Keep the treatment plant, pumping stations and reservoirs in good working order
- Keep the distribution system's valves and hydrants in good working order
- Maintain reasonable level of spare parts inventory

Triveni has significant experience in the Operations & Maintenance space of business for water and wastewater treatment plants, and offers the following services to customers:

- Refurbishment, upgradation and automation of existing plants
- Spares, service consumables, and chemicals
- Annual maintenance contracts
- Operations and maintenance
- On-site or off-site piloting
- On-site training and assistance
- Product and process audits, health check-ups, and overhauls

### Processes and Technologies

Triveni Water has access to the latest technologies in water and wastewater treatment plants, and has gained vast experience in the following technologies:

- Moving Bed-Bio Reactor (MBBR)
- Sequential Batch Reactor (SBR)
- Activated Sludge Process (ASP)
- Anaerobic-anoxic-aerobic Process (A2O)
- Conventional technologies
- Filtration systems: Sand or Membranes
- High Rate Clarifiers
- Membranes systems
- Wastewater Recycling and Reuse of treated wastewater water
- Zero Liquid Discharge (ZLD)

### Hybrid Annuity Model (HAM)/ Public-Private-Partnership (PPP)

Triveni Water is executing following two projects in Hybrid Annuity Model (HAM) format:

#### Mathura Wastewater Management Private Limited (MWMPL) – a 100% subsidiary of TEIL

After achieving Commercial Operation Date (COD), MWMPL is successfully managing an Integrated Sewerage project under one-city-one-operator framework in PPP/HAM mode for the holy city of Mathura (Uttar Pradesh) under Namami Gange program of the Ministry of Jal Shakti, Government of India.

Objective is to make the Yamuna river flowing through Mathura city pollution-free for which all city sewage from the project's command area had been intercepted and diverted to various Sewage Treatment Plants (STPs) before discharging into the river. Part of sewage is being recycled post its treatment through membrane-based (Ultrafiltration followed by Reverse Osmosis – UF/RO) advanced treatment for process water use in a nearby Crude oil refinery of IOCL (Indian Oil Corporation Limited, Mathura).

The project is currently under Concession period of 15 years.

#### Pali ZLD Private Limited (PZPL) – a 100% subsidiary of TEIL

For the industrial city, Pali, in the state of Rajasthan, PZPL is executing a 12,000 M3 per day (12 MLD) capacity textile wastewater treatment plant to treat the wastewater from over 500 industrial units in its command area. This PPP/HAM job project is being part funded, as capital grant, by the CETP



Foundation (Pali) along with Rajasthan Government through their designated agencies/departments.

This Common Effluent Treatment Plant (CETP) is Zero Liquid Discharge (ZLD) facility wherefrom the treated water shall be used by the Member industries and solids be disposed of in secured landfill facility. The treated water for Process water use for the member industries shall be generated through state-of-the-art advanced tertiary level treatment plant (TTP) involving UF & RO membranes system at post-treatment stage.

To minimise the Sludge generation as well as to ensure its least hazardous, extensive sludge dewatering, drying, heating & incineration processes are being deployed within the facility.

The project includes operation & maintenance (O&M) of the facilities for 15 years post COD.

### Triveni Water Business: Performance

#### Key Highlights

- The Water business achieved turnover of ₹ 246.33 crore in FY 24, lower by 30.1% y-o-y due to slow execution in certain projects and delay in receipt of new projects for which the Company's lowest bids are awaiting award
- PBIT stood at ₹ 31.41 crore in FY 24, higher by 29.4% y-o-y. The higher profitability was driven by cost optimisation/savings in various projects executed during the year
- FY 24 PBIT margins stood 12.8%, up 586 bps y-o-y
- WBG's regular participation in new bids in India and overseas has given it a strong market recognition and WBG is now recognised as a major force in this business
- Going forward, the majority of investments are expected from NMCG, BWSSB, DJB, UP, Telangana, Andhra Pradesh and Maharashtra. WBG is well positioned to undertake more jobs in its areas of expertise. Following its success in Bangladesh and Maldives, it is targeting selected overseas markets in Asia, Africa and Eastern Europe and others for new opportunities

#### Key achievements in recent years

- Across India, over 1,500 installations are successfully operating in various segments - infrastructures, industrial, and municipal
- Over 12,000+ MLD of water has been treated through WBG's projects and equipment
- Received several Water Awards for innovative project designs
- In 2022, received Bangladesh (construction of two sewerage treatment plant for Khulna Water Supply and Sewerage Authority), funded by ADB

- In 2022, received PALI HAM/PPP project
- In 2022, received Bhiwadi 6 MLD Zero Liquid Discharge (ZLD) project
- In 2021, received Maldives project of water and sanitation of 6 islands

### Triveni Water Business: Outlook

The WBG business outlook for FY 25 is positive. With current visibility, the Company expects to book healthy orders, including EPC and HAM projects. However, procedural delays may result in orders to be booked in the latter part of the year.

Overall, the business anticipates a surge in growth opportunities, and new funding will flow from Government of India and various State Governments. The private sector is ready to take investment position in PPP/HAM concessions and there is a need to structure the projects properly by the respective Concession Authorities. Equally important is the need to focus on mobilising new funding sources. Urban Local Bodies (ULBs) also need to build financial and operational capacity.

Due to significant gap between demand and current availability of water & wastewater treatment plants, Water industry growth will be sustainable for a long period of time. Demand for high-end treatment technologies is growing in India. Thus, the Water sector has a positive outlook and offers significant opportunities for various stakeholders, including EPC players, private developers, consultants, and technology and equipment suppliers.

New opportunities are emerging in recycle, reuse and Zero Liquid Discharge businesses on EPC as well as HAM model. Sewage recycling business opportunities are expanding, and wherever Industries are available as off-takers for buying treated sewage, this market segment will show significant adoption. With NMCG's focus on Ganga, STP opportunities continue to emerge on EPC/HAM basis, besides opportunities in schemes like AMRUT, JJM, etc. Exim Bank of India is providing significant funding in Asia and Africa, and it is expected that opportunities in the Water sector will increase with other major River Basins across India being taken up on the lines of Ganga River basin for holistic development.

The Company is also evaluating various international opportunities and intends to participate in several tenders in water & wastewater treatment projects.

The business is in discussion with several municipal corporations/Urban Local Bodies and water boards to catalyse PPP and HAM opportunities, and is trying to create a business niche. Triveni, with its strong financials, will invest in PPP/HAM concession projects and increase its EPC opportunities.