

# 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



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*

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

# Table of Contents

Chapter 1: Executive Summary.....	1
Chapter 2: Market Overview & Sizing.....	16
Chapter 3: Policy & Regulatory Landscape .....	29
Chapter 4: Sectoral Water Demand & Opportunity Deep-Dive .....	42
Chapter 5: Technology & Solution Landscape .....	60
Chapter 6: Competitive Landscape & Company Profiles .....	73
Chapter 7: Investment & Financing Landscape .....	86
Chapter 8: Regional Opportunity Mapping .....	98
Chapter 9: Growth Drivers & Market Restraints.....	114
Chapter 10: Market Forecast & Projections (2024–2030).....	127
Chapter 11: Strategic Growth Opportunities.....	142
Chapter 12: Actionable Recommendations .....	159
<b>List of Figures</b> .....	<b>172</b>
<b>List of Tables</b> .....	<b>175</b>

# 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<sup>3</sup> in 1951 to approximately 1,486 m<sup>3</sup> today—well below the internationally recognised water stress threshold of 1,700 m<sup>3</sup>—and is rapidly approaching the water scarcity threshold of 1,000 m<sup>3</sup>.

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
<b>Solution</b>		CAGR)	
<b>Largest Vertical</b>	Chemicals (\$575M)	Chemicals (\$886M)	Largest absolute growth
<b>Fastest-Growing Vertical</b>	—	Green Hydrogen (37.1% CAGR)	National Hydrogen Mission
<b>Largest Region</b>	Maharashtra (\$615M)	Maharashtra (\$995M)	Largest market
<b>Fastest-Growing Region</b>	—	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
<b>2024</b>	\$2.87	—	0%
<b>2025</b>	\$3.11	8.4%	8.4%
<b>2026</b>	\$3.37	8.3%	17.4%
<b>2027</b>	\$3.65	8.3%	27.2%
<b>2028</b>	\$3.95	8.2%	37.6%
<b>2029</b>	\$4.28	8.4%	49.1%
<b>2030</b>	\$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.

