TECHADYANT

INDIA

MARKET INTELLIGENCE REPORT

INDIAN INDUSTRIAL WATER AND WASTEWATER INFRASTRUCTURE MARKET

Market Size, Forecast, and Opportunity Analysis, 2020–2030

Powering Industrial Growth.
Securing Water for a Sustainable India.

$4.65 BILLION
MARKET SIZE BY 2030
(BASE CASE)

8.3% CAGR
2024–2030
(BASE CASE)

ZLD & CIRCULAR WATER SOLUTIONS
DRIVING THE FUTURE

MULTI-INDUSTRY COVERAGE
ACROSS INDIA

INSIGHT. STRATEGY. GROWTH.

INDUSTRIAL WATER OPPORTUNITY MAP · Edition 1 · Strategic Opportunity · July 2026

INDIA'S INDUSTRIAL WATER OPPORTUNITY MAP

India's Industrial Water and Wastewater Infrastructure Market, 2024–2030

Techadyant Labs https://labs.techadyant.com/

Table of Contents

Chapter 1: Executive Summary

1.1 The India Water Opportunity: A National Imperative

India faces a structural tension between industrial ambition and hydrological limits. The country accounts for nearly 18% of the world's population but possesses less than 4% of global freshwater resources, creating a structural deficit that fundamentally constrains economic growth. Per-capita freshwater availability has declined from 5,177 m^3 in 1951 to approximately 1,486 m^3 today—well below the internationally recognised water stress threshold of 1,700 m^3—and is rapidly approaching the water scarcity threshold of 1,000 m^3.

The implications for industry are direct. Industrial water demand is projected to surge from 38 BCM in 2025 to 193 BCM by 2050—a five-fold increase in 25 years. Water demand could exceed available supply by nearly two times by 2030, necessitating investments exceeding ₹20 lakh crore across the water value chain. The used water treatment sector alone requires capital investment of ₹1.56–2.31 lakh crore (USD 18–27 billion) by 2047 to achieve 100% treatment capacity.

That constraint is also the market. India's industrial water and wastewater infrastructure market is at an inflection point, transitioning from a period of steady growth to an accelerated trajectory driven by the convergence of regulatory enforcement, industrial expansion, water scarcity, and corporate sustainability.

1.2 Report Purpose & Scope

This report provides a comprehensive analysis of India's industrial water and wastewater infrastructure market, serving as a strategic guide for investors, technology providers, policymakers, industrial end-users, and multilateral agencies. The report spans market sizing, policy analysis, sectoral deep-dives, technology landscape, competitive dynamics, investment analysis, regional mapping, growth drivers, market forecasts, strategic growth opportunities, and actionable recommendations.

Table 1 — India's Industrial Water Market at a Glance

Metric	2024	2030	Change
Total Market	$2.87B	$4.65B	+62%
CAGR (2024-2030)	—	8.3%	—
Largest Solution Type	Raw/Feed Treatment ($862M)	ZLD/MLD Systems ($1.16B)	ZLD gains share
Fastest-Growing	—	O&M & Services (11.7%	Annuity revenue scales

Metric	2024	2030	Change
Solution		CAGR)	
Largest Vertical	Chemicals ($575M)	Chemicals ($886M)	Largest absolute growth
Fastest-Growing Vertical	—	Green Hydrogen (37.1% CAGR)	National Hydrogen Mission
Largest Region	Maharashtra ($615M)	Maharashtra ($995M)	Largest market
Fastest-Growing Region	—	Uttar Pradesh (9.5% CAGR)	Municipal-industrial reuse

1.3 Market Sizing & Growth Trajectory

1.3.1 Total Addressable Market

Frost & Sullivan estimates that expenditure on industrial water and wastewater infrastructure in India was $2.87 billion in 2024 and will increase to $4.65 billion by 2030, expanding at a CAGR of 8.3% over the forecast period. This represents a 62% increase in six years, driven by demand from the Food & Beverage, chemicals, pharmaceuticals, textiles, power, and metallurgy sectors, all of which require efficient water reuse and effluent compliance solutions.

The broader India water and wastewater treatment technology market is expected to grow from USD 2.73 billion in 2025 to USD 4.73 billion by 2031 at a 9.59% CAGR (Mordor Intelligence, 2026). These two figures measure different things and are not in conflict: the Frost & Sullivan USD 2.87 billion market covers only industrial water and wastewater infrastructure (systems built for factories and plants), whereas the Mordor figure covers treatment technology and equipment across the whole economy — municipal and industrial combined — so the broader number is a differently-drawn boundary, not a restatement of the same market.

Table 2 — Market Growth Trajectory (2024-2030)

Year	Market Size (USD B)	YoY Growth	Cumulative Growth
2024	$2.87	—	0%
2025	$3.11	8.4%	8.4%
2026	$3.37	8.3%	17.4%
2027	$3.65	8.3%	27.2%
2028	$3.95	8.2%	37.6%
2029	$4.28	8.4%	49.1%
2030	$4.65	8.6%	62.0%

1.3.2 Scenario Analysis

The market exhibits asymmetric risk: the “Water Security Revolution” scenario (9.5% CAGR) reaches $4.95B (+6.5% vs. base), while the “Climate Shock” scenario (6.5% CAGR) drops to $4.19B (-9.9% vs. base). The downside risk exceeds upside potential, with regulatory enforcement as the critical variable.

