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Trends in global water market and strategies for the Japanese companies

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Affiliated With

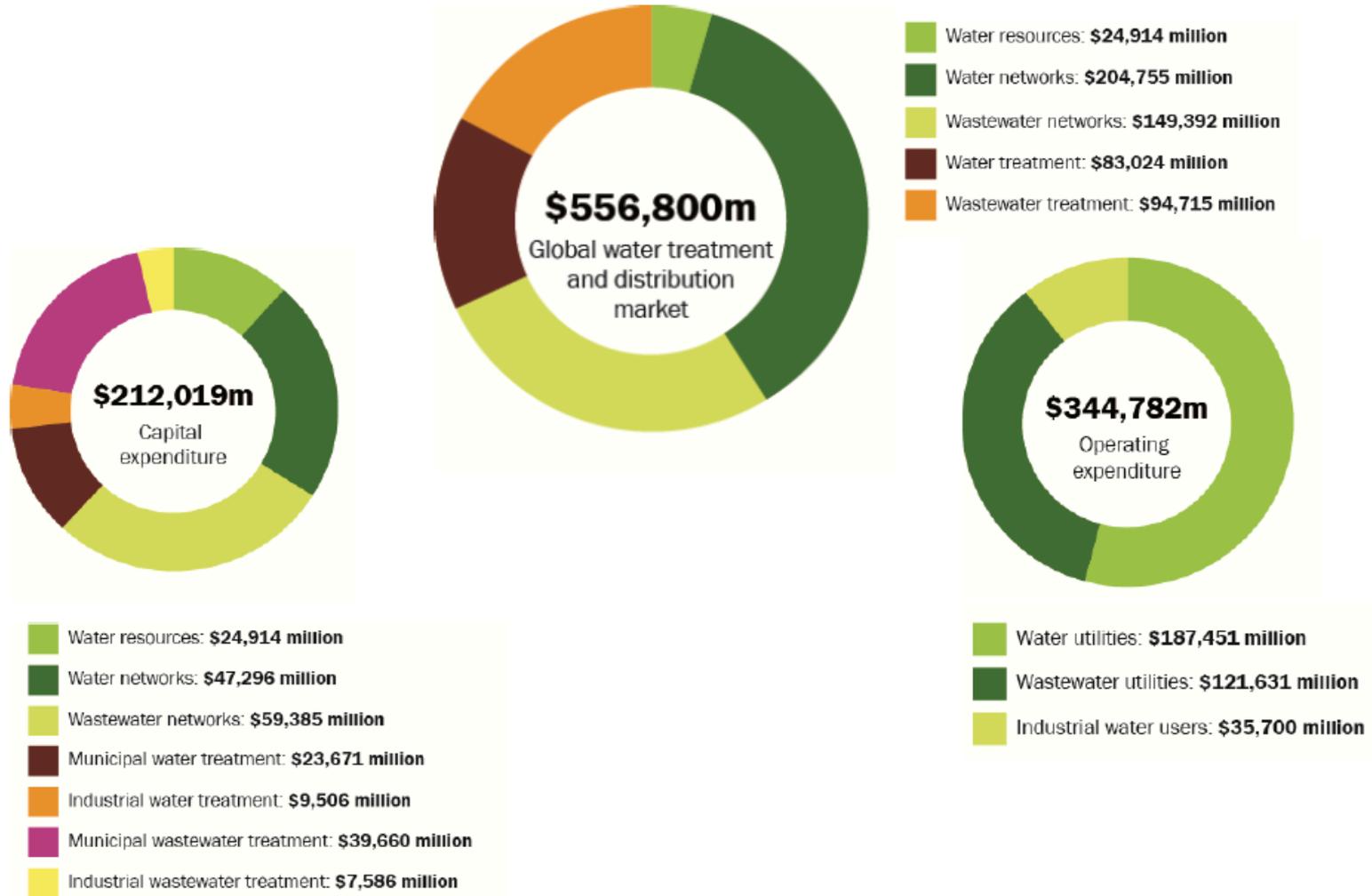


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The Global Water Market



Globally, where are the current market hotspots in 2015? (1/3)

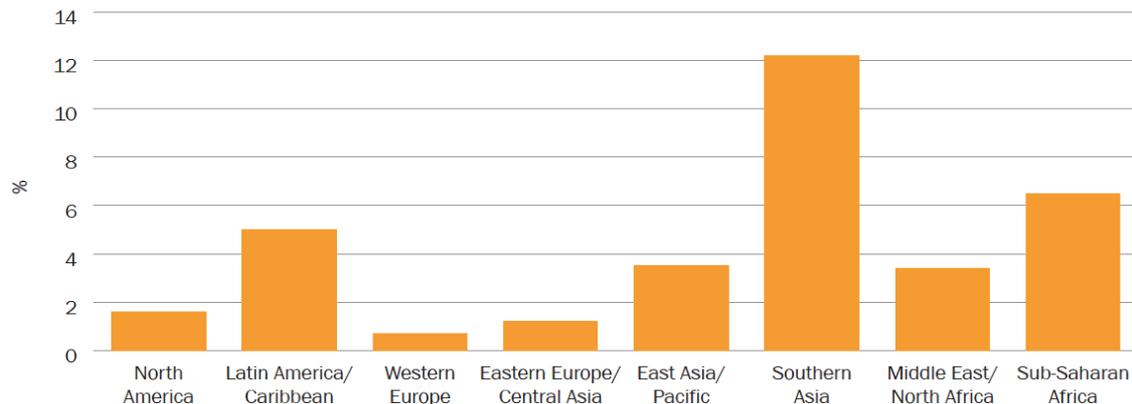
- 💧 **Water resource development:** As demand for water grows in areas with limited natural resources, the cost of developing new resources may be exponentially greater than the existing water sources. Capital expenditure on water resource development (not including water transfer) is set to grow at an annual rate of 4.4% over the years to 2018. The growth rate for capital expenditure on seawater desalination will be 9.2%.
- 💧 **Wastewater treatment and sludge management:** Wastewater collection, treatment and sludge management are the forgotten necessities of urban life. Overall, capital expenditure on wastewater is growing by 5.0% per year, but certain niches such as anaerobic digestion (9.7%) and aeration (6.2%) are growing more quickly.
- 💧 **Operational efficiency:** Water utilities are under greater pressure than ever to do more for less. Technologies which can help them achieve this will be in greater demand. The market for systems related to smart water networks, including automation control and metered water networks, is expected to grow at 9.8% per year.
- 💧 **Corporate water stewardship:** Businesses – and their investors – have become sharply aware of how water may impact their brands, their production, and their supply chains. Businesses are expected to increase their investment in water and wastewater treatment technology equipment by 7.2% a year.