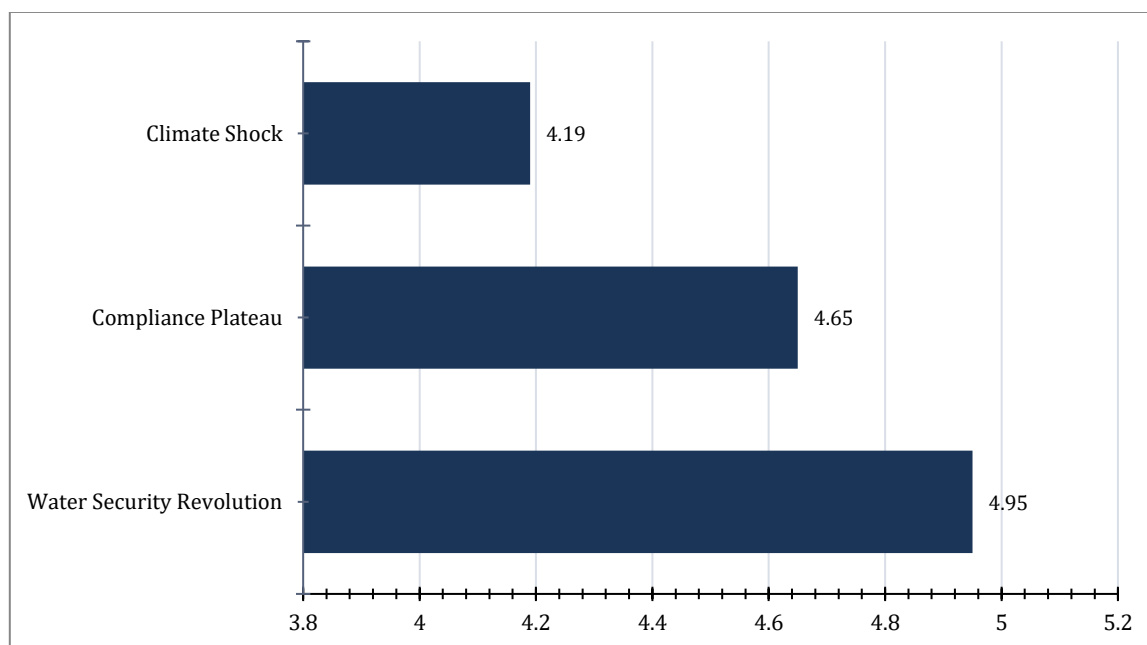


Figure 1 — Scenario Analysis Summary

## 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:

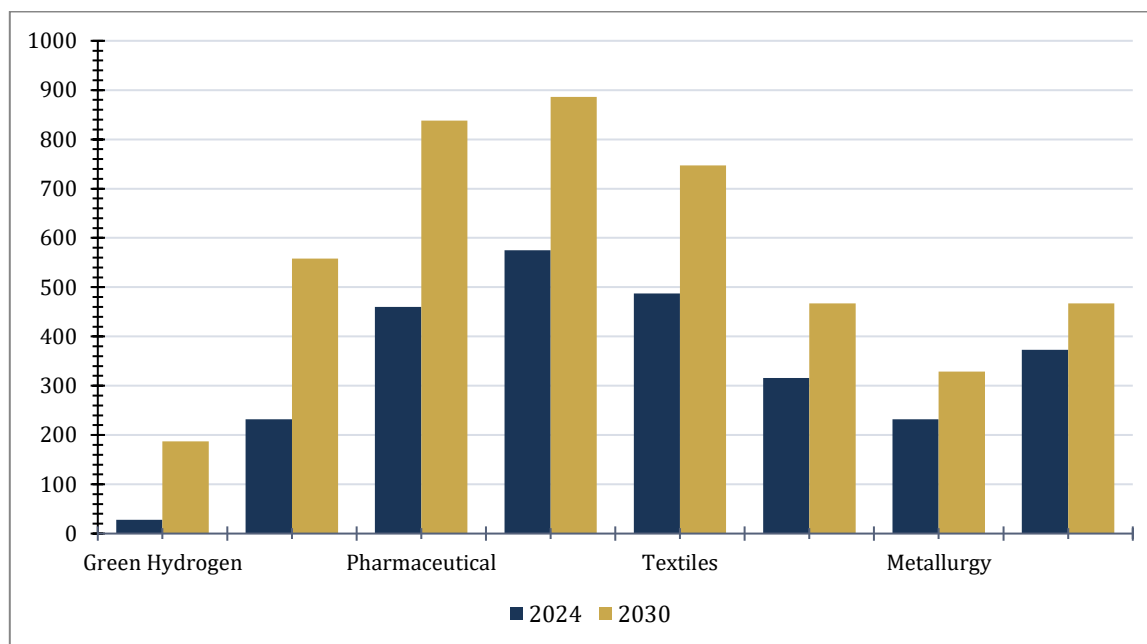


Figure 2 — Sectoral Growth Summary (2024-2030)