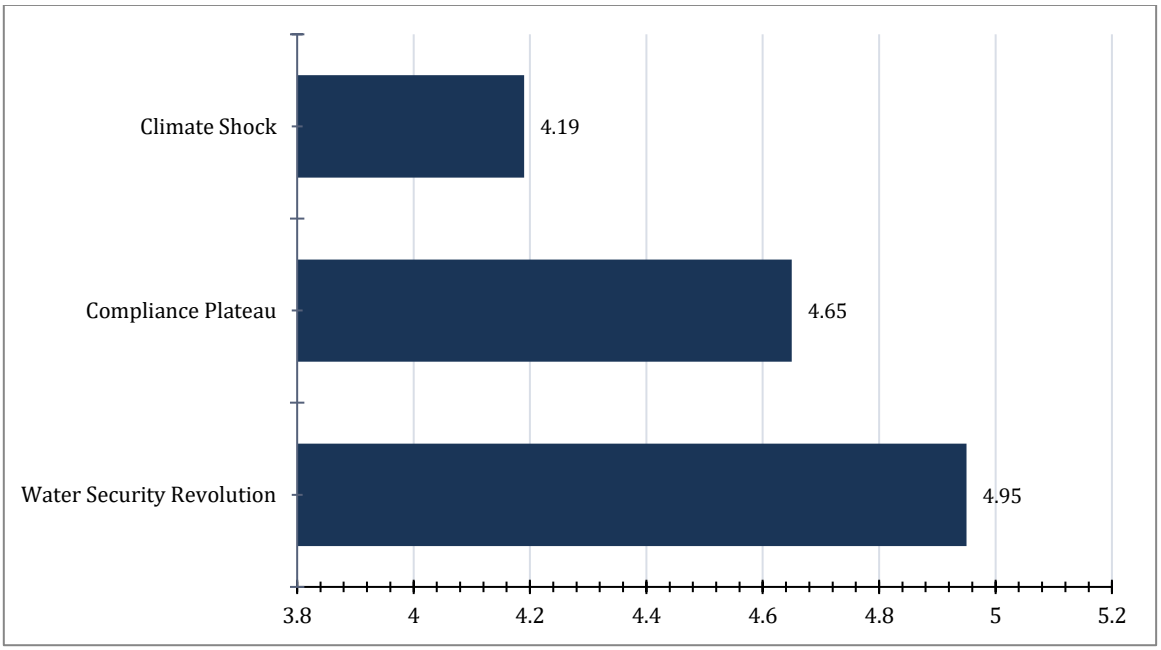

Figure 1 — Scenario Analysis Summary

1.4 Key Market Findings

1.4.1 Regulatory Landscape: Enforcement is the Primary Demand Driver

India's regulatory architecture has shifted decisively from voluntary guidelines to mandatory compliance:

- MoEFCC Consent Guidelines 2025 (effective January 30, 2025) strengthened enforcement mechanisms, giving State Pollution Control Boards clearer authority to grant, refuse, or cancel consent to operate based on compliance status.
- India's 17 categories of highly polluting industries are subject to CPCB real-time effluent monitoring (OCEMS), and Zero Liquid Discharge is mandated selectively within them (notably distilleries, tanneries, and textile units in critically polluted clusters). ZLD adoption is uneven — highest in pharmaceuticals and textiles, lower in chemicals, thermal power and food & beverage (sector adoption rates are Techadyant estimates; no single official source publishes them).

- Maharashtra Reuse Policy 2025 mandates designated bulk industrial and commercial consumers to source 20% of their water requirement from treated wastewater by 2027-28, rising to 50% by 2031 (Maharashtra's Safe Reuse and Management of Treated Wastewater Policy, notified October 2025).
- AMRUT 2.0 requires that 20% of city water demand and 40% of industrial demand be met via treated wastewater. As of March 2025, AMRUT 1.0 had established ~4,450 MLD of treatment capacity, with ~1,430 MLD earmarked for reuse; AMRUT 2.0 targets on the order of 6,000 MLD of new sewage-treatment capacity, with roughly 900 MLD provisioned for reuse (Ministry of Housing and Urban Affairs; figures per CSE analysis of AMRUT 2.0).
- State-level enforcement: Gujarat (strong), Tamil Nadu (very strong, 99.6% compliance), Maharashtra (strong), Karnataka (moderate-strong), Uttar Pradesh (moderate).

Regulatory Impact Assessment: The regulatory framework translates into $3.6-5.1B in direct market impact across 2025-2030, with ZLD retrofits ($1.5-2.0B), tertiary treatment infrastructure ($0.8-1.2B), and UPW systems for semiconductors ($0.5-0.7B) as the largest opportunity areas.

1.4.2 Sectoral Dynamics: Semiconductor & Green Hydrogen Lead Growth

The market is characterised by significant heterogeneity across industry verticals:

