World Water Desalination

Industry Study with Forecasts for 2015 & 2020

Study #2782 | July 2011 | $5900 | 414 pages
Table of Contents

EXECUTIVE SUMMARY

MARKET ENVIRONMENT
General .............................................. 4
World Macroeconomic Outlook ................. 6
Recent Historical Trends ....................... 6
World Economic Outlook ..................... 8
World Fixed Investment Outlook ............. 12
World Demographic Outlook ................. 14
Population ........................................ 15
Urbanization Patterns .......................... 16
World Water Use .................................. 17
Irrigation Trends ................................ 19
Water Shortages .................................. 19
Water Reuse ...................................... 20
Environmental & Regulatory Issues .......... 21
Water Pollution ................................... 22
Regulations ....................................... 23
Technology & Product Innovation .......... 26
International Trade .............................. 28

OVERVIEW
General ........................................... 30
Desalination Capacity ............................ 31
Regional Market Overview ..................... 35
Technology Overview ............................ 38
Thermal Desalination ............................ 40
Multi-Stage Flash (MSF) Distillation ....... 42
Multiple Effect Distillation (MED) .......... 42
Other .............................................. 44
Membrane Desalination ....................... 45
Reverse Osmosis (RO) ......................... 47
Other .............................................. 49
Applications ..................................... 50
New Construction ............................... 52
Operations & Maintenance .................... 53
Products & Services Overview ............... 55
Product Overview ............................... 56
Membrane Separation ......................... 59
Membrane Elements ............................ 62
Membrane Equipment ......................... 65
Pumps ............................................. 67
Evaporators ...................................... 68
Chemicals ....................................... 71
Filters ............................................. 74
Other .............................................. 75
Chemical Dosing Equipment ................. 76
Piping & Valves ................................ 77
Energy Recovery Devices ..................... 78
All Other ........................................ 79
Services Overview .............................. 80
Market Overview ................................ 81
Municipal ........................................ 83
Industrial ....................................... 85
Other .............................................. 87

AFRICA/MIDEAST

General ........................................... 90
Algeria ............................................ 96
Bahrain .......................................... 102
Iran .............................................. 108
Israel .......................................... 115
Kuwait ........................................... 120
Libya ............................................. 127
Oman ............................................. 133
Qatar ............................................. 143
Saudi Arabia ................................... 143
United Arab Emirates ......................... 150
Other Africa/Mideast ......................... 156

UNITED STATES

General ........................................... 163
Desalination Product Demand ............... 166
Applications, Technologies & Markets ....... 168

ASIA/PACIFIC

General ........................................... 171
Australia ........................................ 176
China ............................................ 183
India ............................................. 188
Japan ............................................. 194
Other Asia/Pacific .............................. 200

OTHER REGIONS

Europe ............................................ 208
Spain ............................................. 213
Italy .............................................. 221
Other Europe ................................... 228
Caribbean Region .............................. 233
Other Western Hemisphere .................. 239

INDUSTRY STRUCTURE

General ........................................... 245
Market Share .................................... 247
Industry Restructuring ......................... 252
Competitive Strategies ....................... 254
Cooperative Agreements ..................... 255
Research & Development ..................... 258
Marketing & Distribution ..................... 260

COMPANY PROFILES

Abengoa SA ..................................... 262
Acciona SA ..................................... 269
Actividades de Construccion y Servicios . 267
Afton Pumps ................................... 268
Al Safya Water ................................ 269
Alfa Laval AB .................................. 270
AltelA Incorporated ........................... 272
American Water Works ...................... 273
Aqualyng AS ................................... 274
Asahi Kasei ..................................... 276
Avista Technologies ........................... 277
Bekaert (NV) .................................... 278
BEL Group ...................................... 279
Berwind Corporation .......................... 281
BILFAL Heavy Industries ................. 283
Bilfinger Berger ............................... 284
Bwax AG ....................................... 285
BWT AG ........................................ 288
Cat Pumps ...................................... 291
Consolidated Water ........................... 292
Danaher Corporation ......................... 295
Deleq Group ................................... 297
Doosan Heavy Industries and Construction. 300
Dow Chemical .................................. 302
Ebara Corporation ............................ 305
EES Technology Incorporated ............. 307
Energy Recovery ............................... 308
Exterran Holdings ............................. 310
Flowservice Corporation ................... 312
Fluid Equipment Development ............. 315
Fomento de Construcciones y Contratas . 315
GDF SUEZ ..................................... 319
General Electric ............................... 321
GLV Incorporated ............................. 325
Grundfos A/S ................................ 327
Grupo Ferroviario ............................ 329
Hitachi Zosen ................................ 331
H2O Innovation ............................... 333
Hyflux Limited ................................. 335
Impregilo SpA .................................. 337
Isolux Corsan ................................. 339