**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:

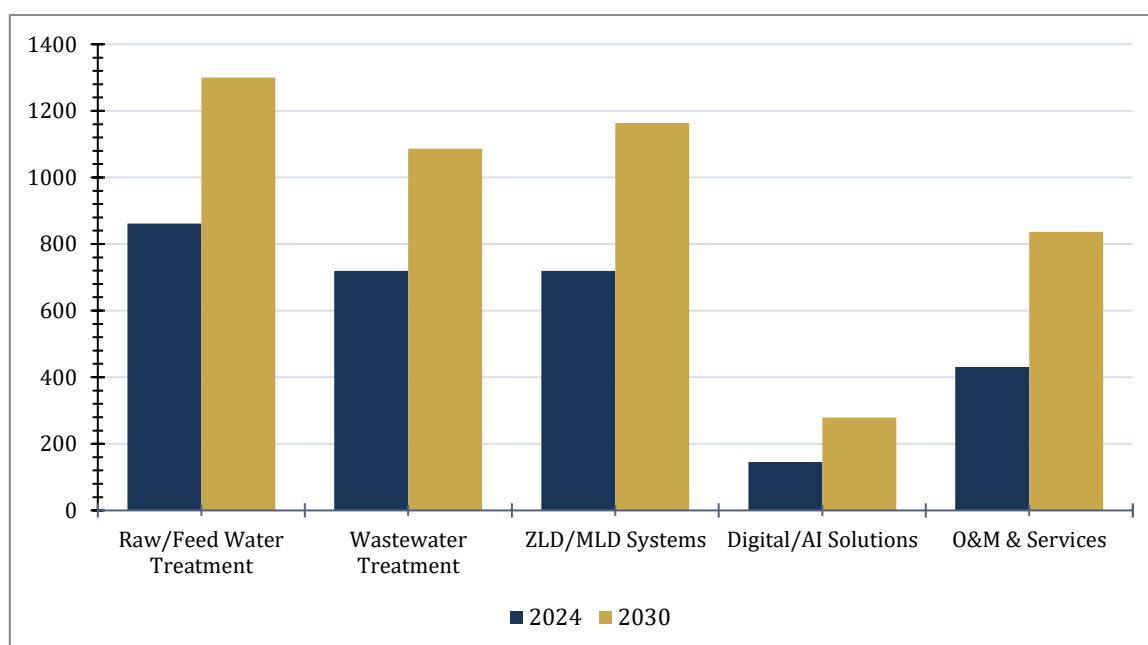


Figure 3 — Technology Growth Summary (2024-2030)

**ZLD/MLD Systems:** Maintain ~25% market share through 2030. The transition from pure thermal ZLD (25-40 kWh/m<sup>3</sup>, ₹80-150/m<sup>3</sup> OPEX) to membrane+thermal ZLD (15-25 kWh/m<sup>3</sup>, ₹60-100/m<sup>3</sup> 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
<b>VA Tech Wabag</b>	Global scale; >25 countries	Desalination, ZLD, UPW, MBR	Expand industrial; increase O&M
<b>Ion Exchange</b>	61 years; deep local expertise	Ion exchange resins, ZLD, UPW	Semiconductor UPW; affordable ZLD
<b>Thermax</b>	Energy-water integration	ZLD, RO, anaerobic	Green hydrogen; semiconductor UPW
<b>CN Water</b>	Domestic UPW pioneer	UPW, pharma-grade	Semiconductor UPW (Taipure partnership)
<b>Gradient</b>	MIT-born deep tech	RO Infinity, SCE, ZLD	Renewable energy; industrial ZLD
<b>Emerging Startups</b>	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

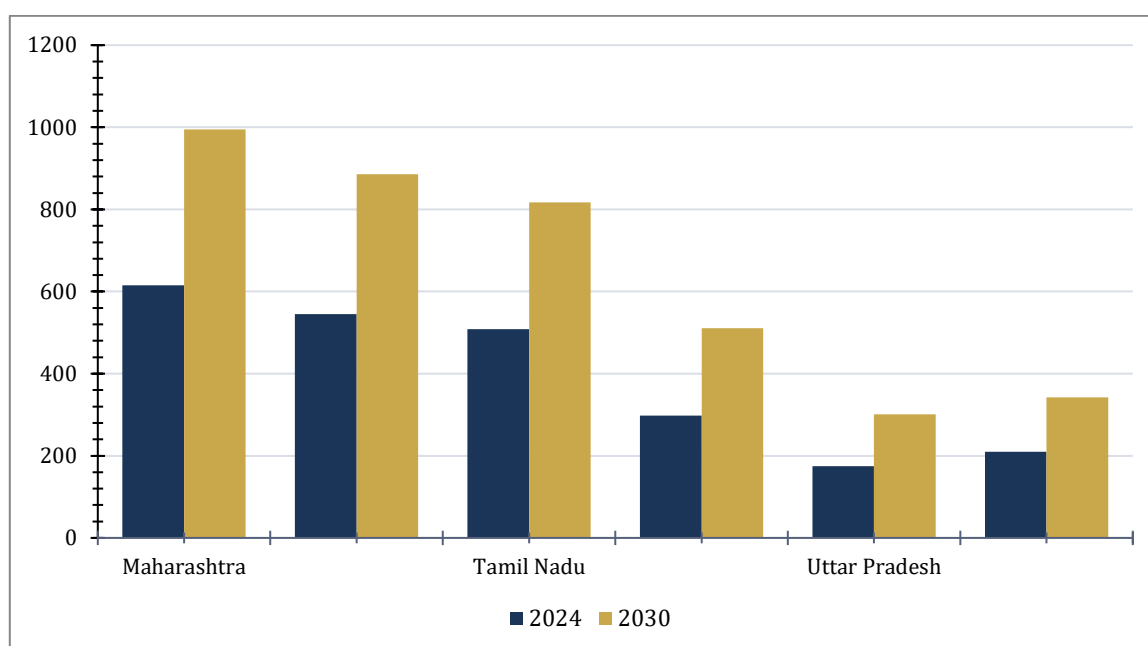


Figure 4 — Regional Growth Summary (2024-2030)

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 m <sup>3</sup> /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.

