

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

منتدى المياه السعودي
saudi water forum **SWF 2024**



Saudi Aramco's Water Conservation Efforts

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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



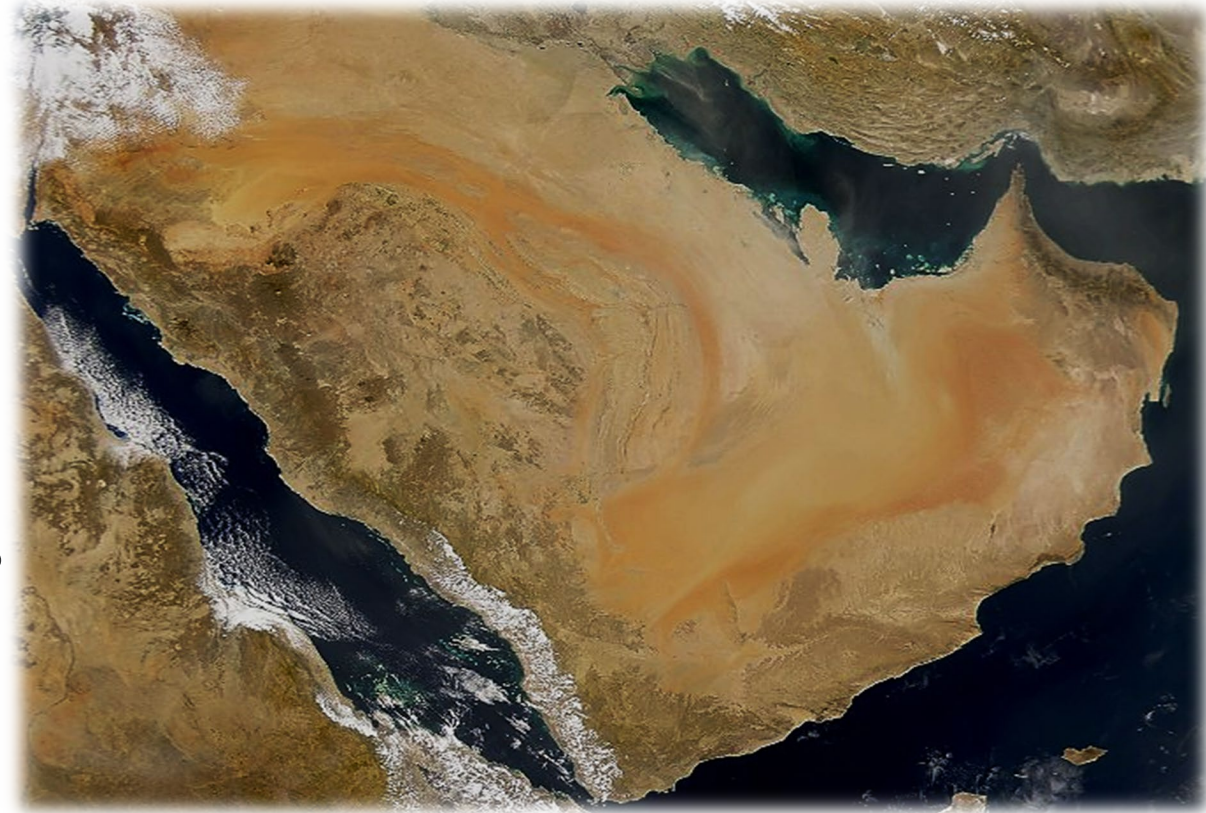
Organizing Partners

Outline

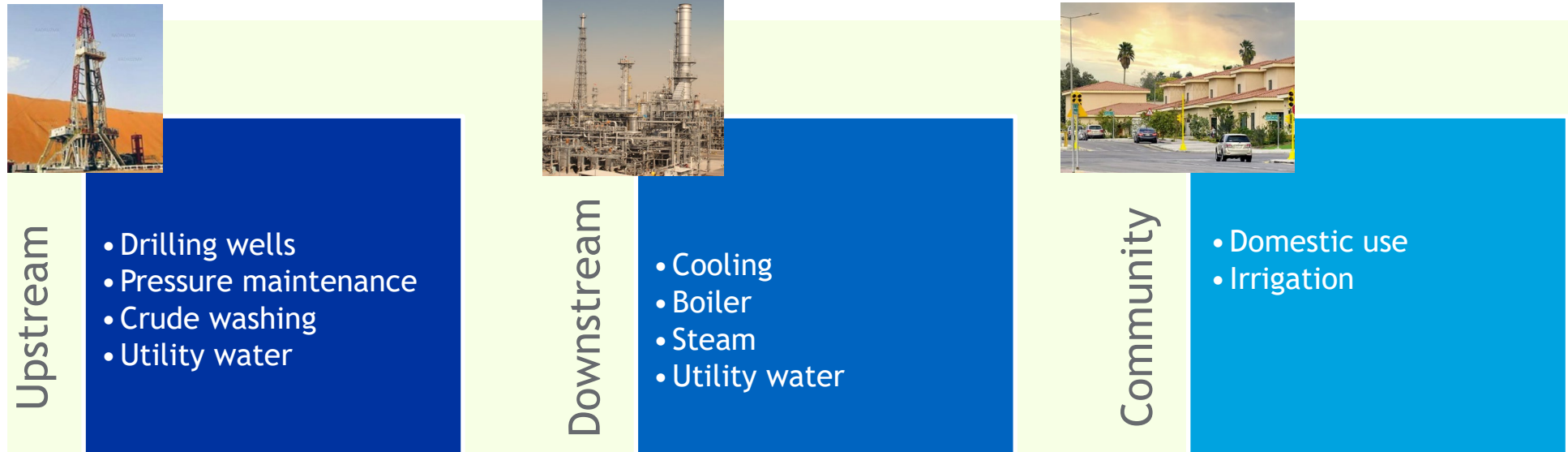
- Drivers
- Saudi Aramco Water Governance
- Saudi Aramco Water Conservation Strategy
- Saudi Aramco Water Conservation Efforts
- Saudi Aramco Technology Deployment Efforts
- Concluding Remarks