List of Charts

OVERVIEW

1 World Water Desalination Capacity by Region, 2010 .......... 34
2 New Water Desalination Capacity, 2010-2015 ............. 35
3 World Water Desalination Market by Region, 2010 ........ 37
4 World Thermal Desalination System Demand by Region, 2010 .... 42
5 World Membrane Desalination System Market by Region, 2010 ... 47
6 World Water Desalination Product Demand by Type, 2010 .......... 59
7 World Water Desalination Markets, 2010 ............... 83

AFRICA/MIDEAST

1 Africa/Mideast: Water Desalination Demand by Country, 2010 ........ 96

ASIA/PACIFIC

1 Asia/Pacific: Water Desalination Demand by Country, 2010 .......... 176

INDUSTRY STRUCTURE

1 World Water Desalination Market Share, 2010 ............... 248
List of Tables/Charts

EXECUTIVE SUMMARY
1 Summary Table ........................................ 3

MARKET ENVIRONMENT
1 World Water Desalination Capacity by Region .......... 34
2 World Water Desalination Market by Region... 37
3 World Water Desalination Market by Technology ....... 39
4 World Thermal Desalination System Demand by Region & Type ........ 41
5 World Membrane Desalination System Demand by Region & Type ........ 46
6 World Water Desalination Demand by Application ....... 52
7 World Desalination New Construction Demand by Region ................ 53
8 World Desalination Operations & Maintenance (O&M) Demand by Region .... 55
9 World Water Desalination Products & Services Demand ...... 56
10 World Water Desalination Product Demand by Type ...... 58
11 World Desalination Membrane System Demand by Type .......... 62
12 World Desalination Membrane Element Demand by Region .......... 65
13 World Desalination Membrane Equipment Demand by Region ...... 67
14 World Desalination Pump Demand by Region 69
15 World Desalination Evaporator Demand by Region .......... 71
16 World Desalination Chemical Demand by Region .......... 73
17 World Desalination Filter Demand by Region 75
18 Other Desalination Equipment Demand by Region & Type .......... 76
19 World Desalination Services Demand by Region ........ 81
20 World Water Desalination Markets ........ 82
21 World Municipal Desalination Demand by Region ........ 85
22 World Industrial Desalination Demand by Region ........ 86
23 Other Markets for Desalination Demand by Region ... 89

AFRICA/MIDEAST
1 Africa/Mideast: Market Environment for Water Desalination .......... 92
2 Africa/Mideast: Water Desalination Demand by Segment, Application, Technology & Market .......... 95
3 Algeria: Market Environment for Water Desalination .......... 98
4 Algeria: Desalination Product Demand by Type .......... 100
5 Algeria: Desalination Demand by Application, Technology & Market ........ 102
6 Bahrain: Market Environment for Water Desalination .......... 104
7 Bahrain: Desalination Product Demand by Type .......... 106
8 Bahrain: Desalination Demand by Application, Technology & Market .......... 108
9 Iran: Market Environment for Water Desalination .......... 111
10 Iran: Desalination Product Demand by Type 112
11 Iran: Desalination Demand by Application, Technology & Market .......... 114
12 Israel: Market Environment for Water Desalination .......... 117
13 Israel: Desalination Product Demand by Type .......... 118
14 Israel: Desalination Demand by Application & Market .......... 120
15 Kuwait: Market Environment for Water Desalination .......... 123
16 Kuwait: Desalination Product Demand by Type .......... 125
17 Kuwait: Desalination Demand by Application, Technology & Market .......... 127
18 Libya: Market Environment for Water Desalination .......... 129
19 Libya: Desalination Product Demand by Type .......... 131
20 Libya: Desalination Demand by Application, Technology & Market .......... 132
21 Oman: Market Environment for Water Desalination .......... 135
22 Oman: Desalination Product Demand by Type .......... 136
23 Oman: Desalination Demand by Application, Technology & Market .......... 138
24 Qatar: Market Environment for Water Desalination .......... 140
25 Qatar: Desalination Demand by Application, Technology & Market .......... 141
26 Qatar: Desalination Demand by Application, Technology & Market .......... 143
27 Saudi Arabia: Market Environment for Water Desalination .......... 146
28 Saudi Arabia: Desalination Product Demand by Type .......... 148
29 Saudi Arabia: Desalination Demand by Application, Technology & Market .......... 150
30 United Arab Emirates: Market Environment for Water Desalination .......... 152
31 United Arab Emirates: Desalination Product Demand by Type .......... 154
32 United Arab Emirates: Desalination Demand by Application, Technology & Market .......... 156
33 Other Africa/Mideast: Market Environment for Water Desalination .......... 158
34 Other Africa/Mideast: Desalination Product Demand by Type .......... 160
35 Other Africa/Mideast: Desalination Demand by Application, Technology & Market .......... 162

