REVERSE OSMOSIS (RO) MEMBRANE FUNCTION

INVESTMENT OPPORTUNITY SCORECARD

WATER

SEPTEMBER 2020

Public / متاح

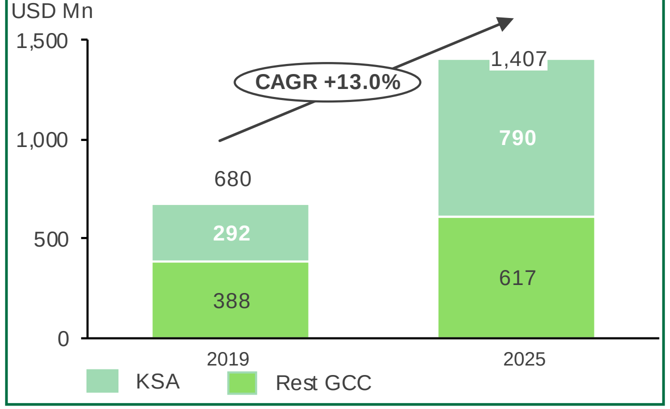
High Potential | Moderate Potential | Low Potential

WATER
REVERSE OSMOSIS (RO) MEMBRANE FUNCTION

OPPORTUNITY'S DESCRIPTION: Establish RO membrane manufacturing facilities to cater for local demand

DEMAND

MARKET SIZE, USD MN



KEY DEMAND DRIVERS

- 25+ new RO-based plants are planned in KSA by 2030 as the country transitions away from MSF1 based technology
- A capacity of 5.5 daily million m3 water desalination is coming online by the year 2025 to cover the water demand shortfall
- Water Treatment in KSA is expected to grow by a CAGR of 7.5% with about ~17% of the treated water are being re-used (agriculture, industrial) and target to reach ~70% by 2030
- Oil & gas production across all GCC economies

INVESTMENT OVERVIEW

INVESTMENT HIGHLIGHTS

- KSA represents 22% of global desalination capacity
- Reverse osmosis membrane demand in GCC is forecasted to grow by about 13% per year
- Investment size USD 40 – 45 Mn with a potential for a JV with local player or 100% private investment
- IRR for RO Membrane projects are expected to be between 8% – 13%

VALUE PROPOSITION

- Local manufacturing has a high potential due to market demand and availability of raw materials and building blocks
- Most materials needed for RO membrane manufacturing exist in KSA
- Current OEM presence is limited to final components assembly only

MARKET OVERVIEW

MARKET READINESS AND COMPETITOR ANALYSIS

- OEM presence is currently limited to sales offices and / or final assembly

OEM	KSA PRESENCE	GLOBAL SHARE
DOW	Pilot production facility (KAUST)	35%
TORAY Innovation by Chemistry	JV (TMME)	23%
HYDRANAUTICS Nitto Group Company	Distribution (Juffali)	22%
TOYOBO Ideas & Chemistry	JV (AJMC)	5%
LG Chem	No presence	2%

GLOBAL TRENDS

- Population growth and water scarcity are expected to continue increasing the demand for water desalination regionally
- Growing awareness on potable water and its demand in emerging markets
- Adoption of stringier regulations and standards for clean water
- Hollow fiber and spiral wound are some of the latest advancement in the RO Technologies

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[1] MSF : Multi-stage flash is a water desalination process that distills sea water by flashing a portion of the water into steam in multiple stages using countercurrent heat exchangers.

