

# **Desalination Technologies Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Reverse Osmosis, Electrodialysis, Nanofiltration, Ultrafiltration, Multi-Stage Flash Distillation, Multi-Effect Distillation), By Source of water (Seawater, Brackish Water, River Water & Surface Water, Wastewater), By End-Use Industry (Municipal, Industrial, Military & Defense, Construction, Others), By Region & Competition, 2020-2030F**

<https://marketpublishers.com/r/DA8FF19FC818EN.html>

Date: June 2025

Pages: 185

Price: US\$ 4,500.00 (Single User License)

ID: DA8FF19FC818EN

## **Abstracts**

### **Market Overview**

The Global Desalination Technologies Market was valued at USD 25.35 billion in 2024 and is projected to reach USD 41.00 billion by 2030, growing at a CAGR of 8.18% during the forecast period. Driven by increasing water scarcity, urbanization, and industrialization—especially in arid and semi-arid regions—desalination technologies are becoming an essential part of global water security strategies. These technologies convert seawater, brackish water, and wastewater into potable or process-grade water, addressing the growing demand across municipal, industrial, and agricultural sectors. Key markets include the Middle East, North Africa, Asia Pacific, and parts of the Americas, where investments in desalination infrastructure are accelerating. Reverse Osmosis (RO) leads the market due to its scalability and energy efficiency, while thermal technologies like Multi-Stage Flash (MSF) and Multi-Effect Distillation (MED) remain prevalent in energy-rich regions. Technological advancements in membranes,

energy recovery, and smart monitoring are improving operational efficiency and reducing environmental impact, making desalination more sustainable and cost-effective.

## **Key Market Drivers**

### **Increasing Global Water Scarcity**

Escalating water scarcity is a major driver of the desalination technologies market. According to the United Nations, over 2.3 billion people live in water-stressed regions as of 2024, a figure expected to grow with climate change and rising populations. More than 40% of the global population faces seasonal or monthly water shortages. Desalination offers a reliable alternative to conventional water sources, especially in countries like Saudi Arabia, the UAE, Israel, and parts of India and China. Saudi Arabia, for instance, meets nearly 60% of its domestic water needs through desalination. As groundwater depletion and erratic rainfall patterns worsen, desalination emerges as a long-term, scalable solution to secure freshwater access in vulnerable areas.

## **Key Market Challenges**

### **High Energy Consumption and Carbon Footprint**

High energy requirements represent a significant challenge for desalination technologies, particularly thermal processes such as MSF and MED. Although RO is more energy-efficient, it still consumes 2.5–3.5 kWh per cubic meter of water—considerably more than traditional treatment methods. This leads to higher carbon emissions, especially in regions where power generation is fossil-fuel-based. A desalination plant relying on non-renewable energy can emit up to 1.5 kg of CO<sub>2</sub> per cubic meter of water. While solar and other renewable-powered desalination options are being explored, high capital costs and intermittency issues limit their widespread adoption. Balancing freshwater production with environmental goals remains a critical concern for governments and industry stakeholders alike.

## **Key Market Trends**

### **Advancements in Membrane Technologies**

Ongoing innovation in membrane materials is a defining trend in the desalination technologies market. RO continues to dominate due to its energy advantages, but new

developments are making the process even more efficient. Advanced membranes—such as those made from graphene oxide, aquaporin proteins, and nanocomposites—offer higher permeability, improved salt rejection, and stronger resistance to fouling. Graphene-based membranes, for example, can deliver up to 50% more water throughput compared to conventional membranes. Additionally, low-pressure RO membranes are being adopted to reduce energy consumption, particularly in brackish water and decentralized applications. Automation and AI-based monitoring are extending membrane lifespans by enabling predictive maintenance and optimizing cleaning cycles, further reducing operational costs and downtime.

### **Key Market Players**

Veolia Water Technologies

SUEZ Water Technologies & Solutions

Fluence Corporation

Aquatech International

Aqualyng

Ampac USA

Pure Aqua Inc.