Utility markets, where are the current hotspots? (2/3)

- 💧 **The United States turns a corner:** Utility capital expenditure finally stopped falling after five years. Wastewater was the big winner – adjusted monthly construction figures for December recorded levels of spending not seen since 2010. We expect that this growth will continue, as California fast-tracks \$1 billion worth of funding to combat its drought.
- 💧 **The new government is shaking things up in India:** The Planning Commission may not have survived the election, but the drive to improve water and sanitation coverage continues. There are big plans for wastewater treatment: the Ganga River Management Plan is a recommendation for 100% reuse of municipal wastewater. Although investment is expected to fall in 2015, with a reorganization of government spending and shift of funding to the state level, we anticipate a return to impressive growth in 2016.
- 💧 **New opportunities in South East Asia:** A new decree facilitating private sector participation in Vietnam should provide ample opportunities for investment in infrastructure. There is a long backlog of utility treatment plants awaiting investment, with a total treatment capacity of over 8 million m./d. Indonesia should also see substantial investments to expand utility coverage: the government has a plan for over \$50 billion worth of investment over the next five years.

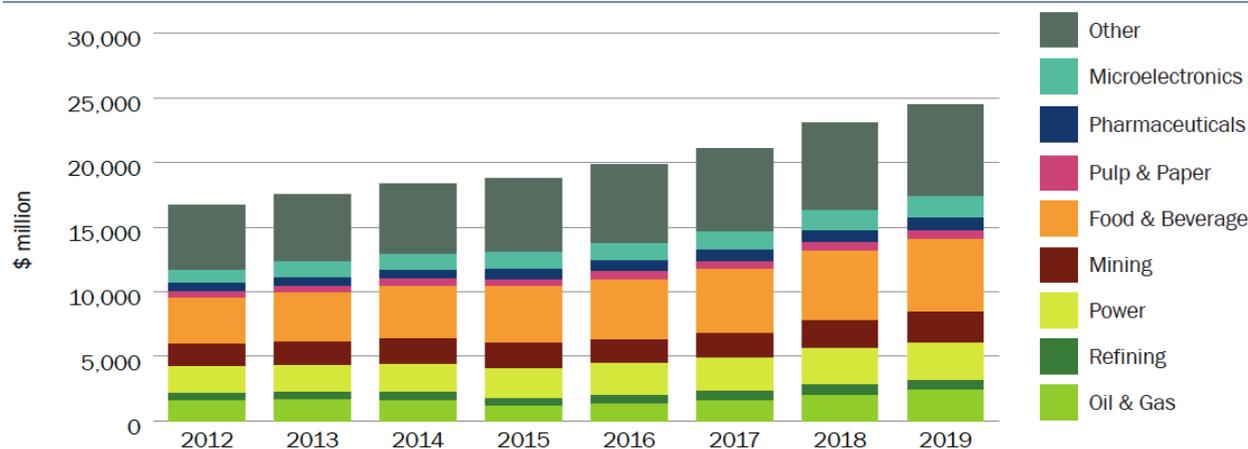
Growth in utility capital expenditure by region, 2013 to 2015



Industrial markets, where are the current hotspots in 2016? (3/3)

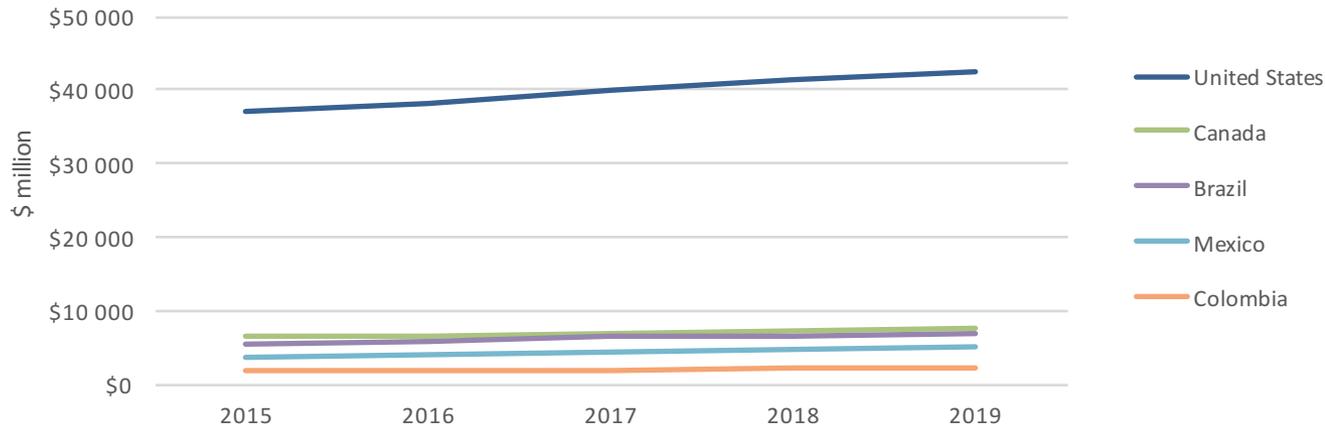
- 💧 **The oil and gas market has been hit hard by the fall in oil prices:** The main benchmark crude prices halved in value between June 2014 and January 2015, causing global E&P companies to substantially reduce their capex budgets. We expect global spending on produced water treatment to mirror this fall in 2015, with tight oil and steam EOR markets being the hardest hit. Spending will recover to pre- 2014 levels by the end of the decade as oil prices start to pick up.
- 💧 **The pharmaceuticals sector has promise for advanced wastewater treatment:** Growing awareness of the effect of trace pharmaceutical products on the natural environment is creating a strong driver for advanced treatment. We estimate that spending on these technologies is currently worth \$78 million, growing quickly at 8.7% a year.
- 💧 **China is finally getting tough on industrial pollution:** The new government has revealed its Water Pollution Action Plan, revealing its willingness to promote environmental protection at the expense of industrial profits. This plan could potentially lead to direct investments of over \$230 billion.

Industrial water and wastewater capital expenditure, 2012-2019

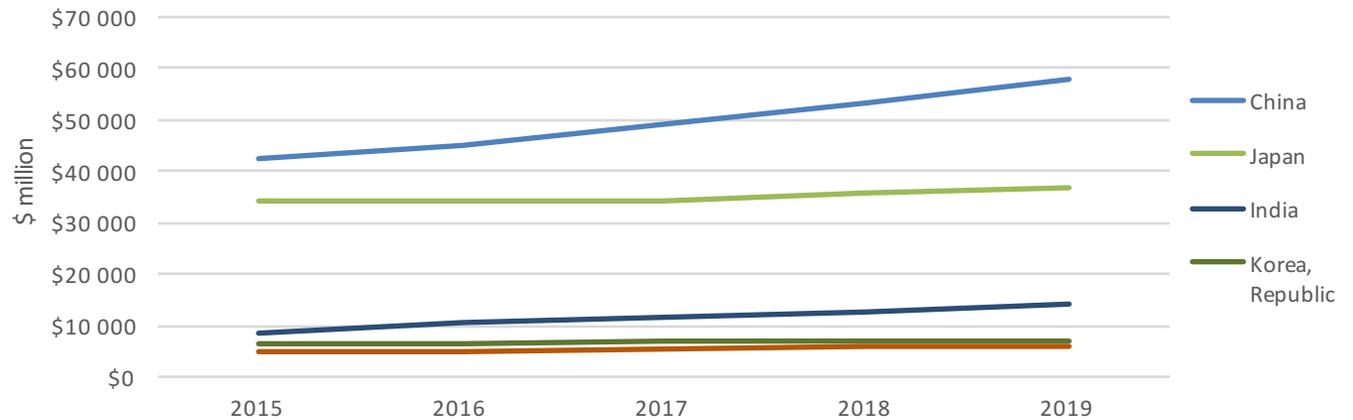


Geographically, where are significant water markets in 2015-2019? (1/2)