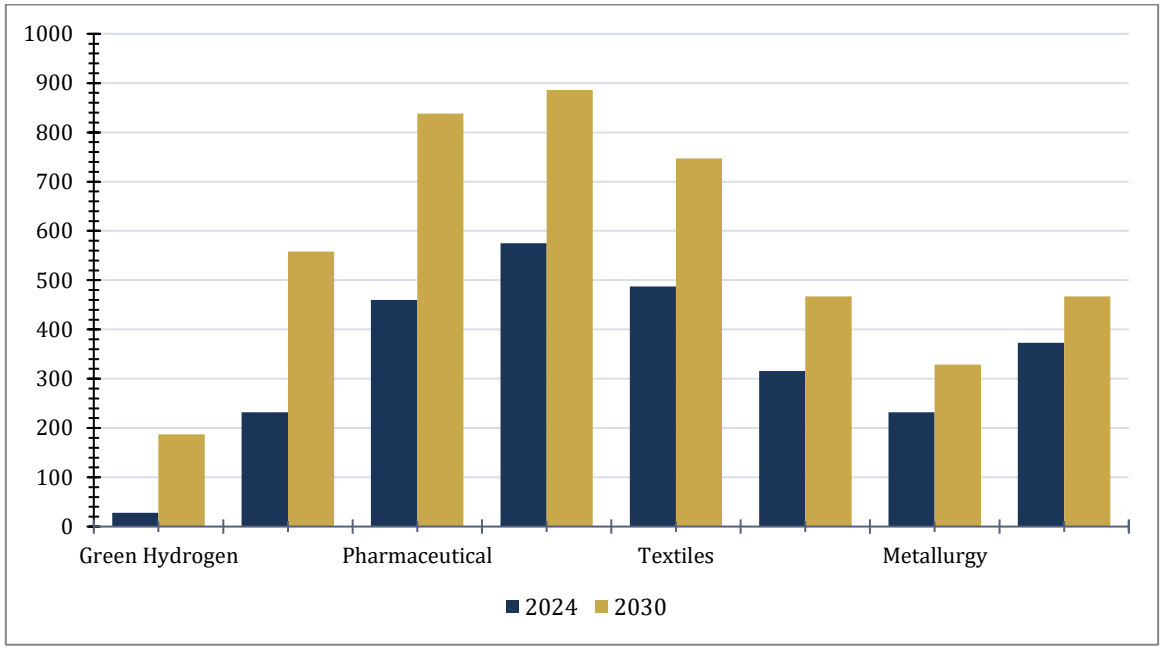

Figure 2 — Sectoral Growth Summary (2024-2030)

Semiconductor: The India Semiconductor Mission targets 3-4 fabrication plants operational by 2030. A single 300mm wafer fab consumes 5-10 MLD of ultrapure water (UPW) , with UPW systems representing roughly 8–15% of a fab's water-infrastructure cost (a small share, about 1–2%, of total fab CAPEX) ($150-250 million per large fab). The total UPW addressable market is $500-700 million over 5-7 years.

Green Hydrogen: India targets 5 million tonnes of green hydrogen production by 2030. Producing green hydrogen requires ~9 litres of water per kg by stoichiometry, ~10 litres or more as purified electrolyser feed, and 18–25 litres or more at the system level once cooling and pre-treatment are included (RMI; IEA; IRENA). 99% of India's hydrogen capacity is projected to be in extremely water-stressed areas by 2040, making water treatment an enabling infrastructure for the entire green hydrogen value chain.

Data Centres: Estimates of India's data-centre water use vary widely by assumed water intensity. A single 100-MW hyperscale facility consumes around 2 million litres of water per day (Bloomberg). Applied across India's ~1.5 GW of 2025 capacity, per-MW rules of thumb yield a range from ~37.5 billion litres/year (Karnataka government, at 25 ML/MW/year) to ~150 billion litres/year (Mordor Intelligence), rising to a projected ~358 billion litres/year by 2030 (Mordor Intelligence). AI-heavy workloads are the growth driver rather than a separately-measured subset.

1.4.3 Technology Landscape: ZLD, Digital & UPW Dominate

The technology landscape is characterised by distinct growth trajectories:

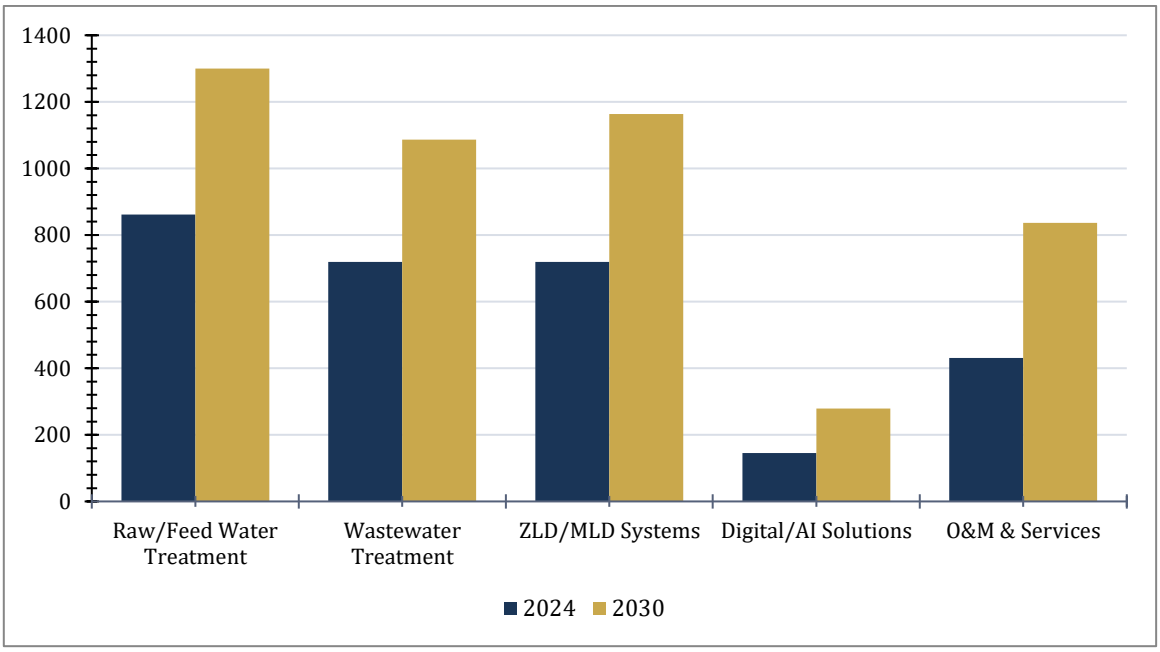

Figure 3 — Technology Growth Summary (2024-2030)

ZLD/MLD Systems: Maintain ~25% market share through 2030. The transition from pure thermal ZLD (25-40 kWh/m³, ₹80-150/m³ OPEX) to membrane+thermal ZLD (15-25 kWh/m³, ₹60-100/m³ OPEX) represents a significant energy efficiency improvement.