UNITED STATES
1 United States: Market Environment for Water Desalination .......... 166
2 United States: Desalination Product Demand by Type .......... 168
3 United States: Desalination Demand by Application & Market .......... 170

ASIA/PACIFIC
1 Asia/Pacific: Market Environment for Water Desalination .......... 173
2 Asia/Pacific: Water Desalination Demand by Segment, Application, Technology & Market .......... 175
3 Australia: Market Environment for Water Desalination .......... 178
4 Australia: Desalination Product Demand by Type .......... 179
5 Australia: Desalination Demand by Application & Market .......... 181
6 China: Desalination Product Demand by Region for Water Desalination .......... 184
7 China: Desalination Product Demand by Type .......... 186
8 China: Desalination Demand by Application, Technology & Market .......... 188
9 India: Market Environment for Water Desalination .......... 191
10 India: Desalination Product Demand by Type .......... 192
11 India: Desalination Demand by Application, Technology & Market .......... 194
12 Japan: Market Environment for Water Desalination .......... 197
13 Japan: Desalination Product Demand by Type .......... 198
14 Japan: Desalination Demand by Application & Market .......... 200
15 Other Asia/Pacific: Market Environment for Water Desalination .......... 203
16 Other Asia/Pacific: Desalination Product Demand by Type .......... 205
17 Other Asia/Pacific: Desalination Demand by Application, Technology & Market .......... 207

OTHER REGIONS
1 Europe: Market Environment for Water Desalination .......... 211
2 Europe: Desalination Demand by Segment, Application, Technology & Market .......... 213
3 Spain: Market Environment for Water Desalination .......... 217
4 Spain: Desalination Product Demand by Type .......... 219
5 Spain: Desalination Demand by Application, Technology & Market .......... 221
6 Italy: Market Environment for Water Desalination .......... 224
7 Italy: Desalination Product Demand by Type .......... 226
8 Italy: Desalination Demand by Application, Technology & Market .......... 227
9 Other Europe: Market Environment for Water Desalination .......... 230
10 Other Europe: Desalination Product Demand by Type .......... 232
11 Other Europe: Desalination Demand by Application, Technology & Market .......... 233
12 Caribbean Region: Market Environment for Water Desalination .......... 235
13 Caribbean Region: Desalination Product Demand by Type .......... 237
14 Caribbean Region: Desalination Demand by Application, Technology & Market .......... 239
15 Other Western Hemisphere: Market Environment for Water Desalination .......... 241
16 Other Western Hemisphere: Desalination Product Demand by Type .......... 243
17 Other Western Hemisphere: Desalination Demand by Application, Technology & Market .......... 244

INDUSTRY STRUCTURE
1 World Water Desalination Sales by Company, 2010 .......... 246
2 Selected Acquisitions & Divestitures .......... 253
3 Selected Cooperative Agreements .......... 256
Although the global economic downturn has slowed growth in new desalination capacity from the torrid pace of the 2005-2010 period, gains will still be strong in nearly every region.