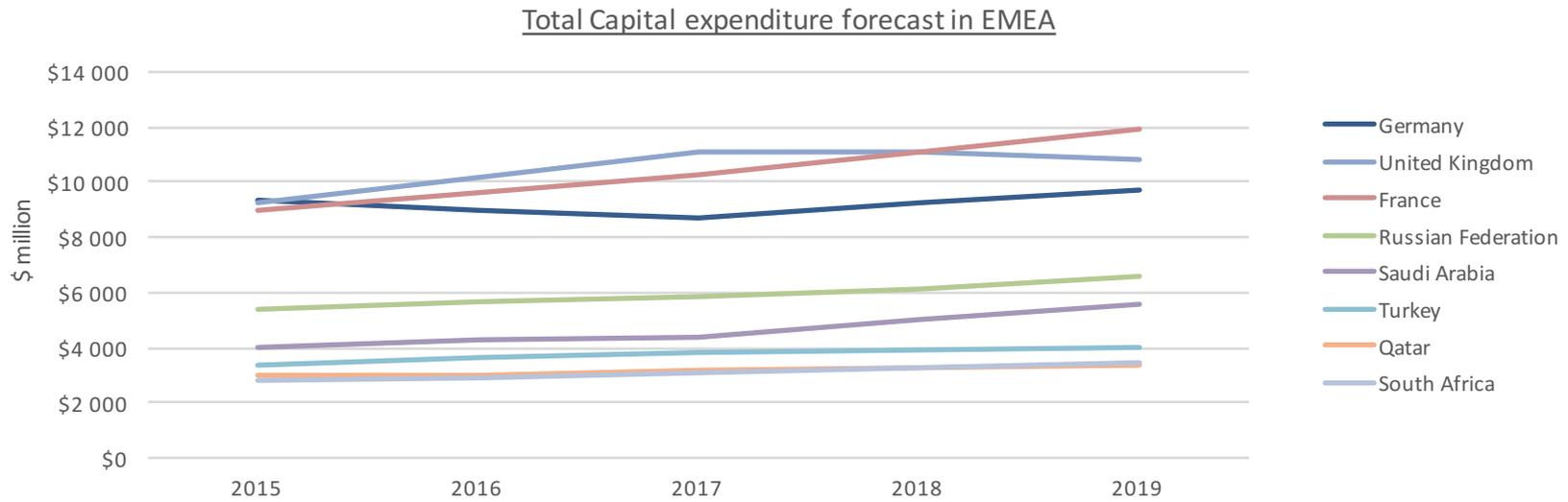
Total Capital expenditure forecast in Americas



Total Capital expenditure forecast in Asia Pacific



Geographically, where are significant water markets in 2015-2019? (2/2)



Other growth markets

Market above \$1 000 million with important CAGR in 2015 - 2019

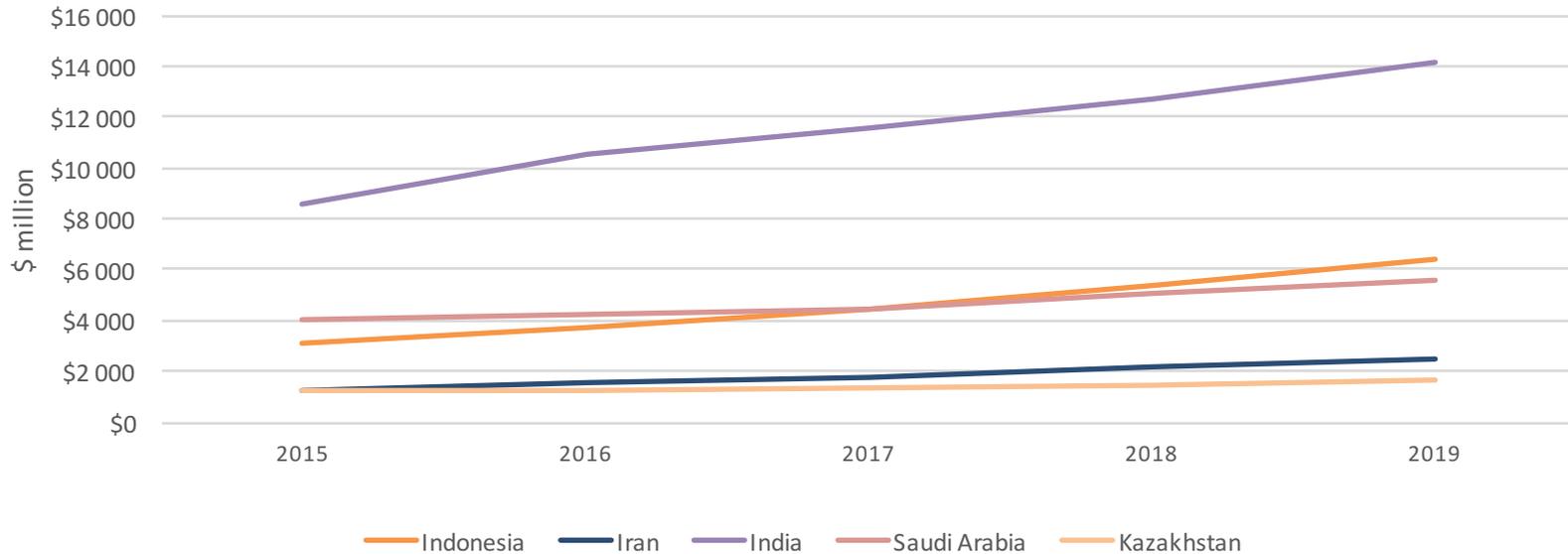


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Trends in technology markets

💧 **New entrants in the membrane market**

- 💧 It is difficult to break into the high pressure membrane market because the incumbents can drop their prices easily, and they can also innovate to improve their membrane performance.
- 💧 In the low pressure market the leading suppliers eg Pentair X-Flow, Asahi and GE Zenon enjoy a price advantage and have bigger networks of OEMs using their products. Entrants struggle to have an impact.