Digital/AI Solutions: The fastest-growing solution category (11.5% CAGR) with the highest margins (35-50%) and shortest payback (1-2 years). Key applications include real-time monitoring, predictive maintenance, process optimisation, and digital twins.

O&M & Services: The fastest-growing solution type (11.7% CAGR), driven by the scaling installed base of treatment systems. As the market matures, O&M annuity revenue will provide stable cash flows and improved valuation multiples.

Ultrapure Water (UPW): A critical enabling technology for semiconductor and pharmaceutical sectors. UPW systems achieve 18.2 MΩ·cm resistivity with <5 ppb TOC. The India UPW market is projected at $500-700 million by 2030, growing at 20%+ CAGR.

Resource Recovery: The emerging frontier that transforms wastewater from a liability to an asset. Key recoverable resources include sodium sulfate, sodium chloride, ammonium sulfate, phosphates (struvite), energy (biogas), and water credits. Salt recovery can offset 10-20% of ZLD OPEX.

1.4.4 Competitive Landscape: Concentrated, with Domestic Champions Emerging

The Indian industrial water market is moderately concentrated at the top and highly fragmented below it. The top five players account for an estimated 40-45% of the organised market (Techadyant estimate; independent market research characterises the broader market as fragmented across numerous regional and SME players):

Table 3 — 1.4.4 Competitive Landscape: Concentrated, with Domestic Champions Emerging

Player	Core Strength	Key Technology	2030 Focus
VA Tech Wabag	Global scale; >25 countries	Desalination, ZLD, UPW, MBR	Expand industrial; increase O&M
Ion Exchange	61 years; deep local expertise	Ion exchange resins, ZLD, UPW	Semiconductor UPW; affordable ZLD
Thermax	Energy-water integration	ZLD, RO, anaerobic	Green hydrogen; semiconductor UPW
CN Water	Domestic UPW pioneer	UPW, pharma-grade	Semiconductor UPW (Taipure partnership)
Gradiant	MIT-born deep tech	RO Infinity, SCE, ZLD	Renewable energy; industrial ZLD
Emerging Startups	Innovation focus	Modular ZLD, AI-enabled reuse	Digital; modular; decentralised

Key Competitive Dynamics:

- UPW is the strategic battleground: CN Water's partnership with Taipure represents a critical capability-building move, addressing India's semiconductor UPW gap.
- Technology differentiation is the primary competitive moat.
- O&M revenue mix distinguishes higher-valuation players.
- Strategic partnerships (Thermax-Symbiona, CN Water-Taipure) are accelerating technology access.

1.4.5 Regional Dynamics: Four States Dominate, UP & Karnataka Lead Growth

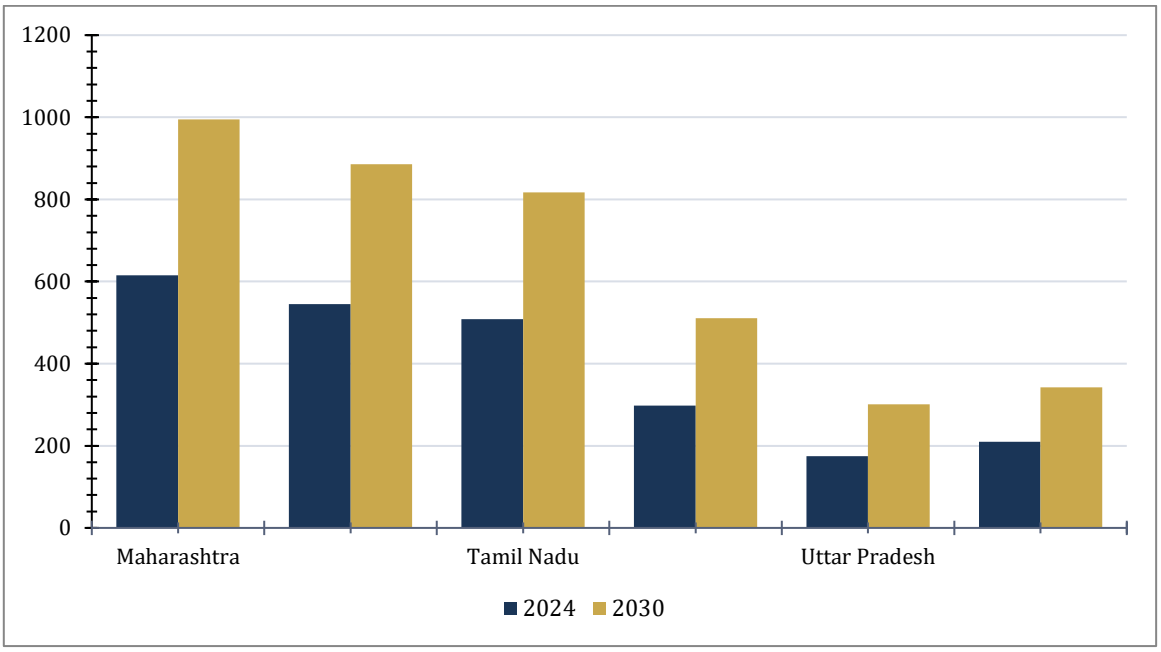

Figure 4 — Regional Growth Summary (2024-2030)

Top 4 states (Maharashtra, Gujarat, Tamil Nadu, Karnataka) account for ~69% of the national market. Karnataka (9.4% CAGR) and Uttar Pradesh (9.5% CAGR) are the fastest-growing regions, driven by semiconductor fabs and municipal-industrial reuse respectively.