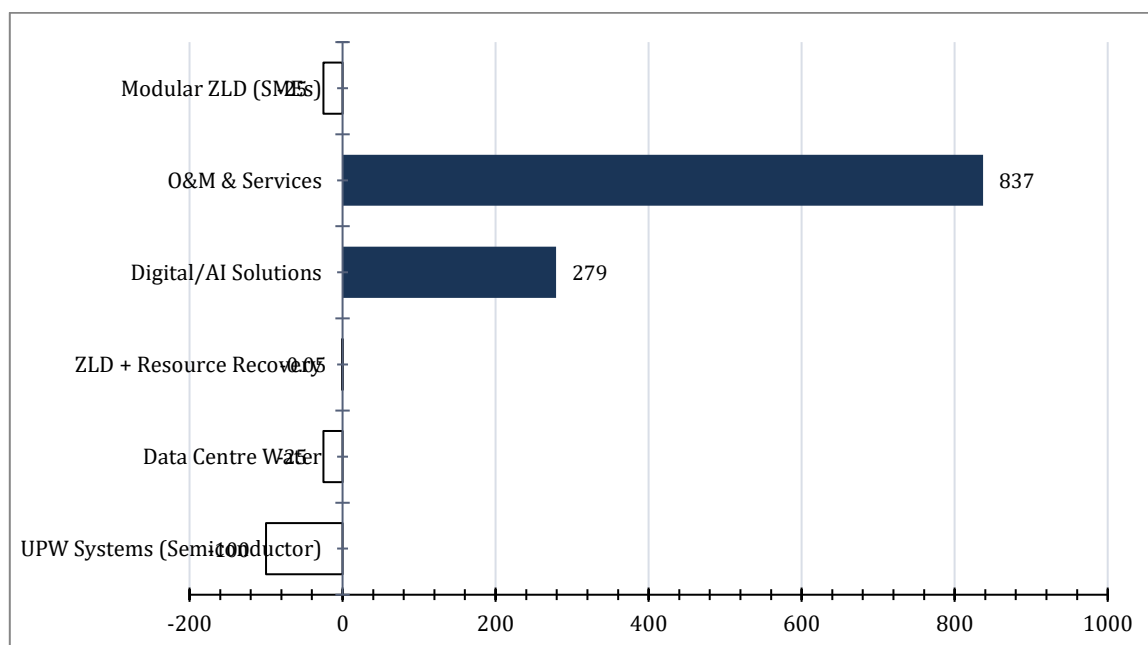


Figure 5 — Investment Prioritisation Framework

## 1.5.2 Recommended Portfolio Allocation

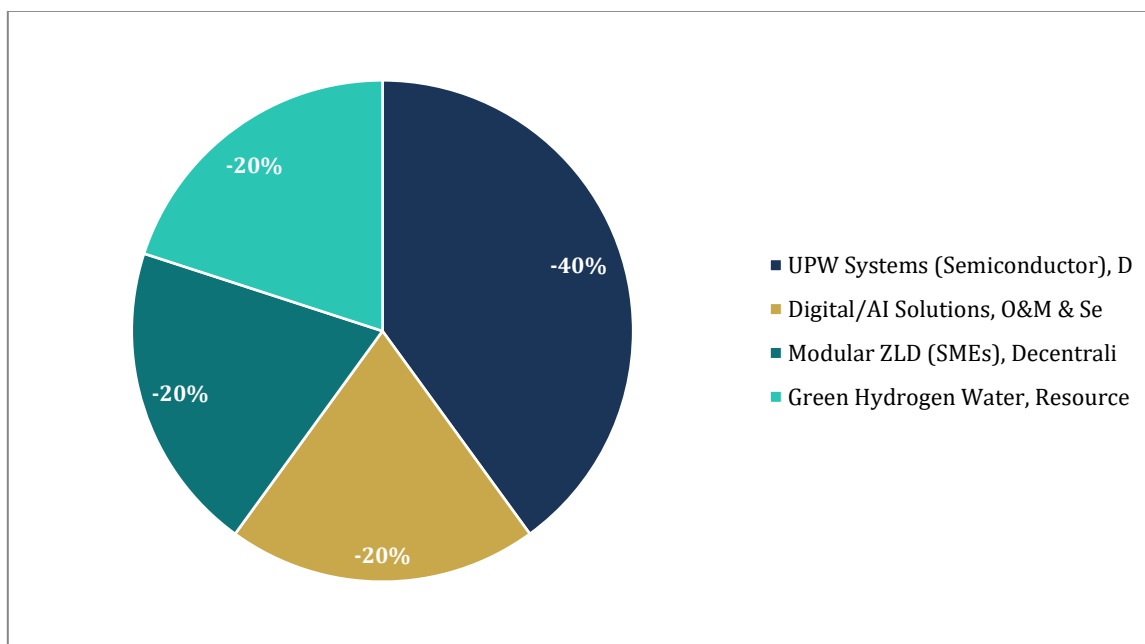


Figure 6 — Recommended Portfolio Allocation

### 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

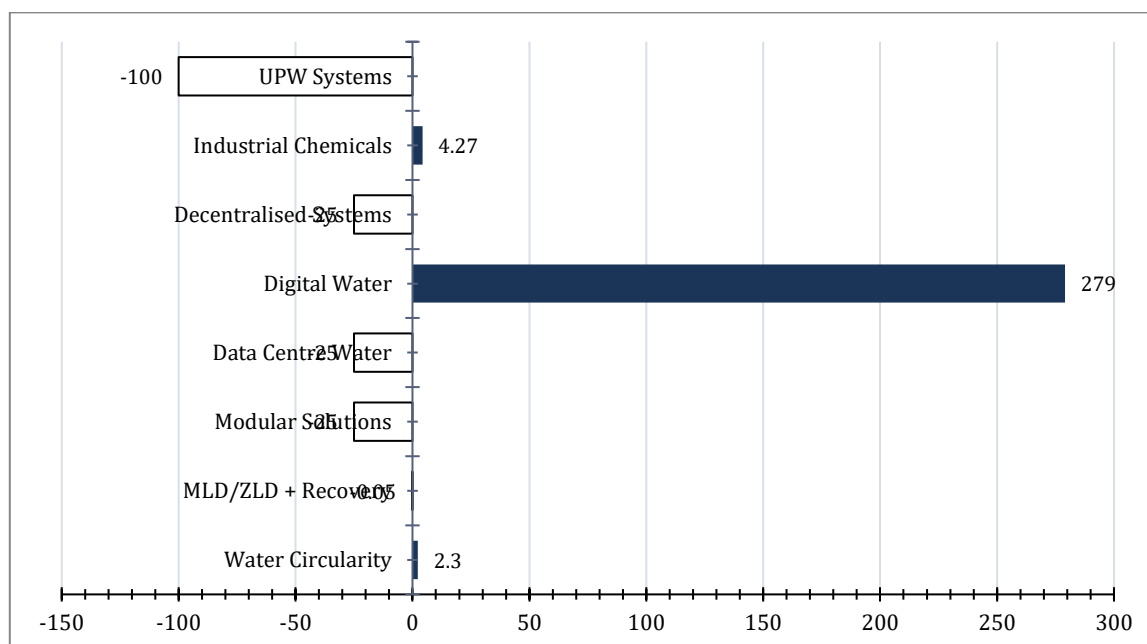


Figure 7 — Eight Growth Opportunities

### 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
<b>Phase 1: Foundation</b>	2026	Maharashtra Reuse Policy implementation; MoEFCC Consent Guidelines fully operational; AMRUT 2.0 acceleration; UPW systems for first semiconductor fabs
<b>Phase 2: Acceleration</b>	2027	First semiconductor fab UPW systems operational; ZLD deadline for red-category industries; progressive penalties for non-compliance; resource recovery incentives
<b>Phase 3: Maturity</b>	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