Drivers

- Water, a local resource, is a major and growing challenge for sustainable development
- Responsible water management presents opportunities for sustainable alternatives



Water Use in Saudi Aramco is at a scale of its own



Saudi Aramco Water Governance



Government Regulations



Saudi Aramco Water Conservation Policy



General Instructions: Water Conservation Policy Implementation



Saudi Aramco Engineering Standard: Wastewater Treatment, Reuse and Disposal



Saudi Aramco Environmental Health Code



Water Conservation KPIs and target setting

Saudi Aramco Water Conservation Policy

Water Conservation Policy, CP-25

Corporate Policy	Water Conservation Policy	Policy No: CP-25
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Commitment:

Saudi Aramco will strive to minimize its use of groundwater through:

- 1) Optimizing water demands
- 2) Minimizing water losses
- 3) Maximizing wastewater reuse
- 4) Promoting the use of sustainable alternatives to groundwater



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.

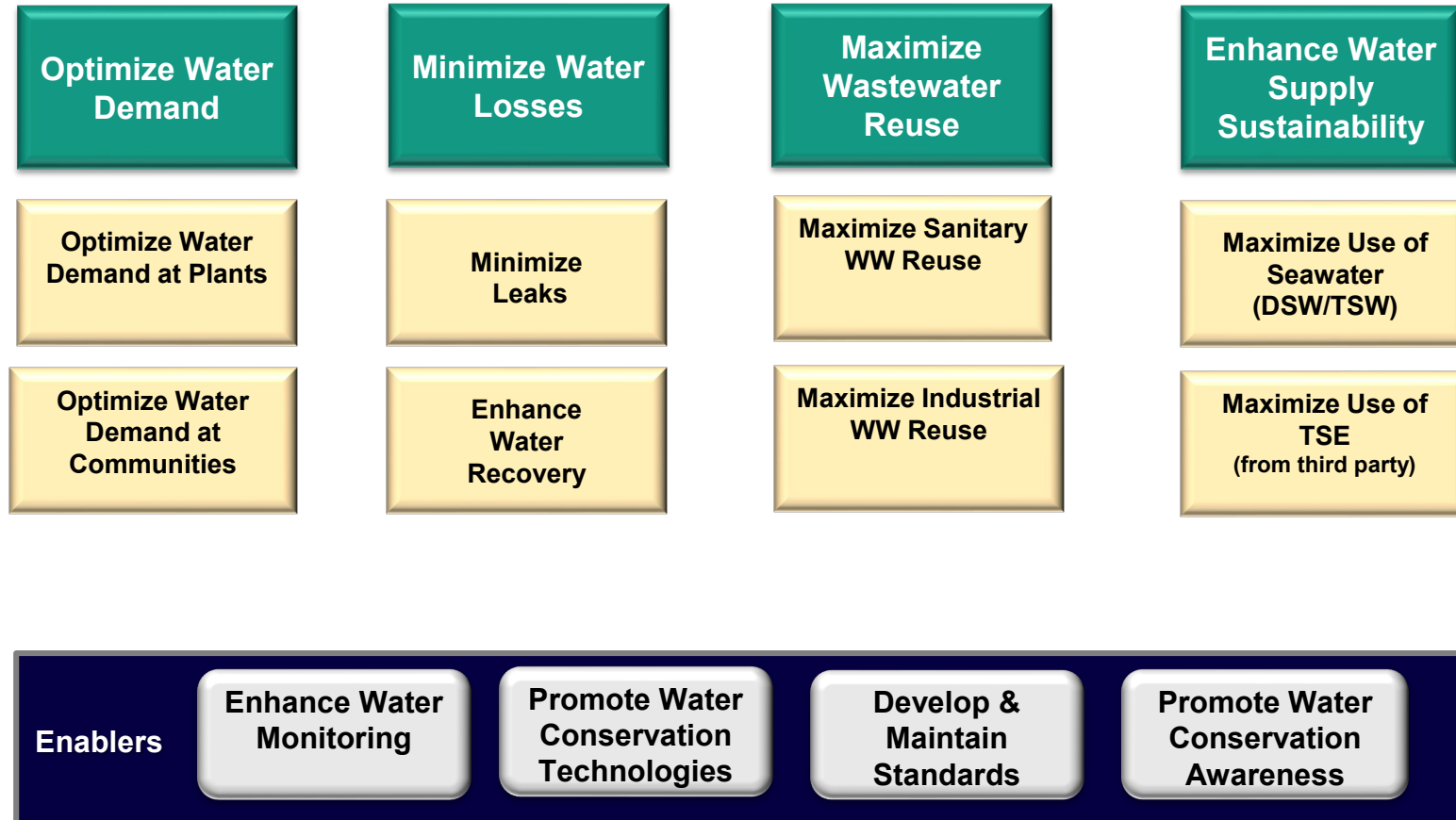
2. Policy Statement

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.

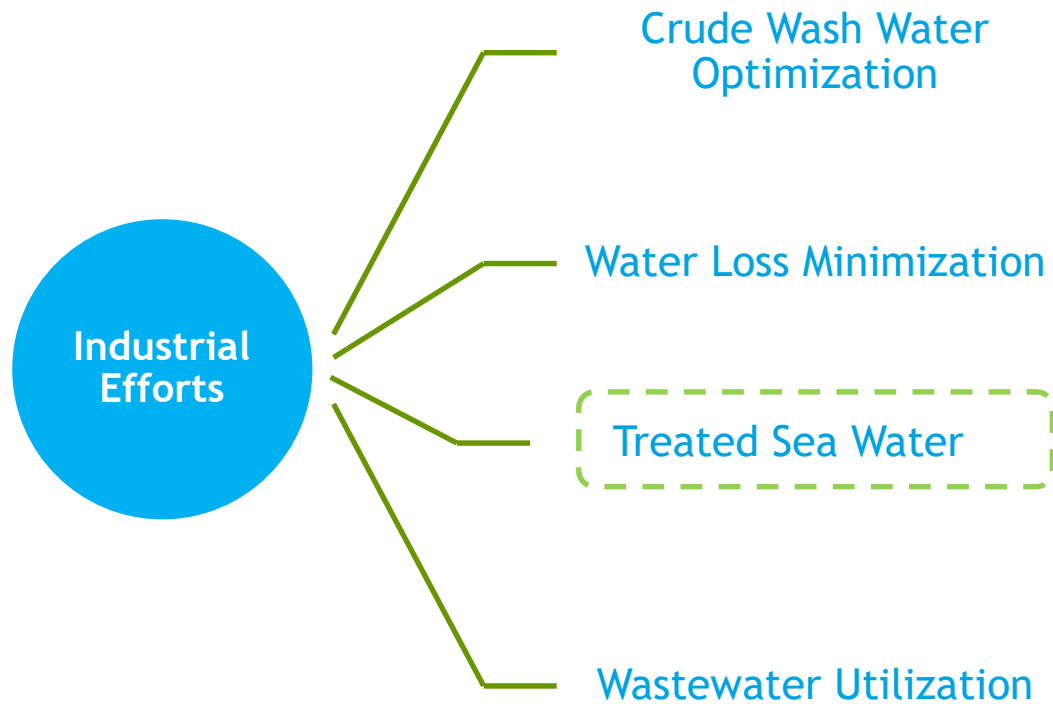
3. Policy Requirements:

- 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.

Water Conservation Strategy Implementation



Saudi Aramco Water Conservation Efforts: Industrial Facilities



Qurayyah Seawater Plant: *One of world's largest seawater treatment plants*

- 45 Years of groundwater conservation
- Conserved more than 160 Billion Gallons of groundwater annually