💧 **New build vs retrofitted technologies**

- 💧 The municipal market for new build water and wastewater treatment plants is very weak in Europe and North America at the moment, making it very difficult to acquire references.

💧 **Insufficiently differentiated technologies**

- 💧 The current weakness of the global water market has coincided with more companies entering the international water market, putting price pressure on all technology suppliers except those with a unique proposition.

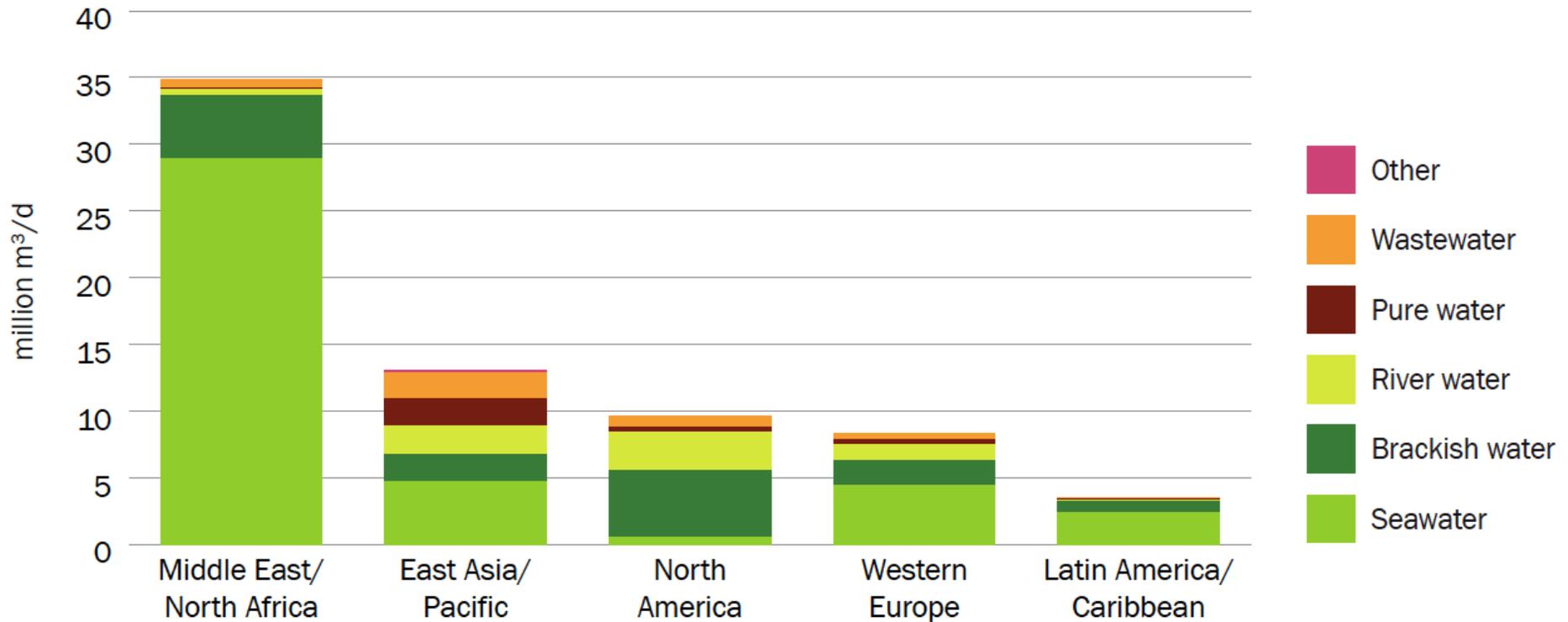


Five growth technology sectors

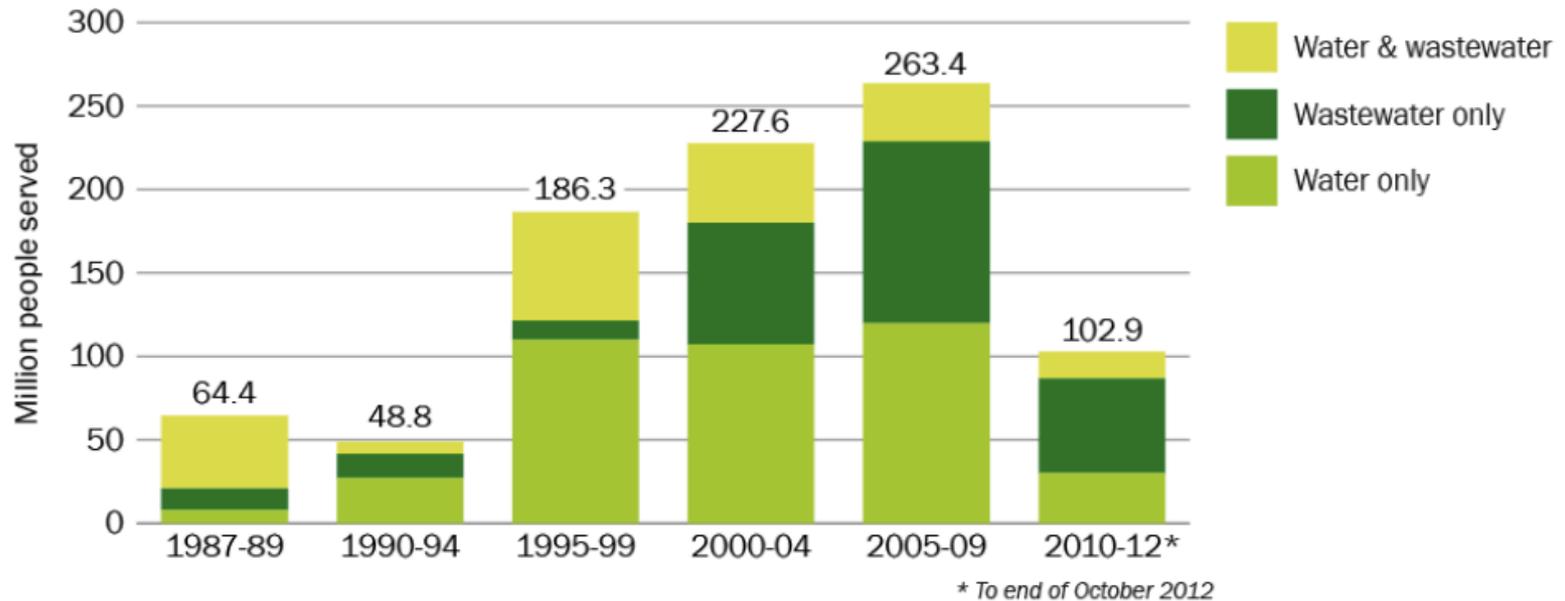
1. **Sludge reduction:** sludge volumes are increasing all over the world, while disposal costs are increasing. Sludge reduction is an immediately cost effective proposition
2. **Value from Waste:** anaerobic digestion is growing in popularity for high biological load wastewaters as well as from sludge/foodwaste co-processing
3. **Brine concentration:** the volume of industrial brine requiring treatment is growing while the technologies available have become more expensive because of high energy and materials costs
4. **Smart networks:** utilities are looking to use IT in novel ways (eg asset management, leak reduction, smart metering, improved customer service)
5. **Advanced wastewater treatment:** demand for higher rate, smaller footprint plants which address specific contaminants such as nitrate, phosphates, etc is growing



