

Under the Patronage of His Excellency **Eng. Abdulrahman bin Abdulmohsen AlFadley**
Minister of Environment, Water & Agriculture

منتدى المياه السعودي
saudi water forum

SWF 2024



WATER CONSERVATION WORKSHOP

PART 1



29 April – 01 May 2024



Hilton Riyadh Hotel & Residences
Riyadh, Saudi Arabia

Organized by

وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture



المؤسسة العامة لتحلية المياه المالحة
Saline Water Conversion Corporation (SWCC)



شركة المياه الوطنية
National Water Company



الشركة السعودية لشراكات المياه
Saudi Water Partnership Company



المؤسسة العامة للمياه
Saudi Water Partnership Company



منظم المياه
Water Regulator

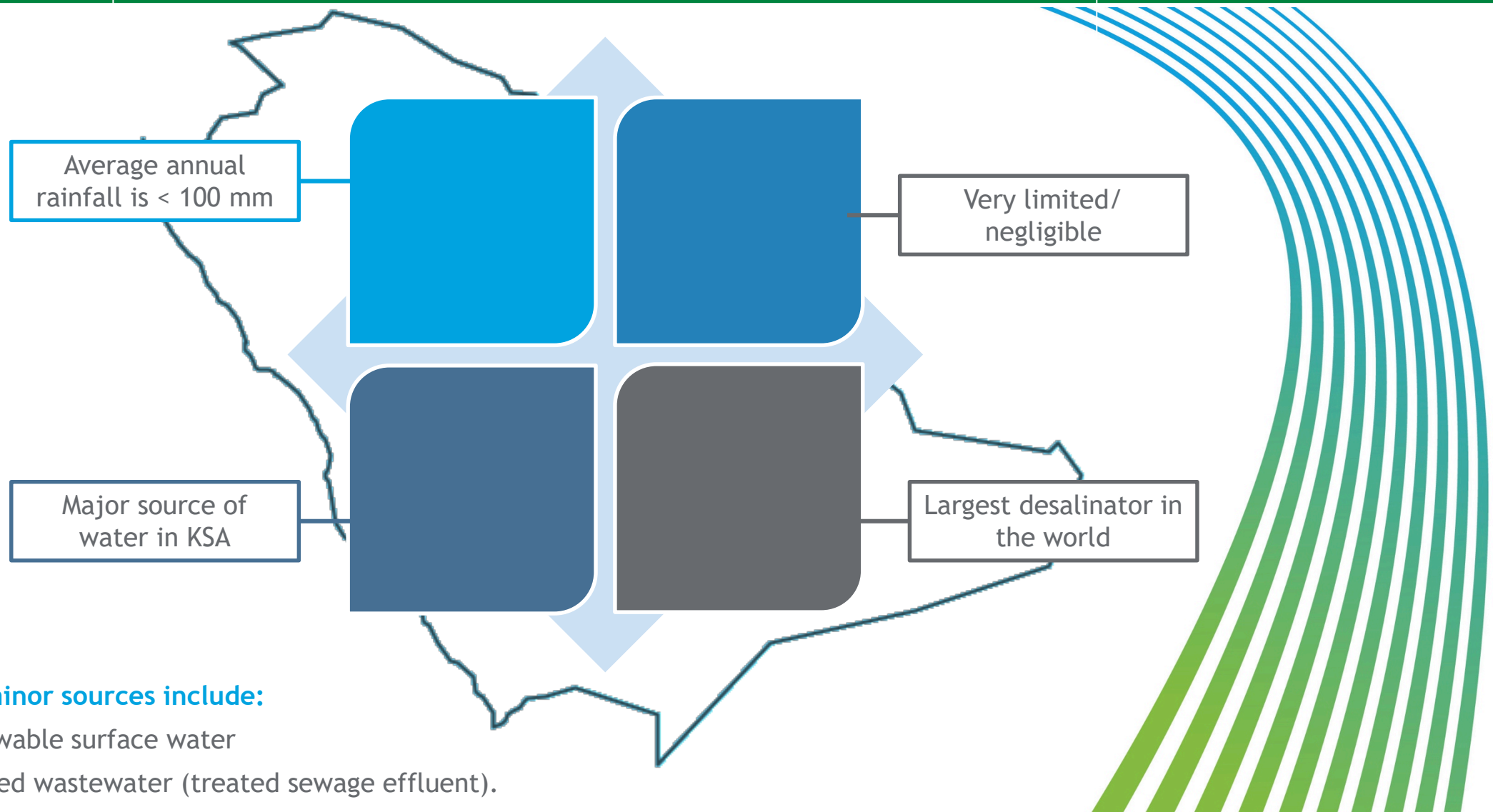


المركز الوطني لكفاءة وترشيد المياه
NATIONAL WATER EFFICIENCY AND CONSERVATION CENTER
MAEE

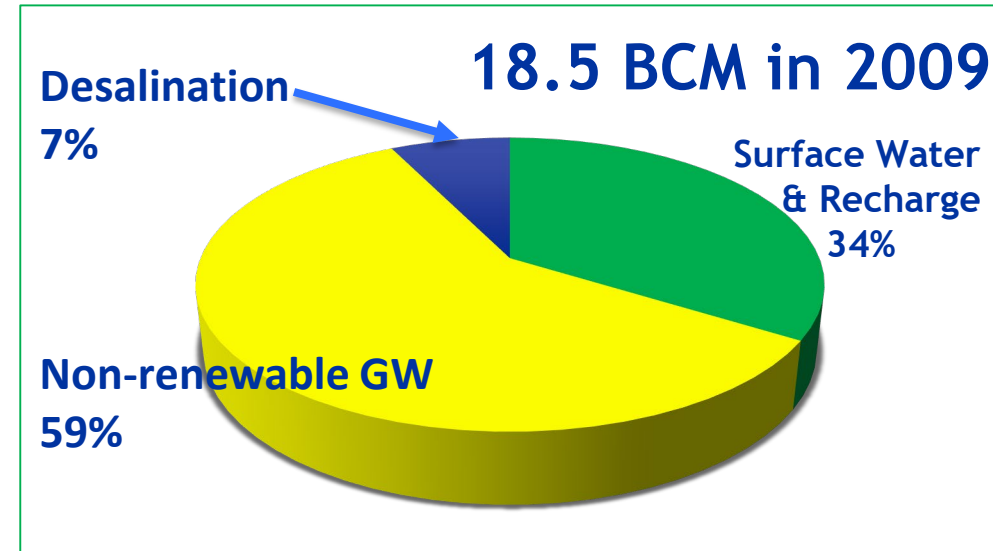
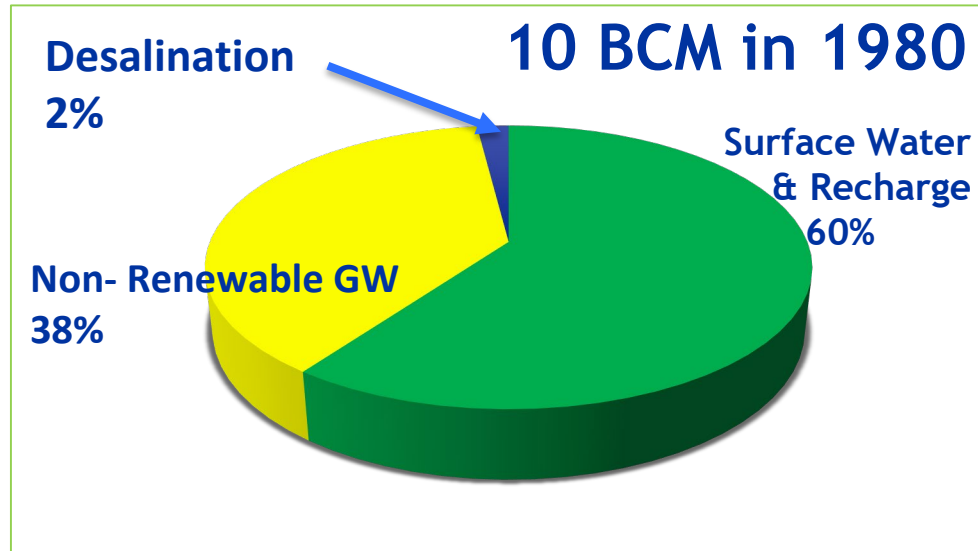