1.4.6 Growth Drivers & Restraints: Net Impact is Strongly Positive

Table 4 — Key Market Drivers & Restraints

Drivers	Impact	Restraints	Impact
Rapid Industrialization (17% GDP target)	★★★★★	High CAPEX for ZLD	★★★★★
Water Scarcity (1,486 m³/capita)	★★★★★	High O&M/Energy Costs	★★★★☆

Drivers	Impact	Restraints	Impact
Regulatory Enforcement (ZLD mandates)	★★★★☆	Inconsistent Enforcement	★★★☆☆
Corporate Water-Positive Goals	★★★★☆	Skilled Personnel Shortage	★★★☆☆
Semiconductor Boom	★★★★★	Infrastructure Gaps	★★★☆☆
Digitalization & Industry 4.0	★★★☆☆	Long Payback Periods	★★★☆☆

Net Assessment: The combined impact of drivers significantly outweighs restraints, supporting sustained 8.3% CAGR through 2030. The primary risk is regulatory inconsistency, which could create demand lumpiness and pricing pressure.

1.5 Investment Implications

1.5.1 Investment Thesis Summary

Core Thesis: India's industrial water market offers a defensive growth opportunity with non-discretionary demand drivers (regulatory compliance, water scarcity) and structural tailwinds (industrial expansion, semiconductor mission). The market's 8.3% CAGR, combined with high barriers to entry in certain segments (UPW, ZLD), creates attractive risk-adjusted returns.