Figure 1 — Scenario Analysis Summary .....	3
Figure 2 — Sectoral Growth Summary (2024-2030) .....	4
Figure 3 — Technology Growth Summary (2024-2030) .....	5
Figure 4 — Regional Growth Summary (2024-2030) .....	7
Figure 5 — Investment Prioritisation Framework.....	8
Figure 6 — Recommended Portfolio Allocation .....	9
Figure 7 — Eight Growth Opportunities.....	10
Figure 8 — India's Water Demand Trajectory (2010–2050).....	16
Figure 9 — Market Scope & Segmentation Framework.....	18
Figure 10 — Industrial Water Infrastructure Market — Base Case Forecast (2024–2030) .....	19
Figure 11 — Base Case Forecast (2024–2030) .....	19
Figure 12 — Scenario Analysis — Water Security Revolution vs. Compliance Plateau vs. Climate Shock (2024–2030).....	20
Figure 13 — Scenario Analysis .....	20
Figure 14 — Market Segmentation by Solution Type — 2024 vs. 2030.....	21
Figure 15 — Revenue Forecast by Industry Vertical (2024 vs. 2030).....	22
Figure 16 — Market Segmentation by Industry Vertical.....	23
Figure 17 — India vs. Global Peers — Comparative Benchmarking.....	24
Figure 18 — India's Total Water Investment Opportunity (₹ Lakh Crore).....	27
Figure 19 — Evolution of India's National Water Policy Framework .....	29
Figure 20 — ZLD Regulatory Timeline & Adoption by Sector .....	31
Figure 21 — AMRUT 2.0 Treatment Capacity & Reuse Allocation .....	32
Figure 22 — Maharashtra Treated Wastewater Reuse Policy 2025 — Key Elements.....	35
Figure 23 — Key Allocations .....	36
Figure 24 — Union Budget 2026–27 — Water Infrastructure Allocations .....	37
Figure 25 — Policy-to-Market Impact Mapping.....	39
Figure 26 — India's Industrial Water-Intensive Sectors — Comparative Overview .....	43
Figure 27 — Industry Leaders' Targets .....	53
Figure 28 — Sectoral Water Intensity Benchmarking — India vs. Global Best .....	56
Figure 29 — Sectoral Opportunity Ranking & Investment Prioritisation Matrix .....	57
Figure 30 — Industrial Water Treatment Technology Landscape — Overview.....	60
Figure 31 — ZLD Technology Stack — Process Flow Diagram .....	63
Figure 32 — Membrane Technology Comparison Matrix .....	64
Figure 33 — Technology Comparison.....	66
Figure 34 — Project Pipeline.....	67
Figure 35 — CAPEX/OPEX Benchmarking by Technology Type .....	71

Figure 36 — Competitive Landscape — Market Structure.....	73
Figure 37 — India's Water Investment Gap & Opportunity .....	86
Figure 38 — India's Water Investment Opportunity Landscape .....	87
Figure 39 — Union Budget 2026–27: Water Infrastructure .....	88
Figure 40 — Hybrid Annuity Model (HAM) — Structure & Cash Flows .....	89
Figure 41 — Key PPP/HAM Projects in India's Water Sector .....	91
Figure 42 — India's Industrial Water Infrastructure Market by Region (2024 & 2030 Projected) .....	98
Figure 43 — Water Stress vs. Industrial Treatment Opportunity by State .....	109
Figure 44 — Investment Gap Quantification.....	110
Figure 45 — Growth Drivers & Restraints — Impact Heatmap .....	114
Figure 46 — Stricter Environmental Regulations & ZLD Mandates .....	117
Figure 47 — High CAPEX for Advanced Treatment .....	121
Figure 48 — High O&M Costs & Energy Intensity .....	122
Figure 49 — The Market at a Glance — Key Forecast Metrics.....	127
Figure 50 — Base Case Forecast — Visual Trajectory .....	128
Figure 51 — Scenario Assumptions .....	129
Figure 52 — Scenario Analysis — Optimistic, Base, Pessimistic Trajectories .....	129
Figure 53 — Forecast by Solution Type (2024–2030) .....	130
Figure 54 — Solution Type — Growth Trajectories (2024–2030) .....	131
Figure 55 — Solution Type — Share Evolution .....	131
Figure 56 — Forecast by Industry Vertical (2024–2030) .....	132
Figure 57 — Sectoral Growth Rates — 2030 vs. 2024.....	133
Figure 58 — Sectoral Share Evolution .....	133
Figure 59 — Forecast by Region (2024–2030).....	134
Figure 60 — Regional CAGR Comparison .....	134
Figure 61 — Segmentation Forecast Model .....	140
Figure 62 — The Growth Opportunity Landscape — Overview .....	142
Figure 63 — Investment Heat Map — Segment Attractiveness Score.....	143
Figure 64 — Market Sizing & Growth .....	144
Figure 65 — Opportunity Description .....	145
Figure 66 — Market Sizing.....	146
Figure 67 — Market Sizing.....	148
Figure 68 — Market Sizing.....	150
Figure 69 — Market Sizing.....	151
Figure 70 — Market Sizing.....	153
Figure 71 — Market Sizing.....	154
Figure 72 — Market Sizing.....	156