Organizing Partners

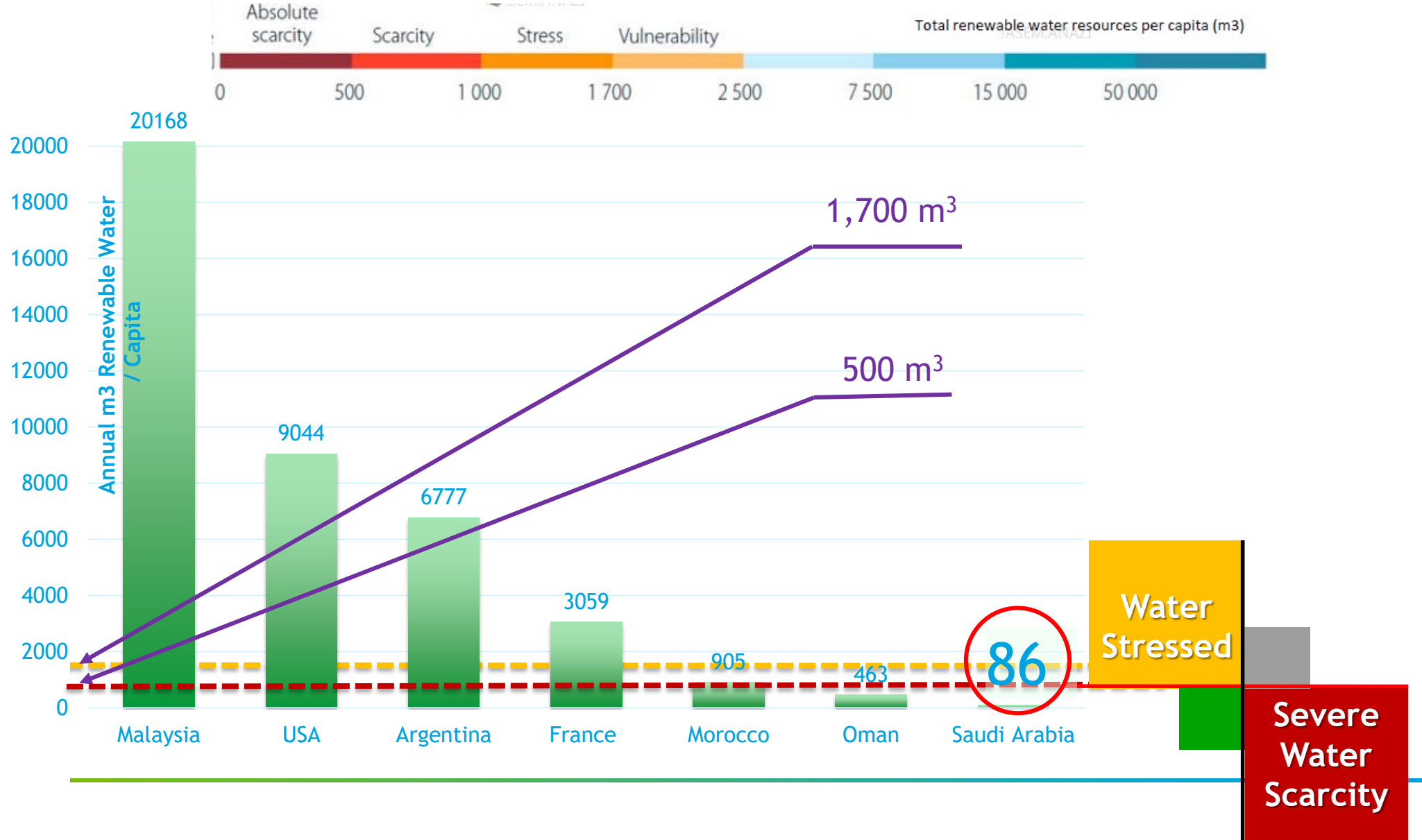
Overview of Water Challenges: Sources



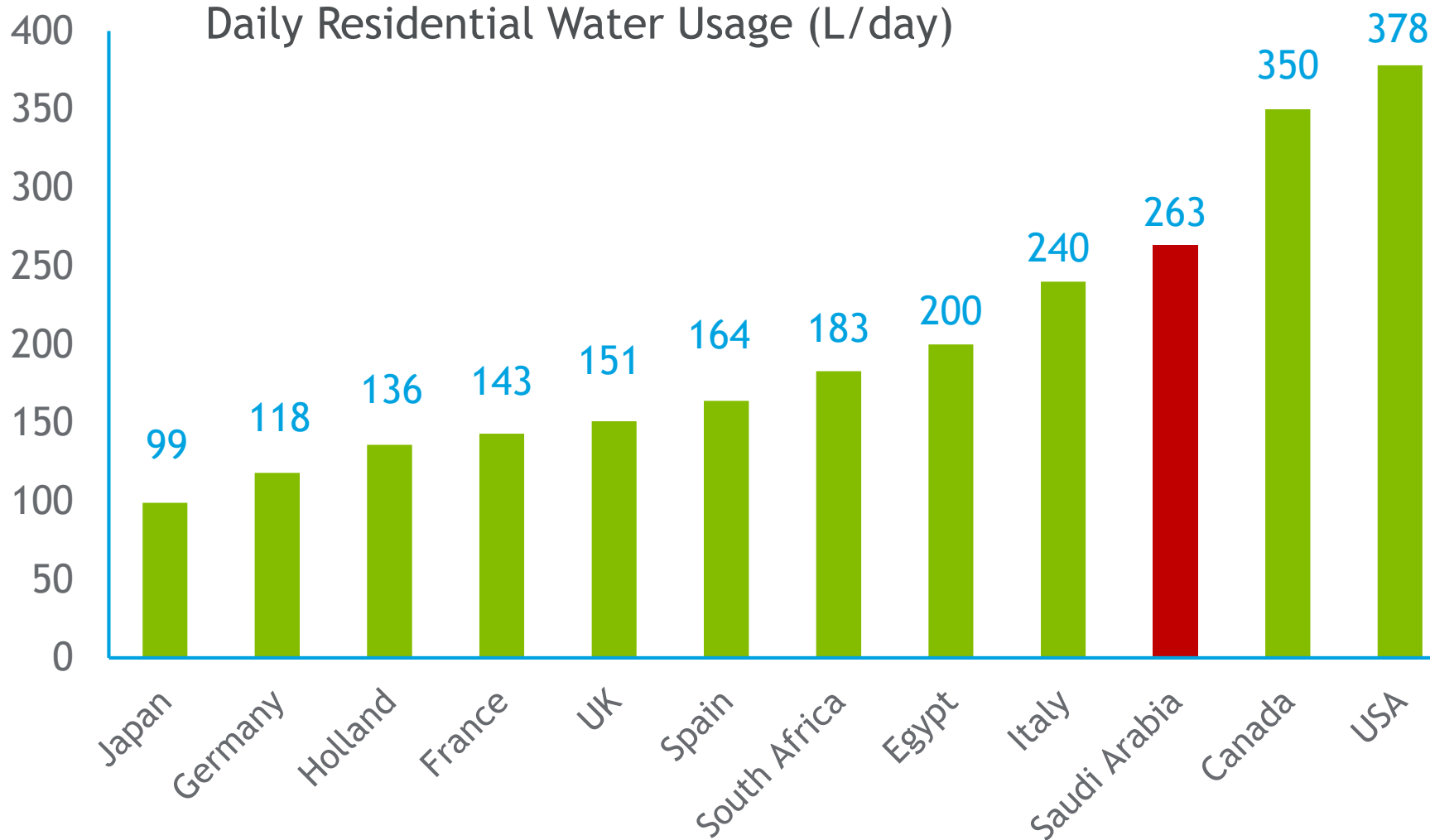
Water Demand in KSA

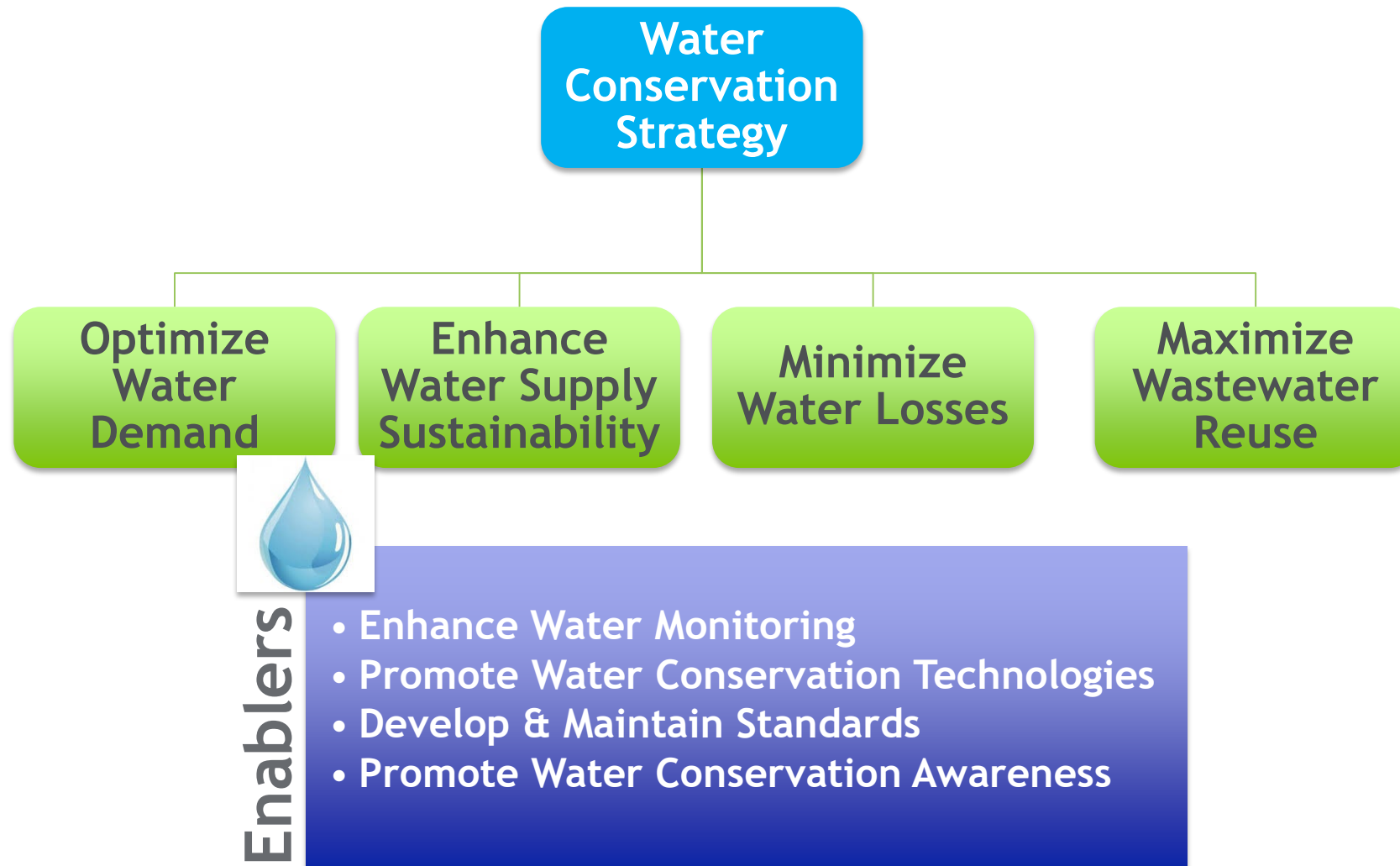


Water Scarcity in KSA



Water Demand in KSA







Water

- Raw Water
- Seawater
- Groundwater
- Treated Water
 - Potable/drinking water
 - Fire water
 - Process water
 - Boiler Feed Water
 - Cooling Water