Treatment

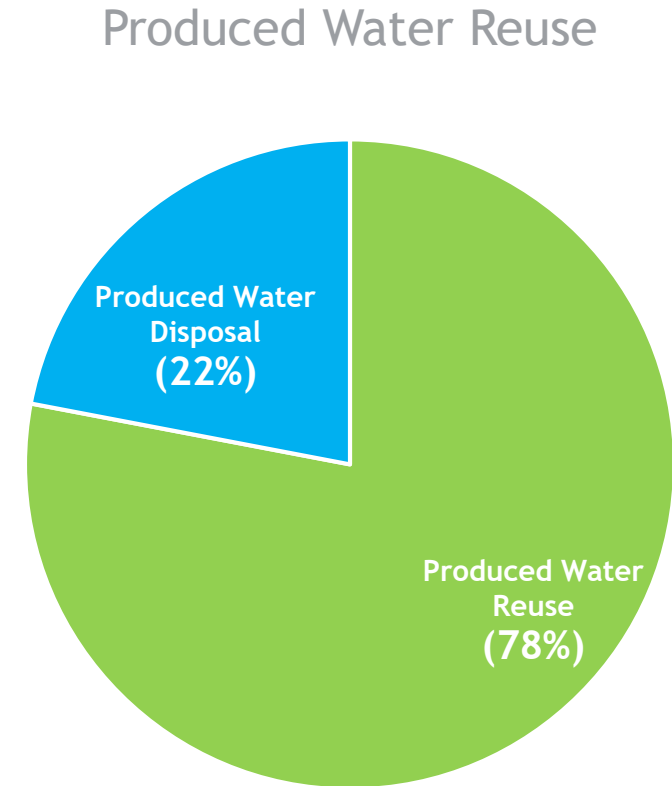
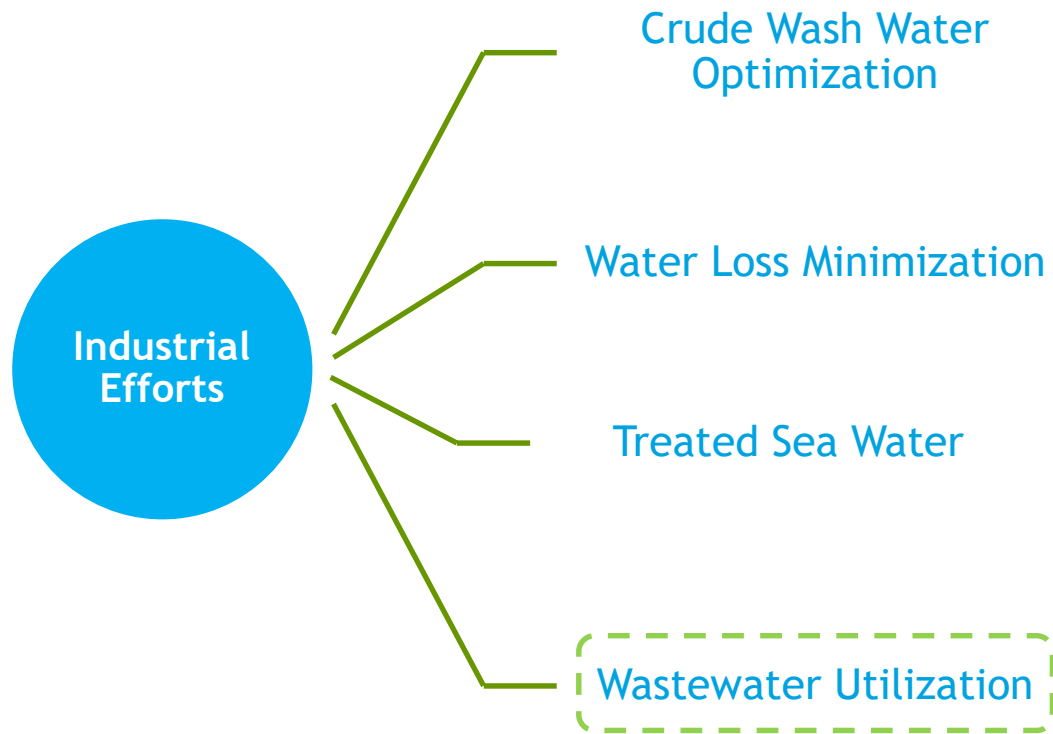