Figure 73 — The 6P Framework — Strategic Imperatives for India's Industrial Water Market	157
Figure 74 — Stakeholder Action Framework — The 5-Actors Model	159
Figure 75 — Strategic Recommendations	160
Figure 76 — Strategic Recommendations	161
Figure 77 — Recommended Portfolio Allocation by Opportunity Tier	162
Figure 78 — Recommended Portfolio Construction	162
Figure 79 — Focus Areas for Multilateral Investment	170
Figure 80 — Implementation Roadmap — 2026-2030	170

## List of Tables

Table 1 — India's Industrial Water Market at a Glance.....	1
Table 2 — Market Growth Trajectory (2024-2030) .....	2
Table 3 — 1.4.4 Competitive Landscape: Concentrated, with Domestic Champions Emerging .....	6
Table 4 — Key Market Drivers & Restraints .....	7
Table 5 — Key Risks & Mitigation Strategies .....	9
Table 6 — Implementation Roadmap (2026-2030).....	13
Table 7 — 1.11 Key Takeaways .....	15
Table 8 — 2.7.1 Growth Drivers.....	25
Table 9 — 3.2.2 State-Level ZLD Enforcement.....	31
Table 10 — Policy Risk Matrix — Certainty, Impact and Opportunity .....	40
Table 11 — 4.2.4 Opportunity Assessment.....	44
Table 12 — 4.3.3 India's Semiconductor Ambition & Water Implications.....	45
Table 13 — 4.3.5 Opportunity Assessment.....	46
Table 14 — 4.4.4 Opportunity Assessment.....	47
Table 15 — 4.5.3 Segment Variation .....	48
Table 16 — 4.5.5 Opportunity Assessment.....	48
Table 17 — 4.6.6 Opportunity Assessment.....	50
Table 18 — 4.7.2 Regulatory Framework.....	51
Table 19 — 4.7.5 Opportunity Assessment.....	52
Table 20 — 4.8.3 Opportunity Assessment.....	53
Table 21 — 4.9.4 Opportunity Assessment.....	54
Table 22 — 4.10.5 Opportunity Assessment.....	56
Table 23 — 5.2.1 Raw / Feed Water Treatment .....	61
Table 24 — 5.3.2 Secondary Treatment (Biological) .....	62
Table 25 — 5.4.3 ZLD Technology Selection Criteria.....	63
Table 26 — 5.6.1 Technology Overview .....	65
Table 27 — 5.8.2 Key Applications .....	67
Table 28 — 5.8.4 Key Players in Digital Water.....	68
Table 29 — 5.9.2 Modular Solution Characteristics.....	68
Table 30 — 5.10.1 Emerging Frontier .....	69
Table 31 — 5.10.3 Opportunity Assessment.....	69
Table 32 — Technology Adoption Maturity Curve by Sector .....	70
Table 33 — 5.13 Technology Provider Competitive Positioning .....	71
Table 34 — Value Chain Economics by Layer .....	74
Table 35 — Five-Forces Assessment — India Industrial Water.....	74

Table 36 — Key Players — Comparative Snapshot .....	75
Table 37 — 6.5.3 Order Book & Outlook.....	78
Table 38 — 6.8.5 Startup Ecosystem Assessment.....	83
Table 39 — Competitive Benchmarking Matrix.....	84
Table 40 — 6.10.1 Competitive Positioning Summary.....	84
Table 41 — 7.1 Overview: India's Water Investment Gap .....	86
Table 42 — 7.5.1 Key Multilateral Agencies.....	92
Table 43 — PE/VC & IPO Activity in India's Water Sector (2025).....	94
Table 44 — 7.7.1 Key Investment Risks.....	95
Table 45 — 7.7.2 Sector-Specific Risk Profiles .....	95
Table 46 — ROI Analysis by Sector & Technology .....	96
Table 47 — 7.8.3 Listed Company Valuations .....	96
Table 48 — 8.2.1 Overview.....	99
Table 49 — 8.2.5 Opportunity Assessment .....	100
Table 50 — 8.3.1 Overview.....	101
Table 51 — 8.3.5 Opportunity Assessment.....	102
Table 52 — 8.4.1 Overview.....	102
Table 53 — 8.4.6 Opportunity Assessment.....	103
Table 54 — 8.5.1 Overview.....	104
Table 55 — 8.5.5 Opportunity Assessment.....	105
Table 56 — 8.6.1 Overview.....	106
Table 57 — 8.6.4 Opportunity Assessment.....	106
Table 58 — 8.7.1 Overview.....	107
Table 59 — 8.7.5 Opportunity Assessment.....	108
Table 60 — 8.9.1 Regional Infrastructure Gaps .....	109
Table 61 — Regional Investment Prioritisation Matrix .....	111
Table 62 — 8.10.2 Technology Focus by Region.....	111
Table 63 — 8.10.4 Timeline for Investment.....	112
Table 64 — 9.2.1 Rapid Industrialization & Manufacturing Growth.....	115
Table 65 — 9.2.2 Water Scarcity Intensification .....	116
Table 66 — 9.2.4 Corporate Sustainability & Water-Positive Goals.....	118
Table 67 — 9.2.5 Semiconductor & Advanced Manufacturing Boom .....	119
Table 68 — 9.2.6 Digitalization & Industry 4.0 in Water Management .....	120
Table 69 — 9.3.3 Inconsistent Regulatory Enforcement.....	123
Table 70 — 9.3.5 Infrastructure Gaps .....	124
Table 71 — Driver-Restraint Balance Sheet.....	125
Table 72 — Base Case Forecast — Year-by-Year Progression (2024–2030) .....	128
Table 73 — 10.3.2 Scenario Risk Assessment.....	130