Waste Water

- Industrial
- Sanitary



Reuse

- Irrigation
- Wash water
- Cooling water
- Fire water



Primary goals of water treatment is the removal of:

- › Suspended solids
- › Dissolved solids
- › Bacteria / Viruses

Water treatment may include:

- › Microfiltration (MF)
- › Ultra Filtration (UF)
- › Nano Filtration (NF)
- › Reverse Osmosis (RO)



Primary goals of wastewater treatment is the reduction/elimination:

- › Oil and gas
- › Suspended solids
- › Oxygen demand
- › Pathogenic organisms.

Wastewater treatment processes may include:

- › Pretreatment
- › Primary Treatment
- › Secondary Treatment
- › Tertiary Treatment
- › Disinfection



Industrial Facilities

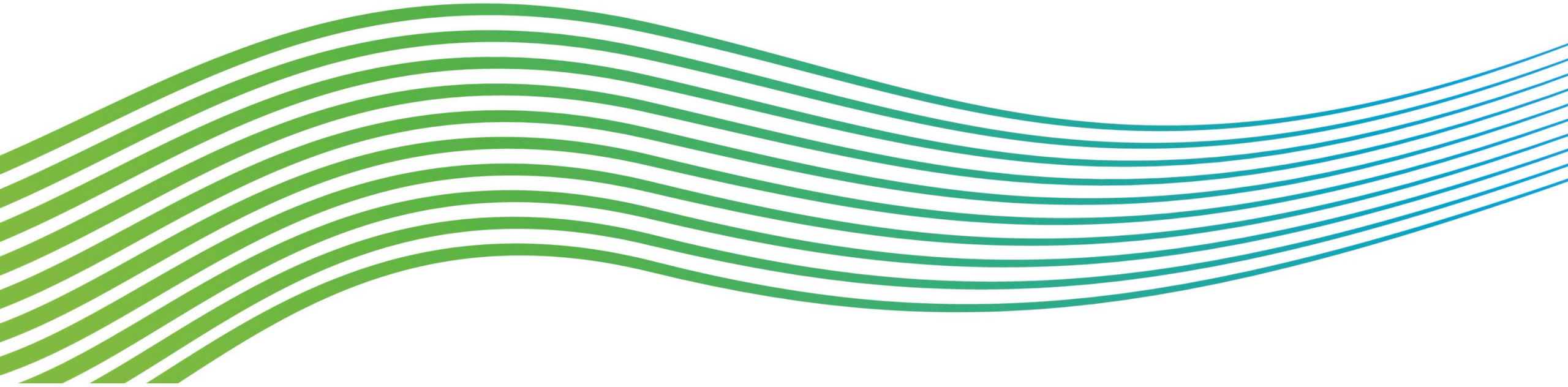
- › Reuse of RO Reject
- › WW reuse for Crude Washing
- › Treated sewage reuse for irrigation

Communities

- › Maximize Xeriscaping
- › Maximize Hardscaping
- › Irrigation Best Practice



Part 2: Water Cycle



Thank you

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QUESTIONS ?

Water Conservation Policy

Commitment:

Aramco will strive to minimize its use of groundwater through 1) optimizing water demands, 2) minimizing water losses, 3) maximizing wastewater reuse, and 4) promoting the use of sustainable alternatives to groundwater.