Transport



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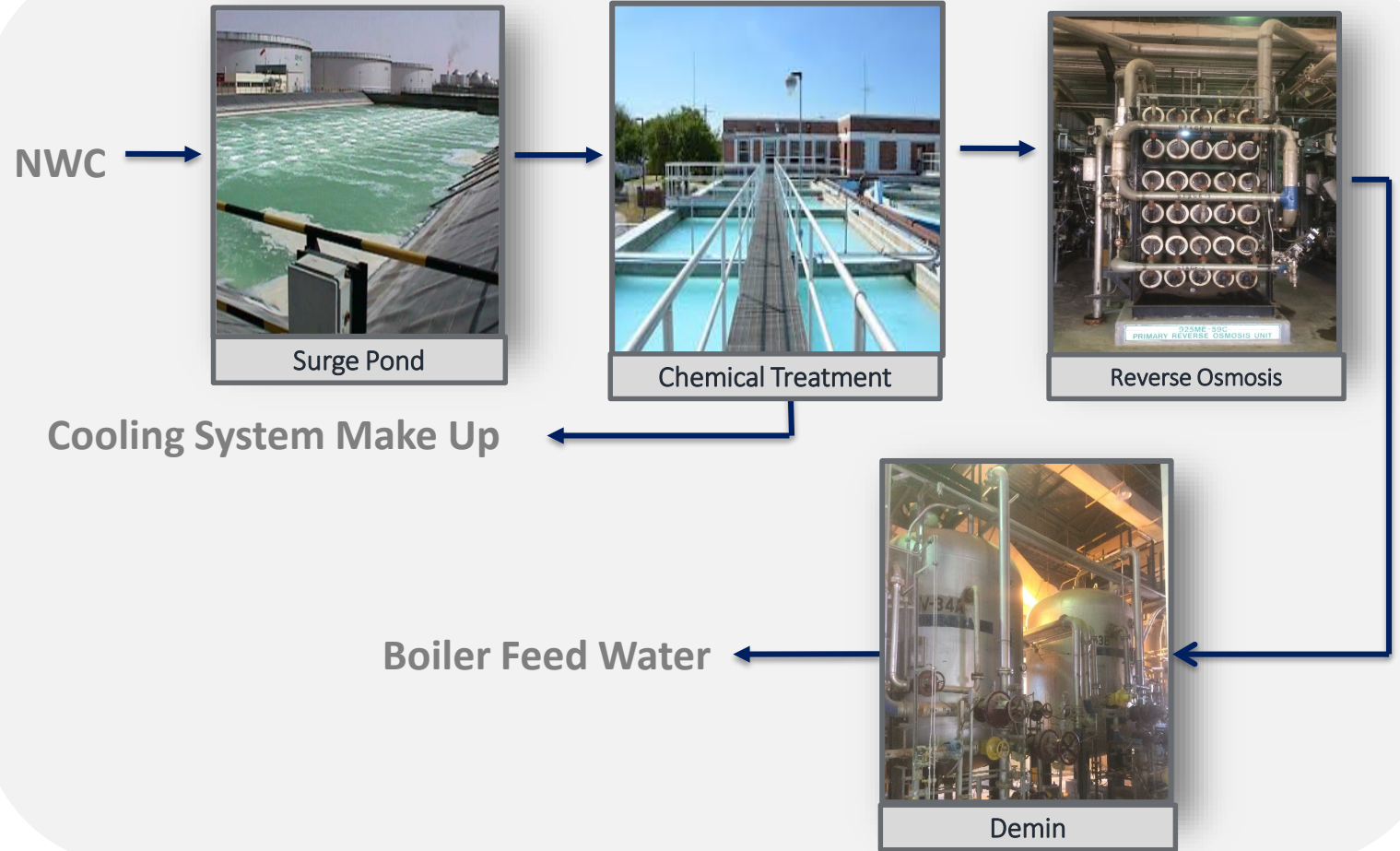
Saudi Aramco Water Conservation Efforts: Industrial Facilities



Riyadh Refinery:

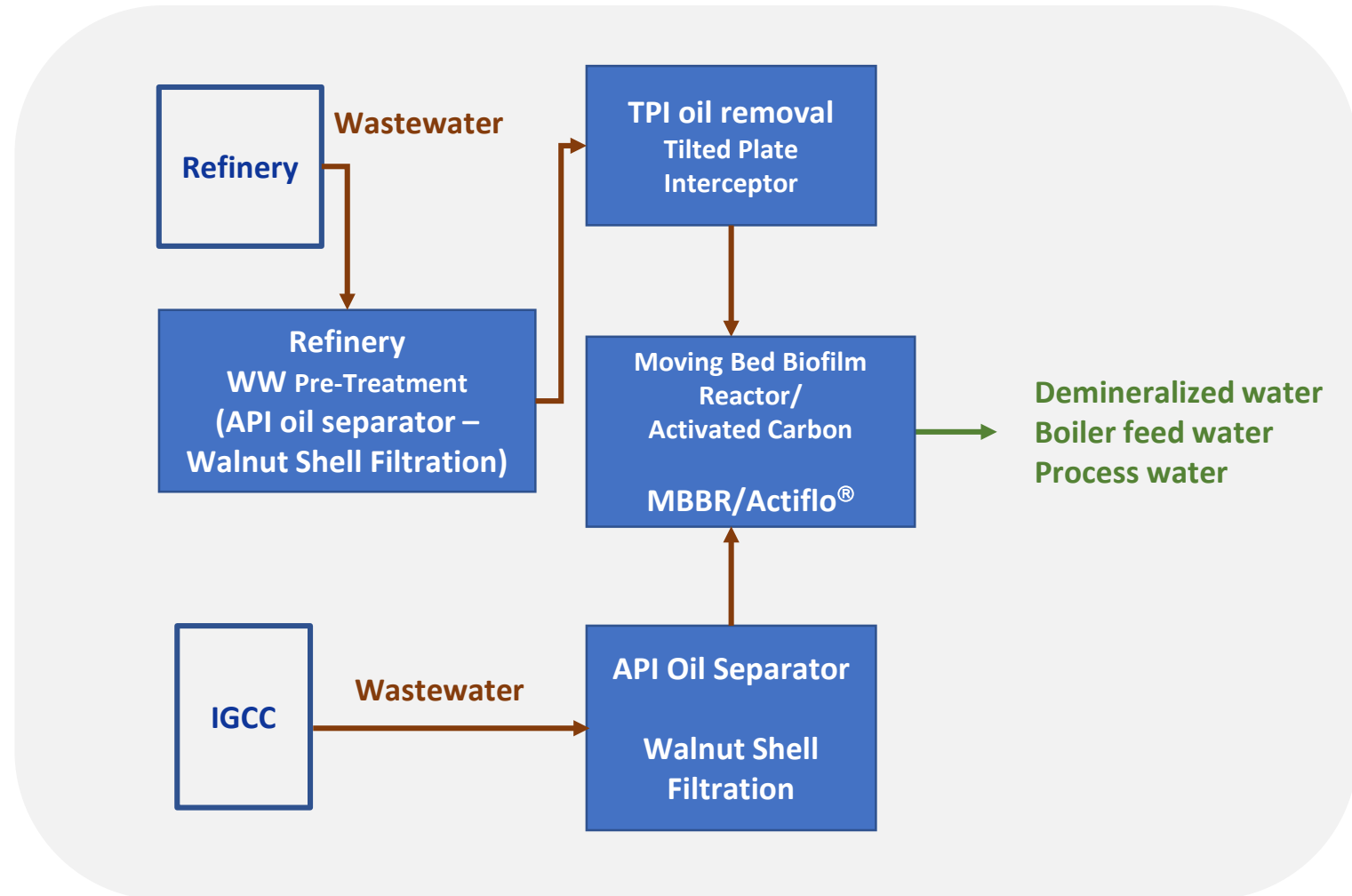
A world class example of TSE use

- Treated Sewage Effluent from National Water Company is used
- Conserve about 3 millions of gallons of groundwater per day

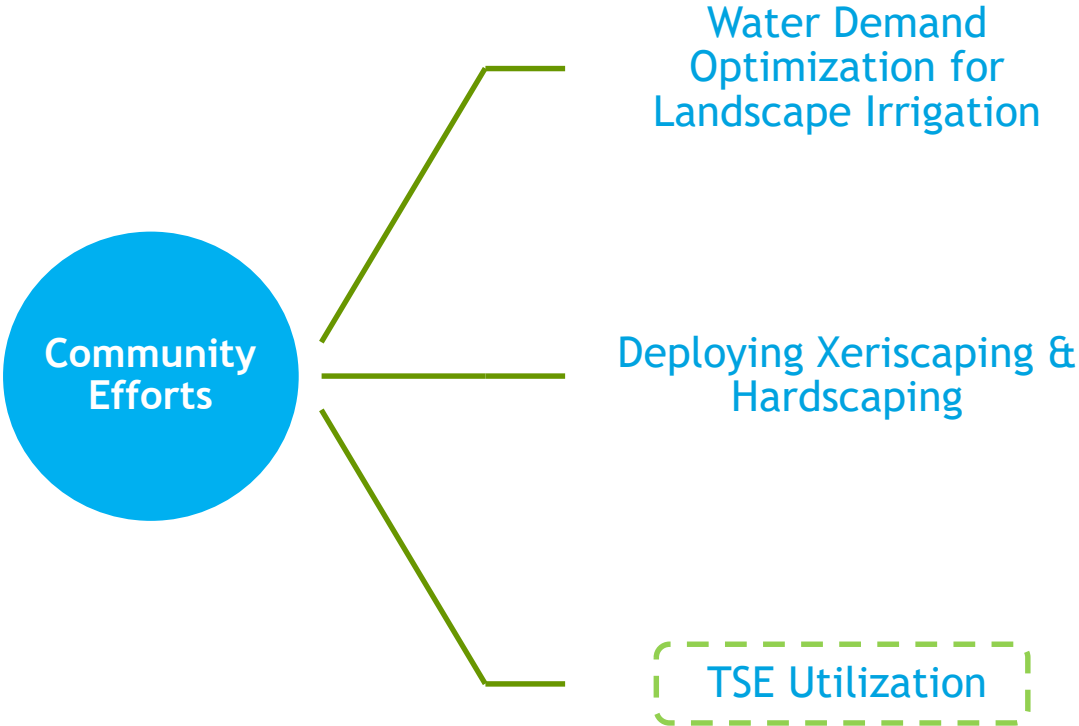