WATER

REVERSE OSMOSIS (RO) MEMBRANE FUNCTION

SUPPLY

SCALABILITY AND LOCALIZATION

Grade: Low | Medium | **High**

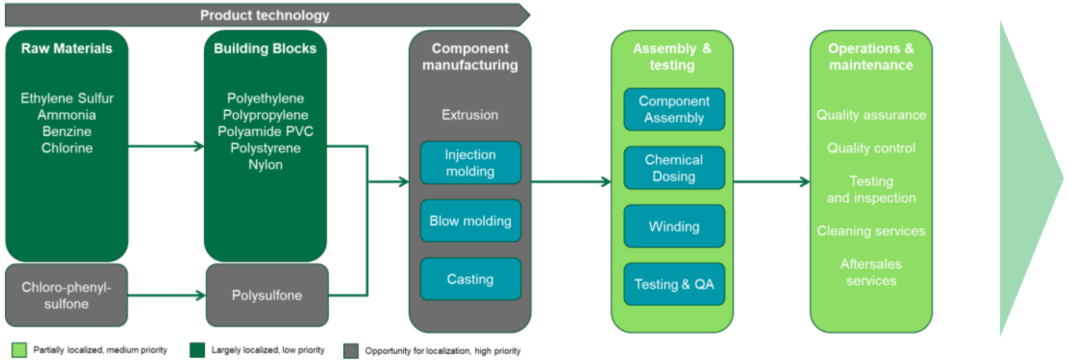
- For primary raw materials, all materials are available within the Kingdom, except for Chlorophenyl Sulfone and for Building blocks the Kingdom has materials available except Poly-sulfone
- Major customers include SWCC, Marafiq and Saudi Aramco as well as GCC water utilities (for export)
- Opportunities to invest across key components and equipment (such as module making, spiral element test benches, water filers, chemical dosing, circulating & high-pressure pumps, etc.)

IMPORT DEPENDENCY

- In 2019, ~$170m is imported withEquivalent to ~60% of total market imported with rest being covered by local assembly)

COUNTRY	% OF SAUDI IMPORTS
USA	32%
Japan	15%
Italy	7%
Germany	7%

VALUE CHAIN ANALYSIS



Local manufacturing has a high potential due to market demand and availability of raw materials and building blocks.

KEY STAKEHOLDERS

أرامكو السعودية saudi aramco | SWCC | MODON | Ministry of Commerce and Industry | Ministry of Industry and Mineral Resources | وزارة الاستثمار Ministry of Investment | Saudi Industrial Development Fund

ENABLING FACTORS

ENABLERS

- Market is supported by a mature logistical infrastructure
- Saudi Arabia is a leader in water desalination R&D
- Up to 75% of project financing through soft loan by SIDF

COST OF DOING BUSINESS IN KSA

Factor	Ranking Amongst Regional Peers
Electricity tariffs for industrial players	$48 /MWh (Top 50%)
Productivity adjusted wages	$3.3 /hour (Top 25%)
Logistics Performance Index	3.2 (Top 50%)
Construction Costs (Indexed to US, %0 is cheapest)	74 (Top 50%)
Ease of getting credit	50 (Top 25%)

Bottom 25% | Top 75% | Top 50% | Top 25%

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DEFINITIONS

#	SCORECARD SECTION	DEFINITIONS
1	Market size	Size of market in value/volume in KSA and/or Region (MENA/GCC) covering future projections based on available estimates from published /government sources
2	Demand drivers	A select number of factors that will influence future demand for the related product/service
3	Investment highlights	An overview of key financial metrics summarizing the investment opportunity along with the expected return based on the suggested investment size
4	Value proposition	Summary of key differentiators that position KSA as a strategic choice over other regional/global peers
5	Market readiness	An overview of KSA market structure, market maturity and level of participation by local and global players
6	Competitor analysis	List of the local & international players manufacturing the underlying product in Saudi Arabia and their market share
7	Global trends	Latest business developments within the sector/product category
8	Scalability and localization	Ease of scaling the business across the value chain or into new adjacent products or geographies that would maximize the opportunity's investment returns and the ability and potential to locally manufacture the product and its components
9	Import dependency	An overview of the countries from which Saudi Arabia is importing the product and their value/volume and share in total imports
10	Value chain analysis	The process or activities that would potentially need to be carried out to deliver the underlying product or service
11	Key stakeholders	Government institutions, organizations, and/or authorities that participate or influence the market for the underlying product/service
12	Enablers	Factors that enable investment in the underlying opportunity
13	Cost of doing business in KSA	Key factors that position KSA as a competitive destination for investment in the region

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