Solar Water Solutions

Osmoflo

Genesis Water Technologies

### **Report Scope:**

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

### Desalination Technologies Market, By Technology:

- Reverse Osmosis
- Electrodialysis
- Nanofiltration
- Ultrafiltration
- Multi-Stage Flash Distillation
- Multi-Effect Distillation

### Desalination Technologies Market, By Source of Water:

- Seawater
- Brackish Water
- River Water & Surface Water
- Wastewater

### Desalination Technologies Market, By End-Use Industry:

- Municipal
- Industrial
- Military & Defense
- Construction
- Others

### Desalination Technologies 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 presents in the Global Desalination Technologies Market.

### **Available Customizations:**

Global Desalination Technologies 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).

## Contents

### 1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
  - 1.2.1. Markets Covered
  - 1.2.2. Years Considered for Study
  - 1.2.3. Key Market Segmentations

### 2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

### 3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, and Trends

### 4. VOICE OF CUSTOMER

### 5. GLOBAL DESALINATION TECHNOLOGIES MARKET OUTLOOK

- 5.1. Market Size & Forecast
  - 5.1.1. By Value
- 5.2. Market Share & Forecast
  - 5.2.1. By Technology (Reverse Osmosis, Electrodialysis, Nanofiltration, Ultrafiltration, Multi-Stage Flash Distillation, Multi-Effect Distillation)
  - 5.2.2. By Source of water (Seawater, Brackish Water, River Water & Surface Water, Wastewater)