Jazan Refinery: A state-of-art example of “zero liquid discharge”

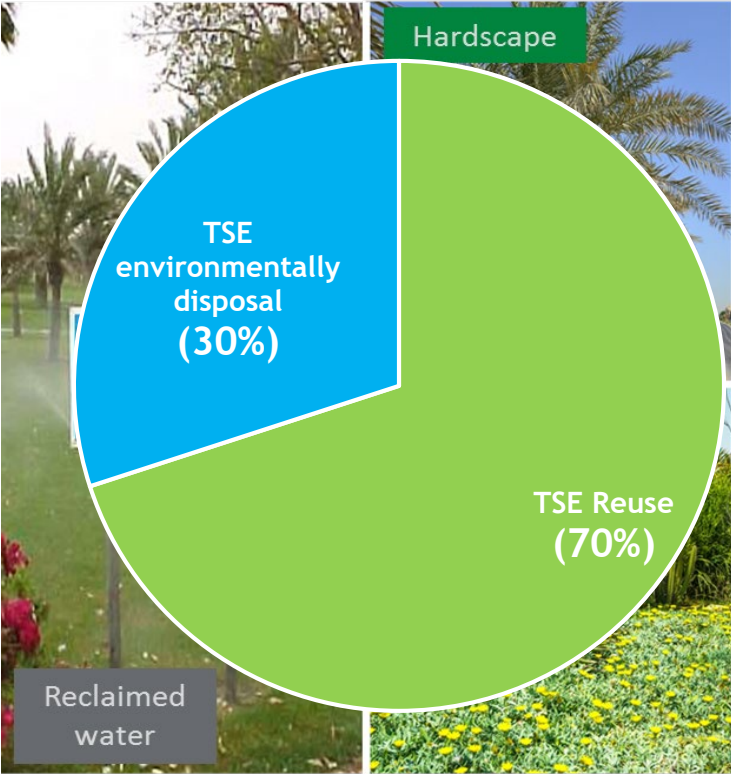
- Complete 100% treatment of generated wastewater and Reuse
- No wastewater discharge
- Refinery pre-treated wastewater is jointly treated with IGCC generated wastewater