Desalination by Region in 2015



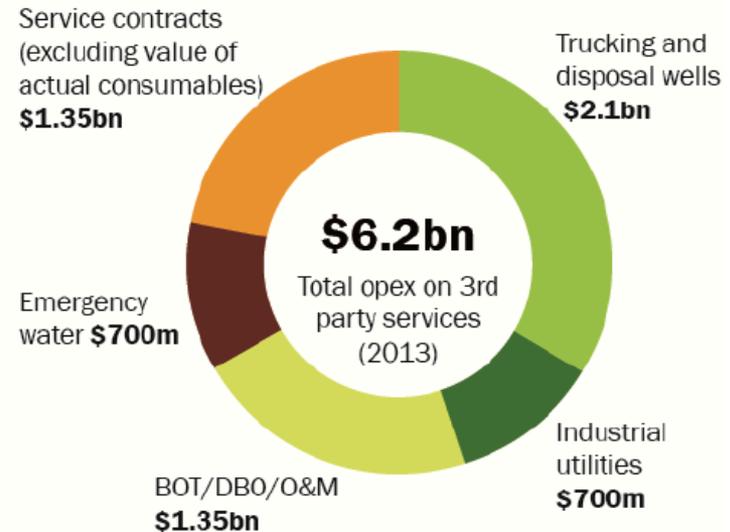
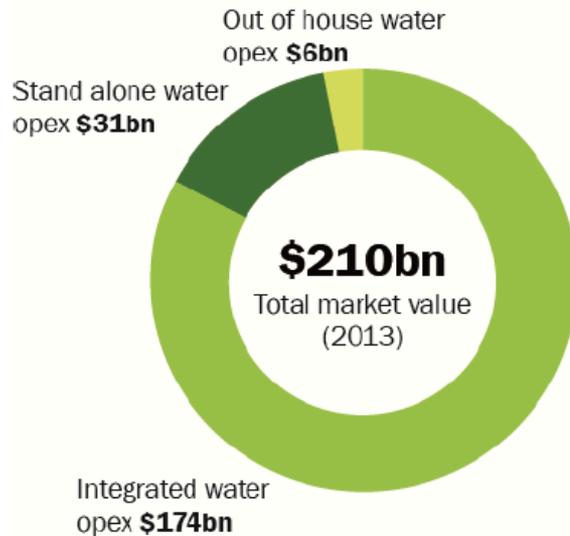
Municipal water outsourcing



- 💧 There have been no major city private water concessions in the past decade
- 💧 Anti-private water feeling has grown during the recession
- 💧 The Europeans have retreated from capital investment
- 💧 Capital invested in water infrastructure is heavily exposed to politics and economics
- 💧 Local currency financing has proved difficult to establish



Industrial water outsourcing



- 💧 There is strong potential for growing the industrial water outsourcing market.
- 💧 Risk transfer remains a problem



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Adapting offering to business models

Infra development PPP

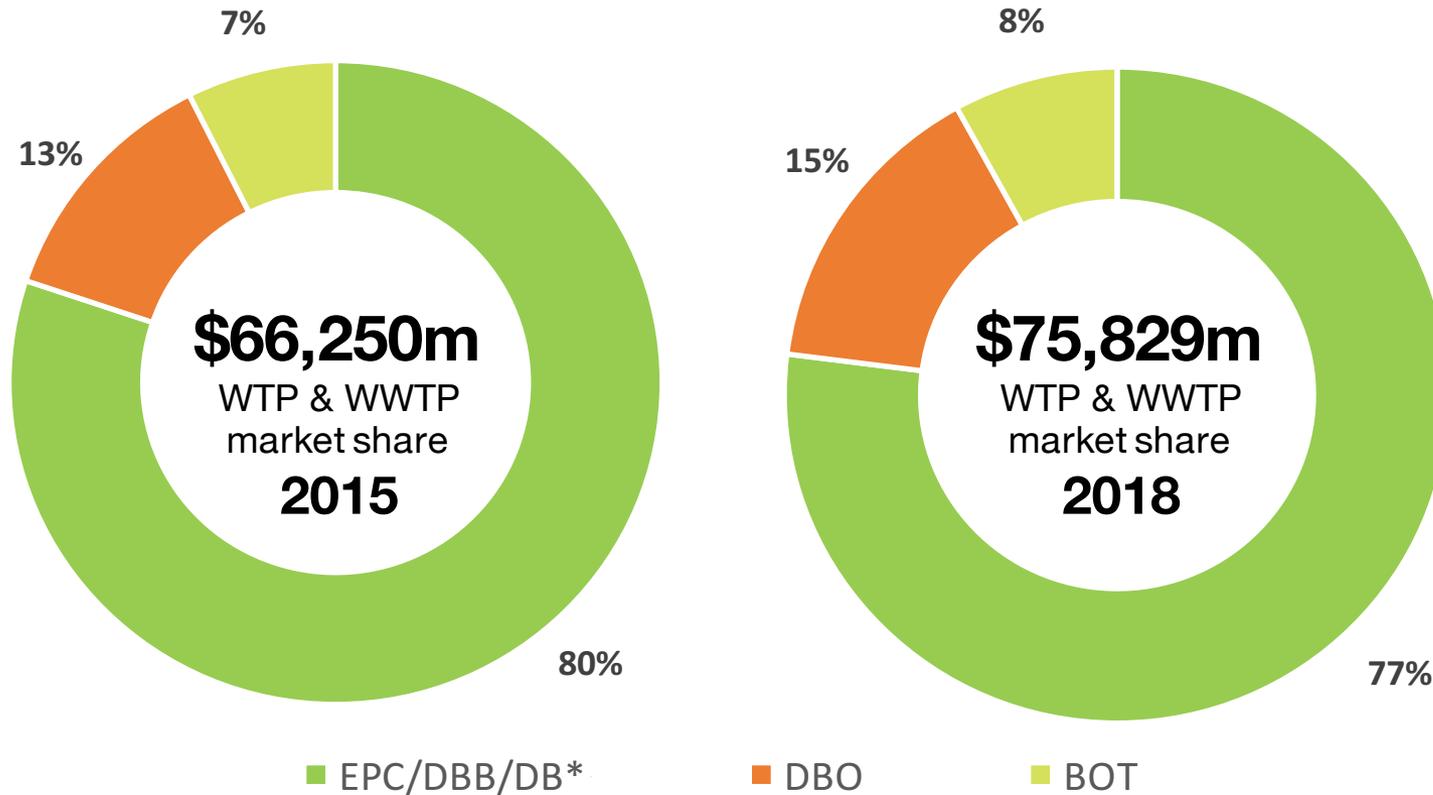
- Design – Build – Operate (DBO)
- Build – Operate – Transfer (BOT)