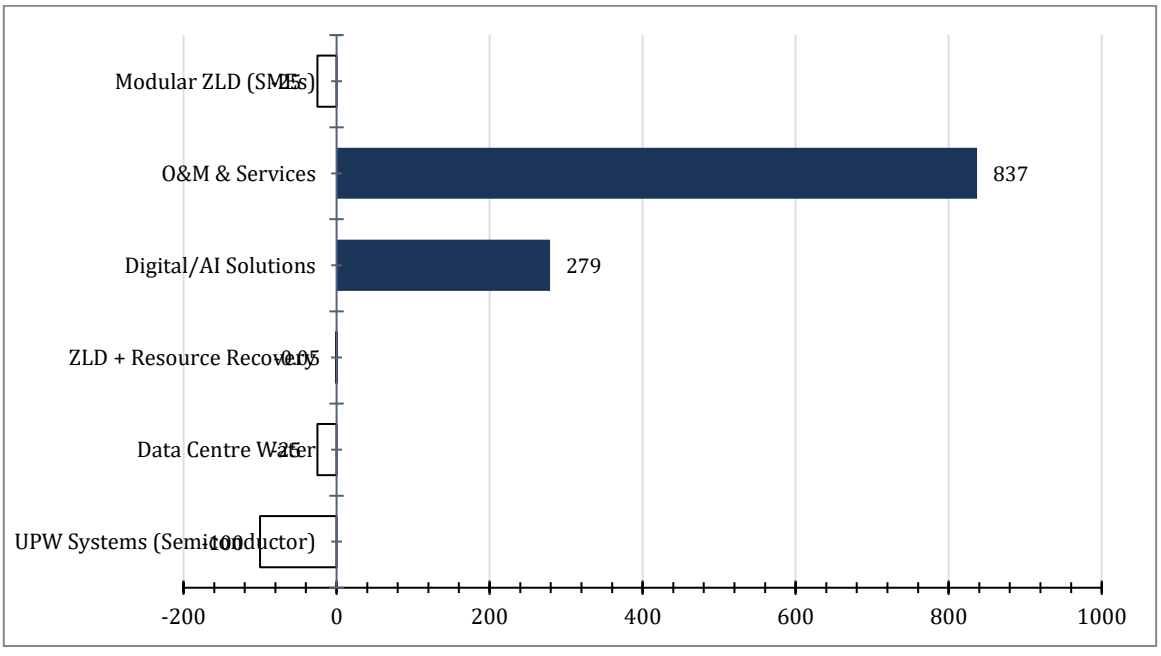

Figure 5 — Investment Prioritisation Framework

1.5.2 Recommended Portfolio Allocation

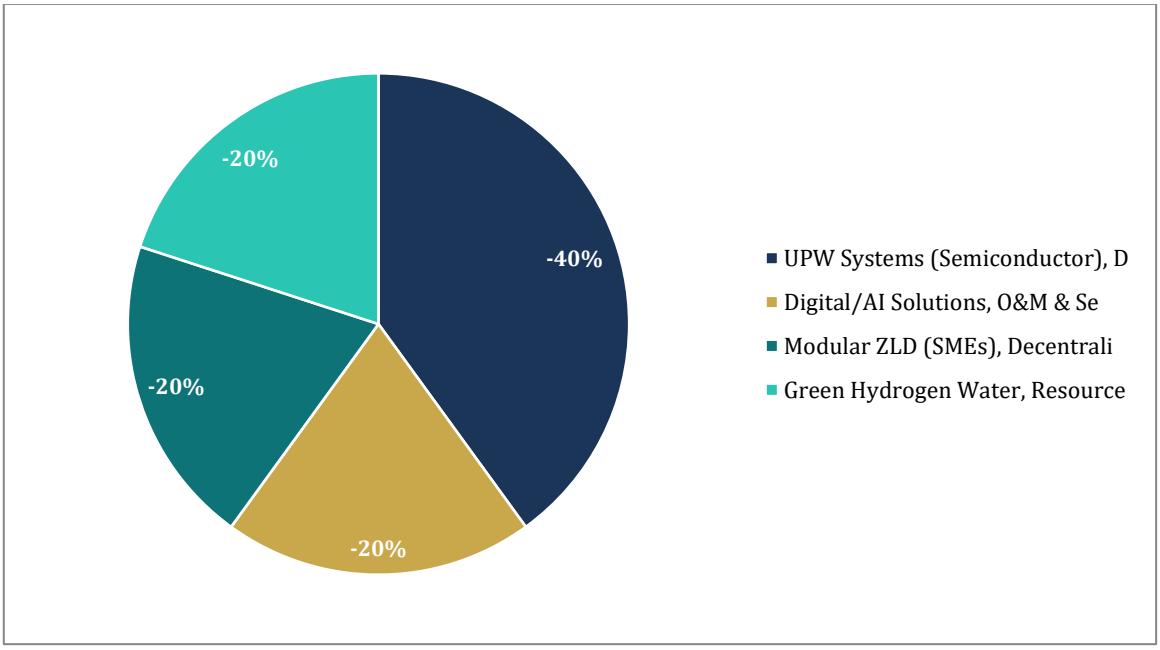

Figure 6 — Recommended Portfolio Allocation

Investment Vehicle Mix:

- Public Equities (40-50%): VA Tech Wabag (25.8x P/E, ₹17,200Cr order book), Ion Exchange, Thermax
- Private Equity (25-30%): Growth-stage companies; high IRR potential
- Infrastructure Debt (15-20%): PPP/HAM projects; stable yields
- Venture Capital (5-10%): Startups; technology innovation

1.5.3 Risk Assessment & Mitigation

Table 5 — Key Risks & Mitigation Strategies

Risk	Severity	Mitigation
Inconsistent Regulatory Enforcement	High	Focus on enforcement-strong states (Gujarat, TN, Maharashtra)
High CAPEX for ZLD	High	Target large enterprises; invest in modular/leasing models
High O&M/Energy Costs	Medium	Invest in energy-efficient ZLD (membrane+thermal)
Skilled Personnel Shortage	Medium	Invest in O&M service providers; digital/AI solutions
Semiconductor Project Delays	Medium	Diversify across sectors; maintain UPW capability
Regulatory Policy Reversals	Low-Medium	Target corporate-driven demand (data centres, semicon)

1.6 Key Strategic Growth Opportunities

1.6.1 Eight Growth Opportunities

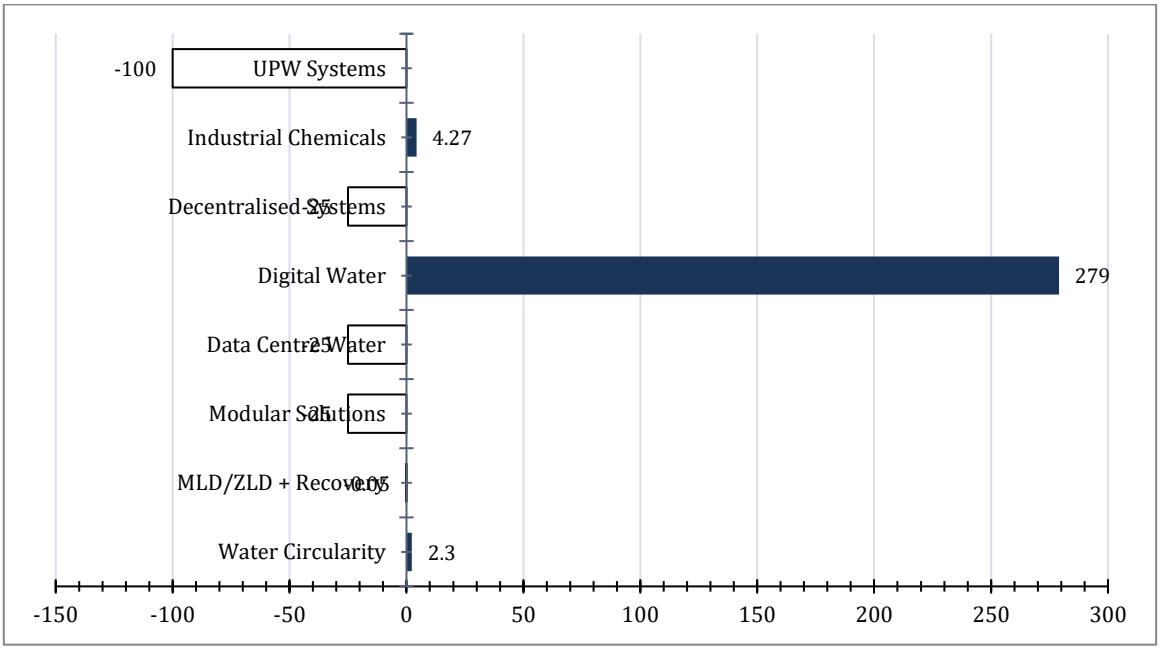

Figure 7 — Eight Growth Opportunities

1.6.2 The 6P Framework

Policy: Align with ZLD mandates and reuse targets. Strengthen enforcement consistency across states.

Products: Develop UPW, modular, and digital solutions. Integrate resource recovery into ZLD designs.

Partnerships: Form technology + local execution alliances. Leverage global technology through licensing/JVs.

People: Build skilled operator and engineer base. Address the 40% compliance failure rate due to human error.

Profit: Build O&M annuity portfolios. Monetize resource recovery (salts, water credits). Target 25-35% margins.

Planet: Achieve water-positive status. Adopt circular economy principles. Reduce energy consumption in ZLD.