Saudi Aramco Water Conservation Efforts: Communities

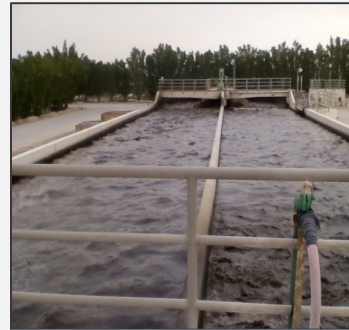


TSE Utilization



Abqaiq Community: *An innovative application of Treated Sewage Effluent*

- Four (4) Air conditioning plant are operated with Treated Sewage Effluent
- Millions gallons of groundwater savings per year



Secondary Treatment



Tertiary Treatment

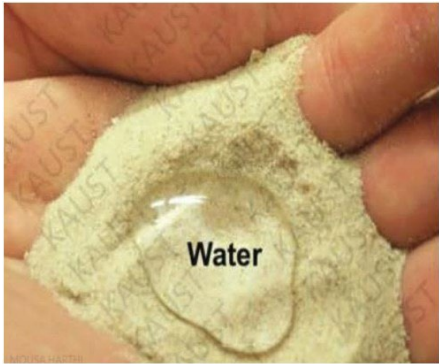
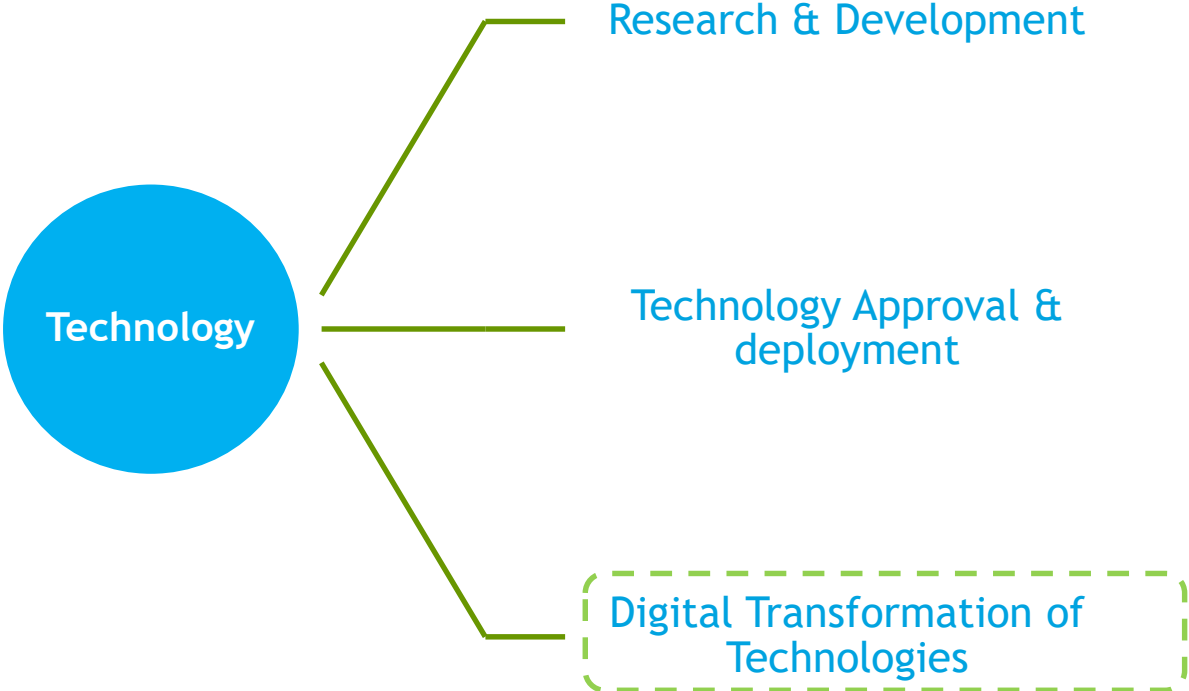