World demand to rise 9.3% yearly through 2015

World demand for water desalination products and services is projected to increase 9.3 percent annually to $13.4 billion in 2015. Although the global economic downturn has slowed growth in new desalination capacity from the torrid pace of the 2005-2010 period, gains will still be strong in nearly every significant desalination market -- but particularly in the Asia/Pacific region.

Membrane systems to be fastest growing products

Because membrane systems will account for an increasing share of overall desalination capacity membrane elements, energy recovery devices and other products used in membrane systems will be among the fastest growing products. Demand for chemicals will be boosted by growing use of specialty membrane cleaners and other products used in pretreatment stages designed to prolong the lives of expensive membrane elements. Gains for evaporators, used in thermal systems, will be more modest. Growth for products such as pumps and filters, used across the board, will be boosted by overall gains in capacity.

Thermal desalination to remain leading technology

Traditionally, the dominant Africa/Mideast market has relied on thermal desalination techniques, particularly multi-stage flash (MSF) distillation. MSF plants consume huge amounts of energy, but can produce immense quantities of water so pure that minerals are often added to improve the taste of the water, replace essential mineral nutrients and protect the water distribution system from corrosion. Many of the largest plants use integrated water and power plant (IWPP) models, in which desalination equipment is powered by waste heat from a power plant.

In the coming years, reverse osmosis (RO) and other membrane-based technologies are expected to increase their share of the market in the Africa/Mideast region, especially in countries with water shortages that also lack abundant domestic energy supplies, such as Algeria and Israel. Nevertheless, much of the new capacity coming online in the region will use thermal technologies, including multiple effect distillation (MED). Because it is less energy-intensive than MSF, more new thermal plants will use MED, but the sheer size of the largest MSF plants being constructed will mean that MSF will remain the leading thermal technology. Outside of the Africa/Mideast region, RO will be the dominant technology used in new plants, due to its lower energy consumption rates. The use of energy recovery devices and alternative power sources, such as solar energy, will contribute to efforts to lower operating costs.

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United Arab Emirates: Applications, Technologies & Market

Demand for desalination products and services in the UAE is projected to increase from $2.3 billion in 2010 to $2.6 billion in 2015. Over recent years, the UAE has added capacity faster than most other desalination markets. However, new construction has outpaced the operations and maintenance (O&M) segment in recent years. However, as this capacity becomes operational, growth in the O&M growth will be faster.

Although the UAE is intent on reducing its consumption of oil and gas to power its desalination facilities, it is doing so mainly via technological improvements for thermal techniques (including the use of MED instead of MSF in some facilities) rather than by a wholesale change to membrane technologies, as seen in countries such as Algeria. Use of membrane desalination is expected to grow in the UAE, but thermal desalination will remain dominant. An example of the use of membrane desalination in the UAE is the SWRO plant to be built in Ghalilah. With a scheduled operational date in late 2013, it will provide drinking water for the Emirate of Ra’s al Khaymah, one of the emirates which does not produce commercially significant amounts of oil or gas.

Municipal uses account for a larger share of desalination demand in the UAE than in most other countries in the Africa/Mideast region. Industrial uses are relatively minor, although the industrial segment is expected to register somewhat faster growth than the municipal market. The ruler of Dubai has authorized exploring the idea of using nuclear power for both electricity generation and powering desalination plants, as even the most oil-rich countries attempt to reduce their oil consumption levels. This is motivated at least in part by efforts to increase oil imports, although Dubai itself has already diversified to the point where the oil and gas sector is a comparatively small share of overall economic activity.

**United Arab Emirates: Desalination Demand by Application, Technology & Market (million dollars)**

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<tr>
<td>By Application:</td>
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<tr>
<td>New Construction</td>
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<td>1465</td>
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<td>325</td>
<td>600</td>
<td>1065</td>
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<td>15</td>
<td>50</td>
<td>75</td>
<td>105</td>
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</table>

**World Water Desalination Market Share**

($8.6 billion, 2010)

- Others: 73.1%

**World Water Desalination Industry Study with Forecasts for 2015 & 2020**

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Sample Profile, Table & Forecast

COMPANY PROFILES

Hyflux Limited
Hyflux Building
202 Kallang Bahr
Singapore 339339
Singapore
65-6214-0777
http://www.hyflux.com

Geographic Revenues:  (2010, as percent of total) Singapore 13%,
Mideast and North Africa 60%, and China 26%
Employment:  nearly 2,300 (2010)

Key Products/Services:  reverse osmosis membranes; and design,
construction and operation of reverse osmosis seawater desalination plants

Hyflux is a water treatment and environmental company that specializes in membrane technologies for the water, industrial manufacturing, specialty materials and energy sectors. The Company operates through three segments: Municipal, Industrial and Others.