1.7 Actionable Recommendations by Stakeholder

1.7.1 For Investors & Financial Institutions

1. Prioritise high-growth, high-margin segments: UPW Systems (20-25% CAGR, 40-50% margins), Data Centre Water (20-25% CAGR, 35-45% margins), ZLD+Resource Recovery (10-12% CAGR, 25-35% margins).
2. Build O&M annuity portfolios: Allocate 30-40% of portfolio to companies with strong O&M revenue mix. Target 15+ year concession periods (HAM/PPP projects). Structure O&M contracts with escalators.
3. Diversify across sectors and geographies: Allocate 15-20% each to Pharma, Textiles, Semicon, and Chemicals. Focus on enforcement-strong states (Maharashtra, Gujarat, Tamil Nadu).
4. Manage regulatory execution risk: Structure investments with 5-7 year horizons. Target sectors with corporate-driven demand (semiconductor, data centres). Partner with local players.
5. Explore green bonds & sustainable finance: Green Municipal Bonds (Ghaziabad model), Sustainability-Linked Loans, Blended Finance (multilateral + private co-investment).

1.7.2 For Technology & Solution Providers

6. Build UPW capability for semiconductor & solar: Develop fab-grade UPW systems. Form strategic technology partnerships (Taipure model). Build reference installations. Create UPW O&M practice.
7. Scale modular & plug-and-play solutions: Standardise product lines. Develop containerized solutions. Create leasing/financing partnerships. Target textile and chemical clusters (Tiruppur, Surat, Ankleshwar).
8. Integrate resource recovery into ZLD: Design ZLD systems with recovery from inception. Develop salt purification capabilities. Partner with chemical companies for offtake agreements.
9. Accelerate digital/AI development: Develop integrated digital platforms. Build AI/ML capabilities (predictive analytics). Create digital twin solutions. Target compliance reporting automation.
10. Build strategic partnerships: Technology (global UPW/ZLD players), Local Execution (regional EPC contractors), Financing (banks, PE funds), End-User (long-term supply agreements), Policy (state governments).

1.7.3 For Policymakers & Regulators

11. Strengthen regulatory enforcement: Harmonise ZLD enforcement across states. Implement progressive penalties for non-compliance. Use technology for real-time monitoring. Publish compliance data publicly.
12. Incentivise resource recovery: Introduce tax incentives for ZLD with resource recovery. Create water credit trading markets. Incentivise salt and by-product recovery. Establish quality standards for recovered products.
13. Support SME adoption: Provide CAPEX subsidies for SME ZLD. Develop CETP ZLD clusters. Create financing facilities for SME ZLD. Establish industry-academia training centres.
14. Accelerate municipal-industrial reuse: Build tertiary treatment infrastructure. Create industrial pipeline networks. Establish mandatory reuse targets (aligned with Maharashtra model). Develop PPP frameworks for reuse.
15. Support technology development: Establish water technology innovation fund. Create testbeds for new technologies. Extend PLI to water treatment technologies. Develop quality standards for water treatment.

1.7.4 For Industrial End-Users

16. Develop water management roadmaps: Conduct comprehensive water audits. Set water reduction targets and water-positive goals. Implement monitoring and reporting. Achieve ZLD compliance by 2028 deadlines.
17. Adopt technology based on sector: Pharma (ZLD systems, UPW, resource recovery), Textiles (ZLD, water recycling, modular solutions), Chemicals (ZLD, resource recovery, CETP), Semiconductor (UPW, water recycling, ZLD), Data Centres (cooling water treatment, wastewater offtake).
18. Adopt digital water management: Install IoT sensors for real-time monitoring. Deploy AI/ML analytics for chemical dosing and predictive maintenance. Implement digital twins. Automate compliance reporting.
19. Explore resource recovery: Assess recovery potential (salts, energy, water). Partner with resource recovery specialists. Implement salt recovery systems (offset 10-20% of ZLD OPEX). Explore water credit sales.
20. Build internal capabilities: Develop operator training programs. Create water management function (dedicated team). Partner with academic institutions. Join industry water initiatives.

1.7.5 For Multilateral & Development Agencies

21. Scale blended finance models: Create blended finance facilities for ZLD. Provide risk guarantees for PPP/HAM projects. Expand green bond guarantee facilities. Support SME financing facilities.
22. Support municipal-industrial reuse projects: Finance tertiary treatment infrastructure. Support industrial pipeline networks. Provide technical assistance for PPP models. Support policy development for reuse.
23. Support technology development & transfer: Facilitate technology transfer from global leaders. Support domestic R&D for water technologies. Create innovation challenges and incubators. Support pilot and demonstration projects.
24. Build institutional capacity: Support state-level water regulatory bodies. Provide technical assistance to pollution control boards. Support skill development programs. Facilitate knowledge sharing across states.

1.8 The Way Forward: 2026-2030 Roadmap

Table 6 — Implementation Roadmap (2026-2030)

Phase	Timeline	Key Milestones
Phase 1: Foundation	2026	Maharashtra Reuse Policy implementation; MoEFCC Consent Guidelines fully operational; AMRUT 2.0 acceleration; UPW systems for first semiconductor fabs
Phase 2: Acceleration	2027	First semiconductor fab UPW systems operational; ZLD deadline for red-category industries; progressive penalties for non-compliance; resource recovery incentives
Phase 3: Maturity	2028-2030	Full ZLD enforcement; 3 semiconductor fabs in development; data centre water demand doubles; resource recovery markets mature; water credit trading platforms emerge; manufacturing reaches 17% GDP

1.9 The Long-Term Opportunity: Beyond 2030

While this report's primary forecast horizon is 2024-2030, the long-term opportunity extends well beyond:

Industrial Water Demand (2030-2050) :

- Industrial water demand is projected to increase from 101 BCM in 2030 to 193 BCM in 2050
- This represents an additional 91% growth over two decades
- The water treatment intensity required to meet 193 BCM demand will be significantly higher than today