Emerging

- Performance – based Contracts
- “Technology – as – a – Service”



A trend towards DBO and BOT

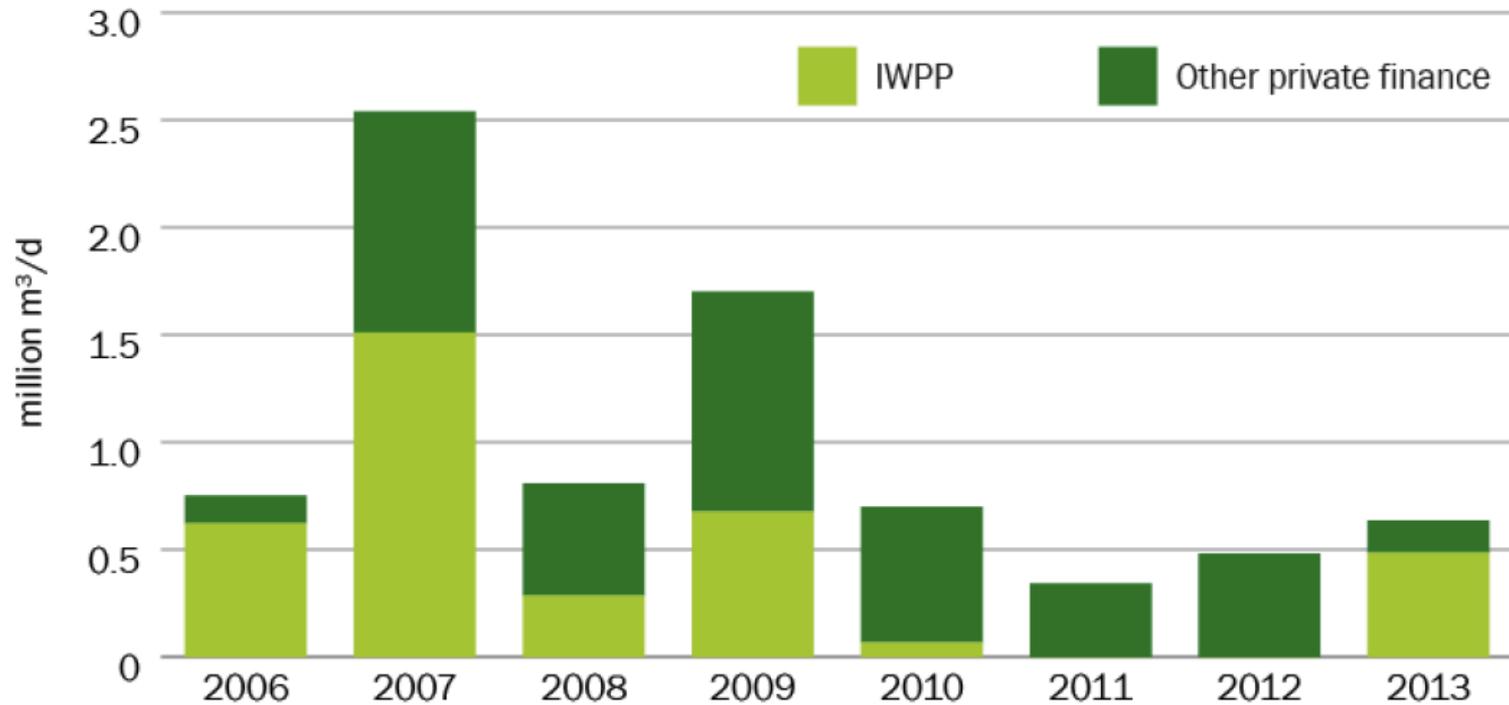


* Includes EPC contracts for privately owned utilities

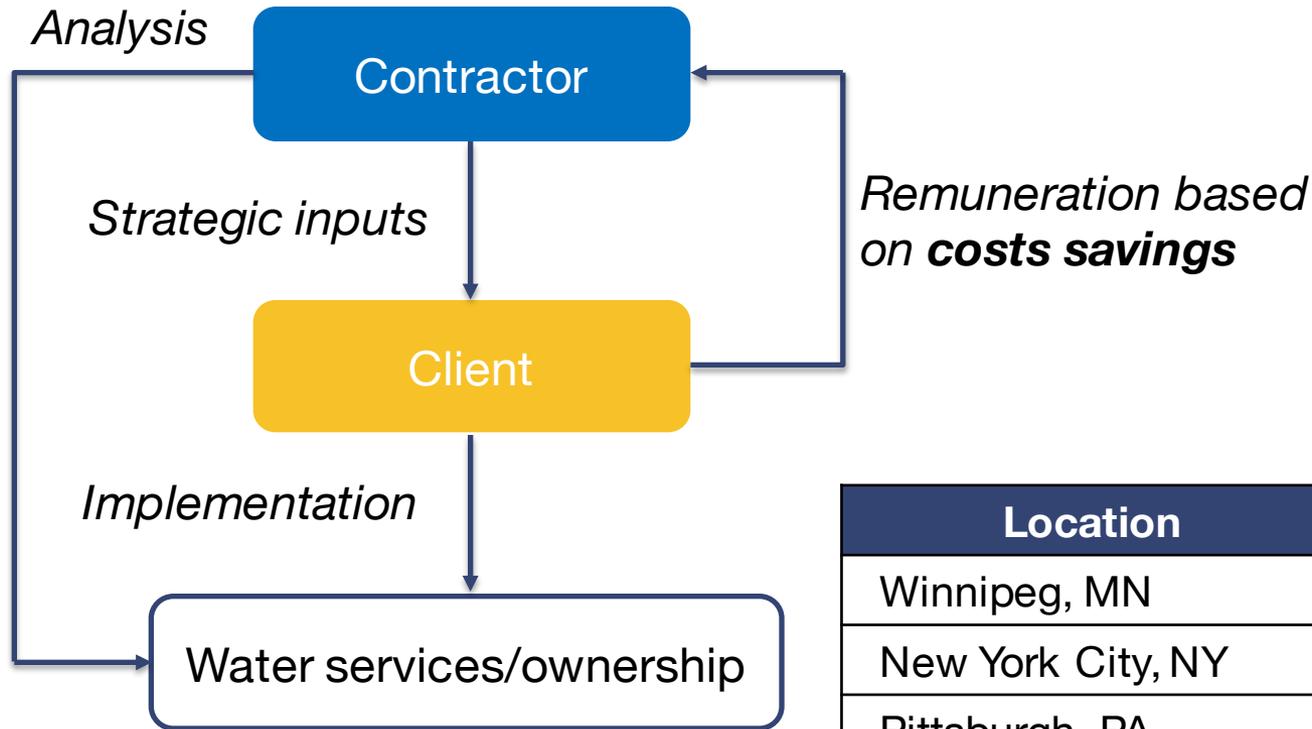
Source: GWI / Amane



PPP in desalination



Performance-based contracts



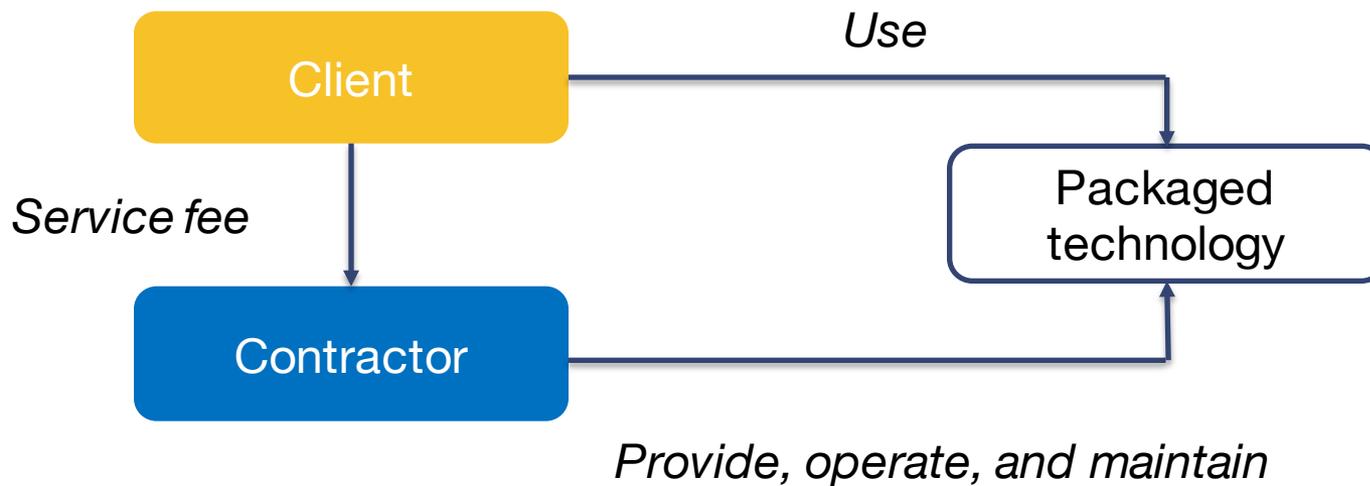
Location	Award date
Winnipeg, MN	Apr 2011
New York City, NY	Oct 2011
Pittsburgh, PA	Jul 2012
St. Louis, MO	Dec 2012
Washington DC	May 2013
DeKalb country, GA	Mar 2014



Technology-as-a-service

- Growing demand particularly from smaller communities with specific water/wastewater treatment challenges
- Covers specific areas such as NRW, sludge management, chemical application, package treatment

Structure of technology – as – a – service



Where is the growth?

- 1. BOT treatment plants:** While there is little enthusiasm to privatise entire utilities, many public authorities appreciate what the private sector can offer in terms of additional capital and improved risk management. The desalination market in the Middle East and the wastewater sector in China have offered the best opportunities for BOT.
- 2. DBO treatment plants:** As water and wastewater technologies become more complex, there is a growing appetite for private sector operations expertise. DBO was the model used to deliver the Spanish desalination programme, and parts of the Australian desalination programme. More recently the model has been gaining traction in the Indian water market.
- 3. Performance based contracts:** In the U.S. and in Australia public utilities have been under pressure to reduce their operating costs in order to keep tariff rises down. They have turned to private operators to advise them, in many cases structuring the private operator's remuneration as a proportion of the savings delivered. Examples of this new generation of contracts are Veolia's partnership with the City of Winnipeg to manage a large capital procurement programme, the same French company's partnership with York City Department of Environmental Protection which aims to deliver more than \$100 million in savings and additional revenues; and Water Corporation of Western Australia's alliance agreement with Thiess and United KG to run water and wastewater distribution in Perth and Mundarah.
- 4. Technology as a service:** there is growing demand (particularly from smaller communities with specific water/wastewater treatment challenges) to buy technological solutions on a service basis