5.2.3. By End-Use Industry (Municipal, Industrial, Military & Defense, Construction, Others)

5.2.4. By Region (North America, Europe, South America, Middle East & Africa, Asia Pacific)

5.3. By Company (2024)

5.4. Market Map

## **6. NORTH AMERICA DESALINATION TECHNOLOGIES MARKET OUTLOOK**

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Technology

6.2.2. By Source of water

6.2.3. By End-Use Industry

6.2.4. By Country

6.3. North America: Country Analysis

6.3.1. United States Desalination Technologies Market Outlook

6.3.1.1. Market Size & Forecast

6.3.1.1.1. By Value

6.3.1.2. Market Share & Forecast

6.3.1.2.1. By Technology

6.3.1.2.2. By Source of water

6.3.1.2.3. By End-Use Industry

6.3.2. Canada Desalination Technologies Market Outlook

6.3.2.1. Market Size & Forecast

6.3.2.1.1. By Value

6.3.2.2. Market Share & Forecast

6.3.2.2.1. By Technology

6.3.2.2.2. By Source of water

6.3.2.2.3. By End-Use Industry

6.3.3. Mexico Desalination Technologies Market Outlook

6.3.3.1. Market Size & Forecast

6.3.3.1.1. By Value

6.3.3.2. Market Share & Forecast

6.3.3.2.1. By Technology

6.3.3.2.2. By Source of water

6.3.3.2.3. By End-Use Industry



## **7. EUROPE DESALINATION TECHNOLOGIES MARKET OUTLOOK**

### **7.1. Market Size & Forecast**

#### **7.1.1. By Value**

### **7.2. Market Share & Forecast**

#### **7.2.1. By Technology**

#### **7.2.2. By Source of water**

#### **7.2.3. By End-Use Industry**

#### **7.2.4. By Country**

### **7.3. Europe: Country Analysis**

#### **7.3.1. Germany Desalination Technologies Market Outlook**

##### **7.3.1.1. Market Size & Forecast**

###### **7.3.1.1.1. By Value**

##### **7.3.1.2. Market Share & Forecast**

###### **7.3.1.2.1. By Technology**

###### **7.3.1.2.2. By Source of water**

###### **7.3.1.2.3. By End-Use Industry**

#### **7.3.2. France Desalination Technologies Market Outlook**

##### **7.3.2.1. Market Size & Forecast**

###### **7.3.2.1.1. By Value**

##### **7.3.2.2. Market Share & Forecast**

###### **7.3.2.2.1. By Technology**

###### **7.3.2.2.2. By Source of water**

###### **7.3.2.2.3. By End-Use Industry**

#### **7.3.3. United Kingdom Desalination Technologies Market Outlook**

##### **7.3.3.1. Market Size & Forecast**

###### **7.3.3.1.1. By Value**

##### **7.3.3.2. Market Share & Forecast**

###### **7.3.3.2.1. By Technology**

###### **7.3.3.2.2. By Source of water**

###### **7.3.3.2.3. By End-Use Industry**

#### **7.3.4. Italy Desalination Technologies Market Outlook**

##### **7.3.4.1. Market Size & Forecast**

###### **7.3.4.1.1. By Value**

##### **7.3.4.2. Market Share & Forecast**

###### **7.3.4.2.1. By Technology**

###### **7.3.4.2.2. By Source of water**

###### **7.3.4.2.3. By End-Use Industry**

#### **7.3.5. Spain Desalination Technologies Market Outlook**

- 7.3.5.1. Market Size & Forecast
  - 7.3.5.1.1. By Value
- 7.3.5.2. Market Share & Forecast
  - 7.3.5.2.1. By Technology
  - 7.3.5.2.2. By Source of water
  - 7.3.5.2.3. By End-Use Industry

## **8. ASIA PACIFIC DESALINATION TECHNOLOGIES MARKET OUTLOOK**

- 8.1. Market Size & Forecast
  - 8.1.1. By Value
- 8.2. Market Share & Forecast
  - 8.2.1. By Technology
  - 8.2.2. By Source of water
  - 8.2.3. By End-Use Industry
  - 8.2.4. By Country
- 8.3. Asia Pacific: Country Analysis
  - 8.3.1. China Desalination Technologies Market Outlook
    - 8.3.1.1. Market Size & Forecast
      - 8.3.1.1.1. By Value
    - 8.3.1.2. Market Share & Forecast
      - 8.3.1.2.1. By Technology
      - 8.3.1.2.2. By Source of water
      - 8.3.1.2.3. By End-Use Industry
  - 8.3.2. India Desalination Technologies Market Outlook
    - 8.3.2.1. Market Size & Forecast
      - 8.3.2.1.1. By Value
    - 8.3.2.2. Market Share & Forecast
      - 8.3.2.2.1. By Technology
      - 8.3.2.2.2. By Source of water
      - 8.3.2.2.3. By End-Use Industry
  - 8.3.3. Japan Desalination Technologies Market Outlook
    - 8.3.3.1. Market Size & Forecast
      - 8.3.3.1.1. By Value
    - 8.3.3.2. Market Share & Forecast
      - 8.3.3.2.1. By Technology
      - 8.3.3.2.2. By Source of water
      - 8.3.3.2.3. By End-Use Industry
  - 8.3.4. South Korea Desalination Technologies Market Outlook

- 8.3.4.1. Market Size & Forecast
  - 8.3.4.1.1. By Value
- 8.3.4.2. Market Share & Forecast
  - 8.3.4.2.1. By Technology
  - 8.3.4.2.2. By Source of water
  - 8.3.4.2.3. By End-Use Industry
- 8.3.5. Australia Desalination Technologies Market Outlook
  - 8.3.5.1. Market Size & Forecast
    - 8.3.5.1.1. By Value
  - 8.3.5.2. Market Share & Forecast
    - 8.3.5.2.1. By Technology
    - 8.3.5.2.2. By Source of water
    - 8.3.5.2.3. By End-Use Industry