Table 74 — 10.8.1 Assumptions Table .....	138
Table 75 — 10.8.2 Key Sensitivities.....	138
Table 76 — 2030 Market Snapshot — The End-State.....	139
Table 77 — 10.10.1 Market Forecast Model (Base Case).....	140
Table 78 — 11.2.4 Strategic Imperatives .....	144
Table 79 — 11.2.5 Key Players to Watch.....	145
Table 80 — 11.3.4 Strategic Imperatives .....	146
Table 81 — 11.3.5 Key Players to Watch.....	147
Table 82 — 11.4.4 Strategic Imperatives .....	148
Table 83 — 11.4.5 Key Players to Watch.....	149
Table 84 — 11.5.4 Strategic Imperatives .....	150
Table 85 — 11.5.5 Key Players to Watch.....	151
Table 86 — 11.6.4 Strategic Imperatives .....	152
Table 87 — 11.6.5 Key Players to Watch.....	152
Table 88 — 11.7.4 Strategic Imperatives .....	153
Table 89 — 11.7.5 Key Players to Watch.....	153
Table 90 — 11.8.4 Strategic Imperatives .....	155
Table 91 — 11.8.5 Key Players to Watch.....	155
Table 92 — 11.9.4 Strategic Imperatives .....	156
Table 93 — 11.9.5 Key Players to Watch.....	157
Table 94 — 11.10.2 Strategic Imperatives by Stakeholder.....	157
Table 95 — 12.2.2 Strategic Recommendations .....	160
Table 96 — 12.2.2 Strategic Recommendations .....	161
Table 97 — 12.2.2 Strategic Recommendations .....	161
Table 98 — 12.3.1 Strategic Positioning .....	163
Table 99 — 12.3.1 Strategic Positioning .....	163
Table 100 — 12.3.1 Strategic Positioning .....	163
Table 101 — 12.3.1 Strategic Positioning .....	164
Table 102 — 12.3.1 Strategic Positioning .....	164
Table 103 — 12.3.2 Competitive Positioning Matrix .....	164
Table 104 — 12.4.1 Policy Design & Implementation.....	165
Table 105 — 12.4.1 Policy Design & Implementation.....	165
Table 106 — 12.4.1 Policy Design & Implementation.....	165
Table 107 — 12.4.1 Policy Design & Implementation.....	165
Table 108 — 12.4.1 Policy Design & Implementation.....	166
Table 109 — Policy Roadmap — 2025-2030 .....	166
Table 110 — 12.5.1 Water Management Strategy .....	166
Table 111 — 12.5.1 Water Management Strategy .....	167

Table 112 — 12.5.1 Water Management Strategy .....	167
Table 113 — 12.5.1 Water Management Strategy .....	167
Table 114 — 12.5.1 Water Management Strategy .....	168
Table 115 — 12.5.2 Sector-Specific Action Plans .....	168
Table 116 — 12.6.1 Financing Instruments.....	168
Table 117 — 12.6.1 Financing Instruments.....	169
Table 118 — 12.6.1 Financing Instruments.....	169
Table 119 — 12.6.1 Financing Instruments.....	169