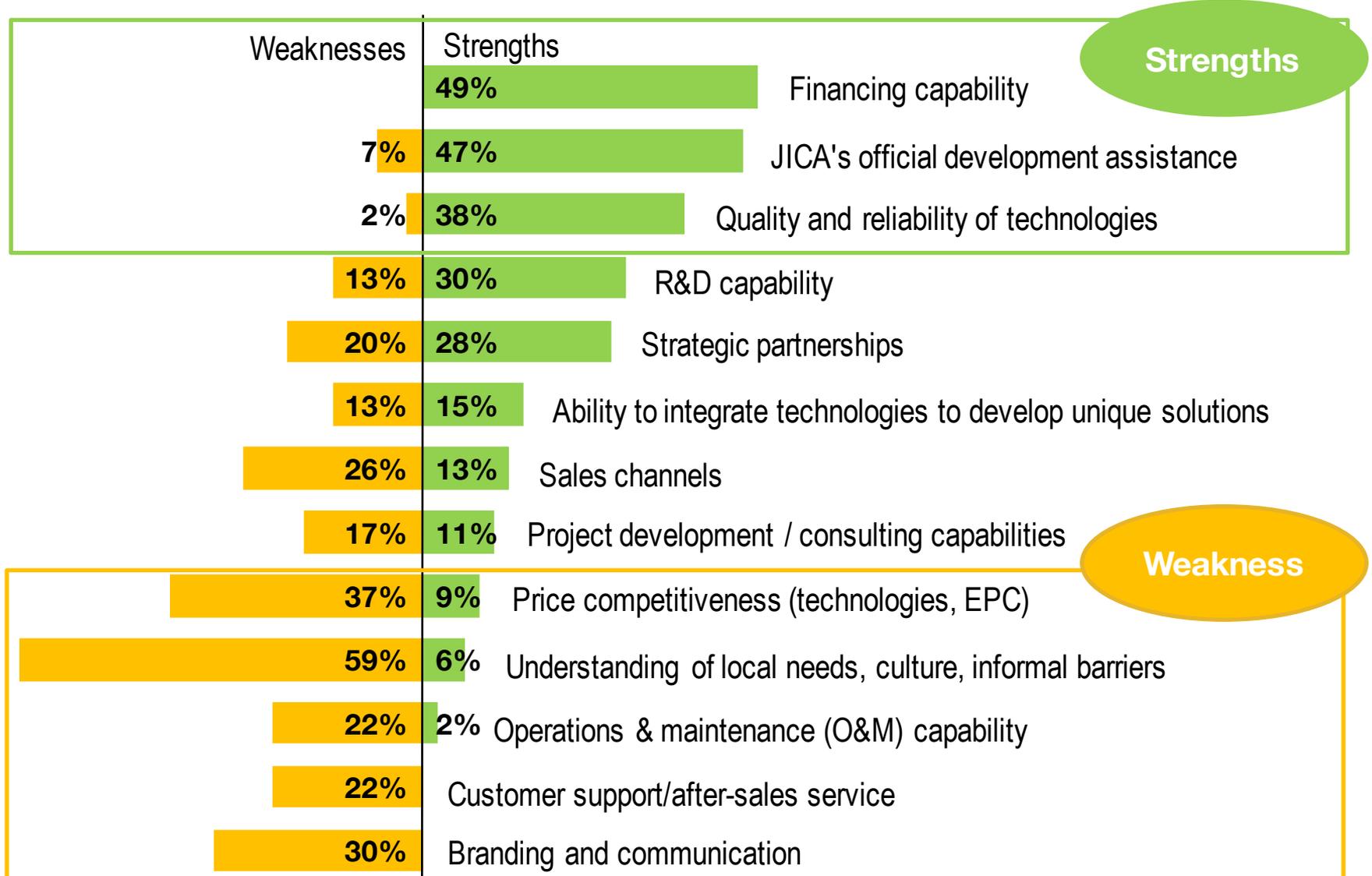


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Survey results: Strengths & Weaknesses of Japan



Japan SWOT analysis

Strengths

S

- Access to capital
- Coordination between players
- High quality & reliable technology
- Lowest lifecycle costs
- Total service approach to industrial customers

Weaknesses

W

- Uncompetitive pricing
- Over engineered solutions (particularly in distribution networks)
- Lack of operational expertise
- Over dependent on Japanese style customer relationships

Opportunities

O

- Weakness of European competitors
- Insularity of US companies
- Demand for water services in emerging markets
- Growing complexity of water challenges

Threats

T

- International market is highly competitive
- Low return on government capital is a long term problem for Japan
- Opening of domestic Japanese market would cause difficulties



Leveraging strengths and overcoming weaknesses

💧 **Leveraging strengths:**

- 💧 Quality, finance, and R&D: focus on markets where quality and higher tech is paid for by the client.
- 💧 Bring financing in the business model (BOT, Technology as a service)

💧 **Overcoming weaknesses:**

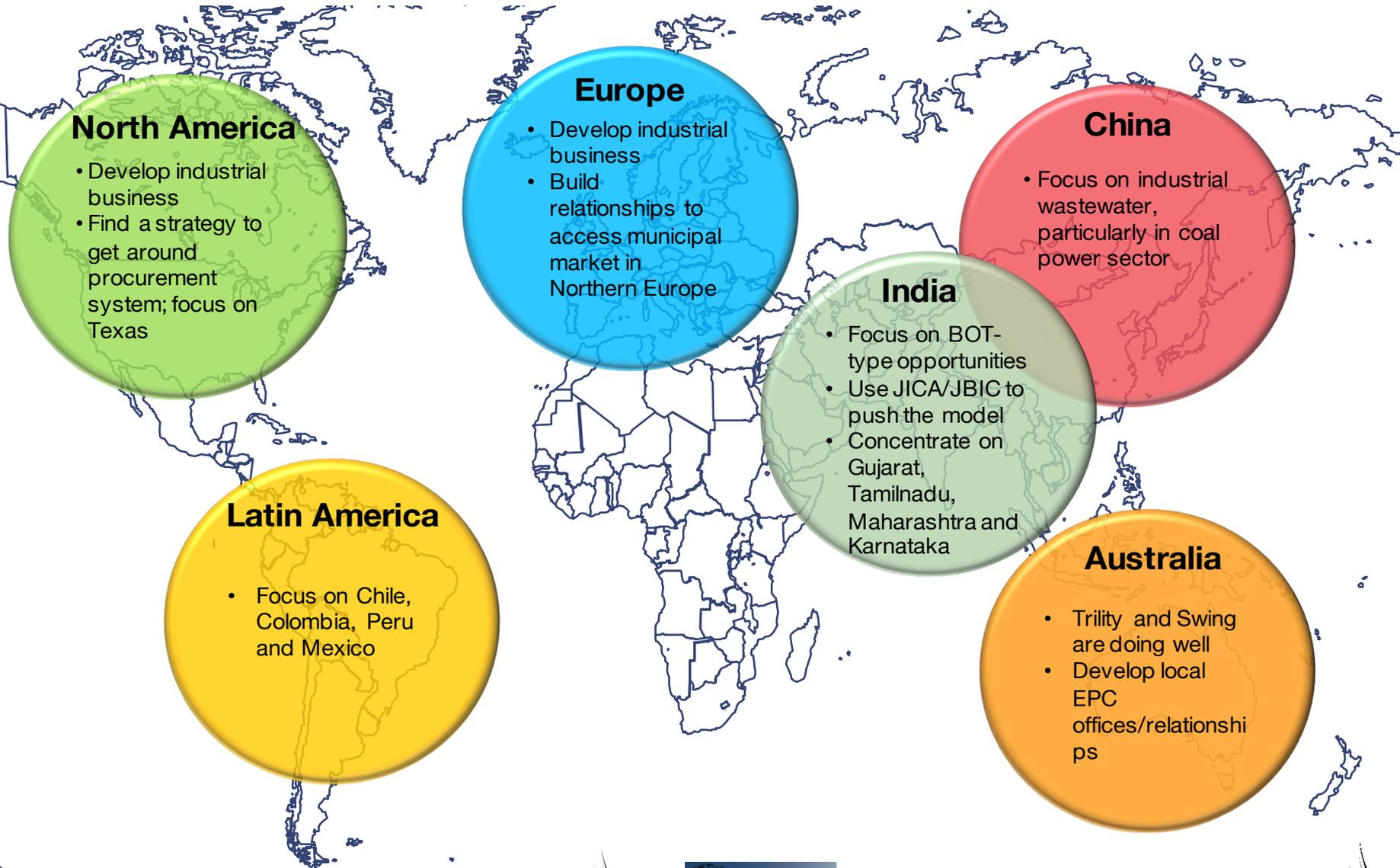
- 💧 Define and communicate clearly your unique value proposition
- 💧 Ability to operate (buy, make or partner)

💧 **Next steps:**

- 💧 Partnership within and outside of the country
- 💧 Deeper understanding of the specific needs
- 💧 Local relationships and overcome informal barriers



Where to go and what to do



Conclusion

- 💧 Japan has **good financing ability and good technology but weak international operational and EPC capability**
- 💧 Japan **must use its government financing ability to open the market for private projects**. These favour life cycle cost technologies
- 💧 It is likely that it will take at least **7 years for a Japanese company to have an impact on the global water market**. This timescale could be accelerated through acquisitions
- 💧 It may take longer for Japanese companies to enter the international market if they do not understand the informal barriers to entry which exist in different markets
- 💧 Remember that the **water market is very large, but only a small proportion of it is international**





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