Disinfection



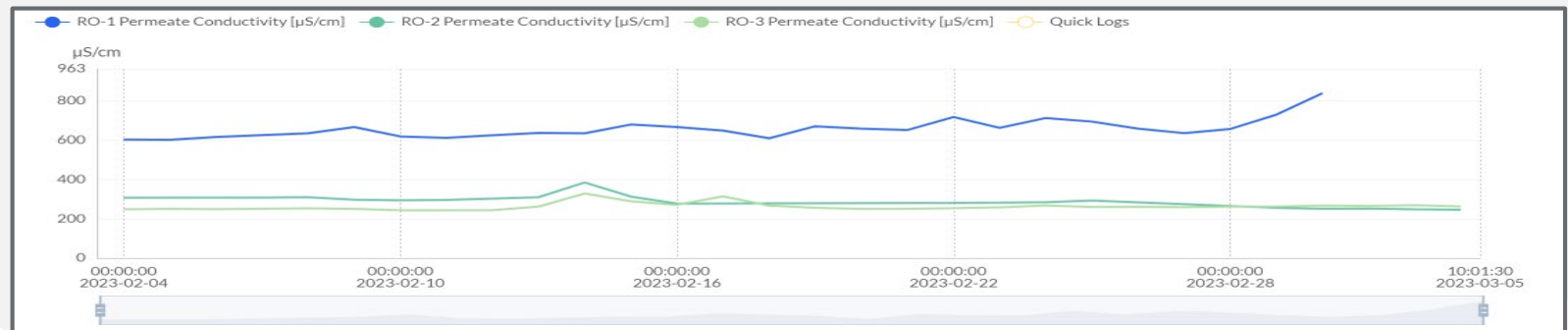
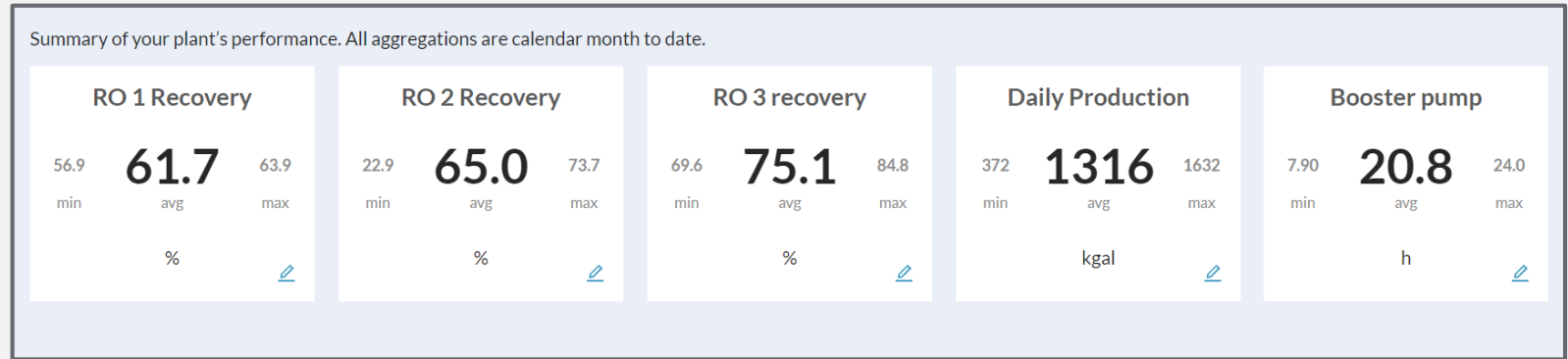
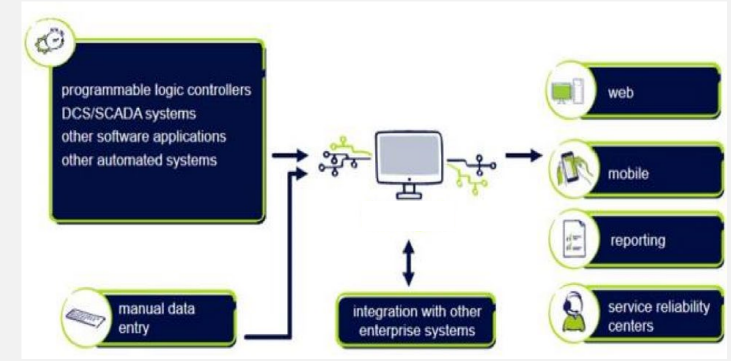
Cooling System

Saudi Aramco Technology Deployment Efforts



Dhahran Reverse Osmosis Plant: Intelligent RO Recovery digitization

- Realtime monitoring of Reverse Osmosis plants
- Millions of gallons groundwater savings



Concluding Remarks



Robust internal environmental framework and governance is critical for sustainable water management



Wastewater reuse is a sustainable alternative to non-renewable groundwater



Collaborations with relevant stakeholders, including regulators are key for successful water management

WATER IS LIFE...



...DO NOT WASTE IT

Water Sources in Kingdom of Saudi Arabia