## **9. MIDDLE EAST & AFRICA DESALINATION TECHNOLOGIES MARKET OUTLOOK**

- 9.1. Market Size & Forecast
  - 9.1.1. By Value
- 9.2. Market Share & Forecast
  - 9.2.1. By Technology
  - 9.2.2. By Source of water
  - 9.2.3. By End-Use Industry
  - 9.2.4. By Country
- 9.3. Middle East & Africa: Country Analysis
  - 9.3.1. Saudi Arabia Desalination Technologies Market Outlook
    - 9.3.1.1. Market Size & Forecast
      - 9.3.1.1.1. By Value
    - 9.3.1.2. Market Share & Forecast
      - 9.3.1.2.1. By Technology
      - 9.3.1.2.2. By Source of water
      - 9.3.1.2.3. By End-Use Industry
  - 9.3.2. UAE Desalination Technologies Market Outlook
    - 9.3.2.1. Market Size & Forecast
      - 9.3.2.1.1. By Value
    - 9.3.2.2. Market Share & Forecast
      - 9.3.2.2.1. By Technology
      - 9.3.2.2.2. By Source of water
      - 9.3.2.2.3. By End-Use Industry
  - 9.3.3. South Africa Desalination Technologies Market Outlook

#### 9.3.3.1. Market Size & Forecast

##### 9.3.3.1.1. By Value

#### 9.3.3.2. Market Share & Forecast

##### 9.3.3.2.1. By Technology

##### 9.3.3.2.2. By Source of water

##### 9.3.3.2.3. By End-Use Industry

## **10. SOUTH AMERICA DESALINATION TECHNOLOGIES MARKET OUTLOOK**

### 10.1. Market Size & Forecast

#### 10.1.1. By Value

### 10.2. Market Share & Forecast

#### 10.2.1. By Technology

#### 10.2.2. By Source of water

#### 10.2.3. By End-Use Industry

#### 10.2.4. By Country

### 10.3. South America: Country Analysis

#### 10.3.1. Brazil Desalination Technologies Market Outlook

##### 10.3.1.1. Market Size & Forecast

###### 10.3.1.1.1. By Value

##### 10.3.1.2. Market Share & Forecast

###### 10.3.1.2.1. By Technology

###### 10.3.1.2.2. By Source of water

###### 10.3.1.2.3. By End-Use Industry

#### 10.3.2. Colombia Desalination Technologies Market Outlook

##### 10.3.2.1. Market Size & Forecast

###### 10.3.2.1.1. By Value

##### 10.3.2.2. Market Share & Forecast

###### 10.3.2.2.1. By Technology

###### 10.3.2.2.2. By Source of water

###### 10.3.2.2.3. By End-Use Industry

#### 10.3.3. Argentina Desalination Technologies Market Outlook

##### 10.3.3.1. Market Size & Forecast

###### 10.3.3.1.1. By Value

##### 10.3.3.2. Market Share & Forecast

###### 10.3.3.2.1. By Technology

###### 10.3.3.2.2. By Source of water

###### 10.3.3.2.3. By End-Use Industry

## **11. MARKET DYNAMICS**

- 11.1. Drivers
- 11.2. Challenges

## **12. MARKET TRENDS AND DEVELOPMENTS**

- 12.1. Merger & Acquisition (If Any)
- 12.2. Product Launches (If Any)
- 12.3. Recent Developments

## **13. COMPANY PROFILES**

- 13.1. Veolia Water Technologies
  - 13.1.1. Business Overview
  - 13.1.2. Key Revenue and Financials
  - 13.1.3. Recent Developments
  - 13.1.4. Key Personnel
  - 13.1.5. Key Product/Services Offered
- 13.2. SUEZ Water Technologies & Solutions
- 13.3. Fluence Corporation
- 13.4. Aquatech International
- 13.5. Aqualyng
- 13.6. Ampac USA
- 13.7. Pure Aqua Inc.
- 13.8. Solar Water Solutions
- 13.9. Osmoflo
- 13.10. Genesis Water Technologies

## **14. STRATEGIC RECOMMENDATIONS**

## **15. ABOUT US & DISCLAIMER**

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