Investment Requirement (2030-2050) :

- The used water sector alone requires ₹1.56-2.31 lakh crore (USD 18-27 billion) by 2047
- The broader water sector requires ₹20+ lakh crore over the next decade
- Industrial water treatment will account for a growing share as manufacturing expands

Structural Forces (Beyond 2030) :

25. Circular economy: Mandatory resource recovery will transform ZLD economics
26. Water credits: Trading of treated water will create market-based incentives
27. AI and automation: Zero-touch water treatment plants will become standard
28. Energy-water nexus: Renewable energy integration will reduce ZLD energy OPEX
29. Climate adaptation: Increasing water scarcity will accelerate treatment investment

1.10 Conclusion

India's industrial water and wastewater infrastructure market stands at a pivotal moment. The convergence of regulatory enforcement, water scarcity, industrial expansion, and corporate sustainability has created a multi-billion dollar growth opportunity that will benefit those who act decisively and strategically.

The market will expand from $2.87 billion in 2024 to $4.65 billion by 2030—a 62% increase in six years. But this growth will not be uniform. Winners will be those who:

- Anticipate regulatory trends and position themselves ahead of enforcement cycles
- Build technical capabilities in high-growth segments (UPW, digital, resource recovery)
- Form strategic partnerships that combine global technology with local execution
- Develop annuity revenue streams through O&M and long-term service contracts
- Adopt a circular economy mindset where wastewater is a resource, not a liability

The recommendations in this report provide a roadmap for each stakeholder group. The time to act is now. India's water crisis is also India's water opportunity—and those who seize it will shape the future of the country's industrial landscape.

1.11 Key Takeaways

Table 7 — 1.11 Key Takeaways

#	Key Takeaway
1	Market Opportunity: India's industrial water infrastructure market will grow from $2.87B (2024) to $4.65B (2030) at 8.3% CAGR—a 62% increase.
2	Regulatory Driver: ZLD mandates, Maharashtra Reuse Policy 2025, and AMRUT 2.0 are creating non-discretionary demand across 17 industries.
3	Sectoral Leaders: Green Hydrogen (37.1% CAGR), Semiconductor (15.8% CAGR), and Data Centres (20-25% CAGR) are the highest-growth verticals.
4	Technology Winners: UPW Systems (40-50% margins), Digital/AI (35-50% margins), and ZLD+Resource Recovery (25-35% margins) offer the best risk-return.
5	Regional Focus: Maharashtra (21.4% share), Gujarat (19.1%), Tamil Nadu (17.6%), and Karnataka (11.0%) account for ~69% of the market.
6	Investment Priority: UPW Systems, Data Centre Water, and ZLD+Resource Recovery are the top three investment opportunities.
7	Risk Management: Regulatory inconsistency is the primary risk; mitigate by focusing on enforcement-strong states and corporate-driven sectors.
8	Long-term Opportunity: Industrial water demand will reach 193 BCM by 2050, requiring sustained investment well beyond 2030.

A note on sources and confidence. Market-size and forecast figures are attributed to their originating research house at first appearance — principally Frost & Sullivan (industrial water and wastewater infrastructure) and Mordor Intelligence (broader treatment-technology market). Macro water figures trace to NITI Aayog, the Central Water Commission, the National Commission on Integrated Water Resources Development and the Ministry of Jal Shakti. Where a figure is a Techadyant estimate or a modelled assumption, it is labelled as such; regulatory items carry an explicit status (notified, effective, or draft/proposed).

Data sources: Frost & Sullivan, Mordor Intelligence, NITI Aayog, Ministry of Water Resources, MoEFCC, PL Capital, CEEW, ICRA ESG Ratings, Central Ground Water Board, industry reports, company filings, and primary industry interviews.

12.8 Chapter Summary — Synthesis of Recommendations

12.8.1 Five-Point Synthesis

288. For Investors: Prioritise UPW systems, data centre water, and ZLD+resource recovery. Build O&M annuity portfolios. Diversify across enforcement-strong states. Structure investments with 5-7 year horizons and hedge regulatory execution risk.
289. For Technology Providers: Build UPW capability (semiconductor). Scale modular solutions (SMEs). Integrate resource recovery into ZLD. Accelerate digital/AI development. Form strategic partnerships (technology + local execution).
290. For Policymakers: Harmonise ZLD enforcement across states. Incentivise resource recovery. Support SME adoption through subsidies and cluster-based models. Accelerate municipal-industrial reuse. Establish water technology innovation funds.
291. For Industrial End-Users: Develop water management roadmaps with water-positive targets. Adopt digital water management (IoT, AI, digital twins). Explore resource recovery. Build internal capabilities (operators, water management teams).
292. For Multilateral Agencies: Scale blended finance for ZLD. Support municipal-industrial reuse projects. Facilitate technology transfer. Build institutional capacity at state and city levels.

12.8.2 The Way Forward

India's industrial water and wastewater infrastructure market stands at a pivotal moment. The convergence of regulatory enforcement, water scarcity, industrial expansion, and corporate sustainability has created a multi-billion dollar growth opportunity that will benefit those who act decisively and strategically.

The market will expand from $2.87 billion in 2024 to $4.65 billion by 2030—a 62% increase in six years. But this growth will not be uniform. Winners will be those who:

- Anticipate regulatory trends and position themselves ahead of enforcement cycles
- Build technical capabilities in high-growth segments (UPW, digital, resource recovery)
- Form strategic partnerships that combine global technology with local execution
- Develop annuity revenue streams through O&M and long-term service contracts
- Adopt a circular economy mindset where wastewater is a resource, not a liability

The recommendations in this chapter provide a roadmap for each stakeholder group. The time to act is now.

List of Figures

List of Tables