The Company participates in the world water desalination industry through the Municipal segment, which had 2010 revenues of US$375 million. The segment provides water and fluid treatment systems and services to municipalities and governments. Among the segment’s activities are the production of reverse osmosis membranes; and the design, construction and operation of desalination plants for municipal applications.

Hyflux produces membranes for various water treatment applications, including KRISTAL polymeric hollow fiber membranes, which are suitable for use in seawater desalination plants. These membranes

TABLE IV-31
UNITED ARAB EMIRATES:
DESALINATION PRODUCT DEMAND BY TYPE
(million dollars)

<table>
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<td>Desalination Product Demand</td>
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<td>Other Products</td>
<td>53</td>
<td>185</td>
<td>455</td>
<td>650</td>
<td>750</td>
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</tbody>
</table>

“Demand for desalination products in the UAE is projected to increase 7.4 percent annually to $2.4 billion in 2015. Unlike Saudi Arabia, which is diversifying its desalination capacity, the UAE will remain strongly committed to thermal desalination technologies. The use of MED is growing and some MED/RO hybrid plants are in the works. However, MSF will remain the workhorse technology in the UAE due to its reliability and capacity to produce enormous amounts of fresh water. As a result, …”

--Section IV, pg. 152-3

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Page 7
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**World Membrane Separation Technologies**
Global demand for membranes is projected to rise nine percent annually through 2015. The BRIC countries and others with large, developing industrial bases and stressed local water resources will see the fastest growth. The US and China combined will account for nearly half of market gains between 2010 and 2015. This study analyzes the $12.6 billion global membrane industry, with forecasts for 2015 and 2020 by product, market, world region and for 34 countries. The study also evaluates company market share and profiles industry participants.

#2755 ................. June 2011 .................. $6100

**Filters in China**
Demand for filters in China is projected to grow 13.5 percent annually through 2014, supported by rapid growth in transportation equipment production and stocks, and by energy conservation and emission reduction regulations. Internal combustion engine filters will remain the dominant product segment and will post the strongest gains. This study analyzes the 35.2 billion yuan filter industry in China, with forecasts for 2014 and 2019 by type and market. The study also evaluates company market share and profiles 36 industry participants.

#2740 ................. March 2011 .................. $5300

**Consumer Water Purification & Air Cleaning Systems**
US demand for consumer water purification and air cleaning systems will rise 5.2 percent per year through 2014. Conventional filters will remain the dominant water purification system, while higher-value reverse osmosis and distillation systems grow the fastest. Electrostatic cleaners will lead gains in the air segment. This study analyzes the $1.3 billion US consumer water purification and air cleaning system industry, with forecasts for 2014 and 2019 by technology, product and regional market. It also evaluates company market share and profiles industry players.

#2720 ................. March 2011 .................. $5100

**World Water Disinfection Products**
World demand for water disinfection products will increase 7.5 percent through 2014. In the developed world, gains will be prompted by efforts to reduce the environmental impact of water disinfection. In developing areas, efforts are underway to increase water treatment rates and quality up to advanced country standards. This study analyzes $5.7 billion the world water disinfection product industry, with forecasts for 2014 and 2019 by product, market, world region and for 20 countries. It also evaluates company market share and profiles industry participants.

#2723 ................. February 2011 .................. $5900

**Membrane Separation Technologies**
US demand for membrane materials will rise eight percent per year through 2014. Nonpolymeric membranes will outpace the dominant polymeric segment. Ultrafiltration and reverse osmosis types will be the fastest growing. Chemical processing and pharmaceutical/medical uses will be among the best market opportunities. This study analyzes the $3.3 billion US membrane industry, with forecasts for 2014 and 2019 by type, application and market. It also evaluates company market share and profiles industry players.

#2632 ................. May 2010 .................. $4900