Assigned Economic Value to GW:

In its capital project, the Company will assign an economic value to groundwater equivalent to the cost of desalinated or treated seawater transported to the point of use.

Projects' Mandate:

In the scoping and design of capital projects, best practices and engineering standards as well as cost effective technologies will be deployed to ensure that facilities achieve the corporate water conservation objectives.

Operating Facilities' Mandate:

It is the responsibility of each organization to assure its facilities are operated in compliance with this water conservation policy.

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Corporate Policy	Water Conservation Policy	Policy No: CP-25
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1. Scope and Purpose

This policy applies to the Saudi Arabian Oil Company ("Saudi Aramco" or the "Company"). It outlines the responsibilities of the relevant organizations in the management of water resources. The purpose of the policy is to ensure sustainable use of water resources and their long term availability.

2. Policy Statement

Saudi Aramco is committed to the conservation of water resources to minimize the pressure on water resources, including groundwater, and maximize their availability to future generations. The Company will strive to sustainably use water resources through optimizing water consumption, minimizing water losses, maximizing wastewater reuse, promoting the use of alternative water resources and the use of renewable energy for more sustainable water treatment and conveyance systems.

3. Policy Requirements:

- A. The Company, in all its operations, will comply with applicable local water conservation regulations. Where there is no established regulations, the Company will develop and implement internal guidelines which are compatible with all applicable water conservation objectives.
- B. The Company will take the necessary measures to optimize water consumption, minimize loss, maximize wastewater reuse and promote the use of more sustainable alternatives.
- C. In its Capital projects, the Company will include an economic value to water resources. Where there is no established economic value, the Company will assign an economic value to water resources.
- D. In the scoping and design of capital projects, best practices and engineering standards, as well as cost effective technologies will be adopted to ensure that Company organizations achieve the water conservation objective.
- E. It is the responsibility of each organization to assure that its facilities are operated in compliance with this corporate water conservation policy. Water conservation will be a key indicator used to gauge the performance of each Company facility.

Page Saudi Aramco Company General Use

saudi aramco: Company General Use

UZAN	Date: 6/16/2020 RECOMMENDED Management Committee Secretary	THIRD SOLUTION Date: 3 June 21, 2020 APPROVED President & Chief Executive Officer	
BOARD APPROVAL	Yes	NO	N/A
Policy Owner	Version History	Effective Date	Last Date Reviewed
Engineering Services	Replace INT-11	June 2020	N/A



Primary Treatment

Gravity Oil Water Separators



Flotation Separators



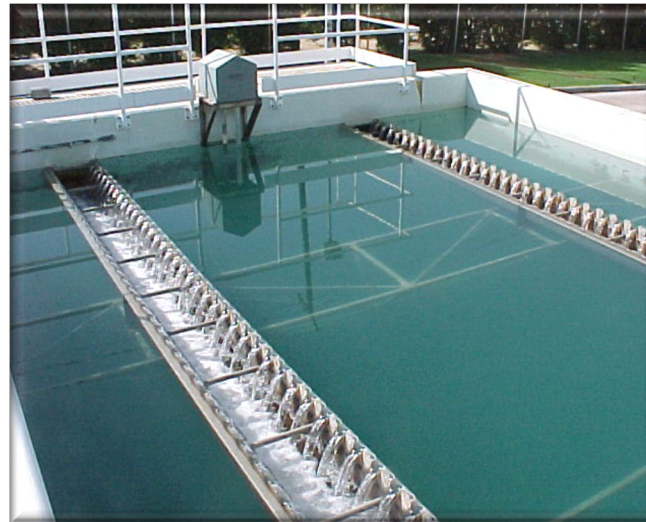
Media Filters





Secondary Treatment

Biological wastewater treatment technologies



Tertiary Treatment

Advanced treatment target specific pollutants such as:

- › Bacteria/Virus
- › Heavy Metal
- › Nutrients
- › Fine solids
- › Organic compounds

High Quality Water