الشركة السعودية لشراكات المياه
Saudi Water Partnership Company

SWPC

7 YEAR STATEMENT

2024 -2030

PLANNING DIVISION – 2024

الشركة السعودية لشراكات المياه

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Drawing strength from Saudi Vision 2030 and the National Water Strategy 2030, our company plays a pivotal role in saline water desalination and sewage treatment. In partnership with the private sector, we are committed to providing high-quality, low-cost water services. Our efforts focus on increasing local content and utilizing the latest technologies in water desalination and treatment.

At SWPC, our mission is to enhance water availability both in regular and emergency situations. We aim to maximize the benefits of treated water by developing state-of-the-art plants in collaboration with the private sector. Our goal is to achieve 100% private sector participation in the production of desalinated water by 2030.

We are dedicated to enriching local content and increasing settlement rates. We encourage developers and operators to collaborate with local manufacturers and companies, fostering an environment of cooperation. Attracting local talent is a priority for us, as we strive to achieve a localization rate of over 80% in all desalination plants.

Our commitment to excellence drives us to continuously improve the company's operational performance. We focus on enhancing efficiency and quality, developing local talents and expertise, and sharing experiences to maintain and enhance knowledge capitalization.

Khaled Z. AlQureshi

CEO

Water Agency of The Year

Global Water Awards, GWI 2024

رؤيـــة VISION

2030

المملكة العربية السعودية

KINGDOM OF SAUDI ARABIA

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DISCLAIMER:

The information presented in this statement is subject to change due to further updates from stakeholders.

For any further inquiries, please, do not hesitate to email us on planning@swpc.sa

I. SWPC Seven-Year Statement

This Statement provides a 7-year Outlook for Saudi water partnership company (SWPC) planned projects along five water asset classes: (1) desalination plants, (2) sewage treatment plants, (3) strategic reservoirs (4) transmission lines and (5) dams.

This is the fourth 7-year statement that covers the planning period of 2024 to 2030, inclusive, with particular emphasis on 2024 updates. SWPC plans to provide updates of this statement every two years.

The development of this statement builds on several water policies, notably the National Water Strategy 2030 and MEWA's latest long-term forecast. This statement is in line with the new vision or strategic direction for the water sector in KSA by translating existing policies and strategies into an actionable projects plan. The overarching intent of this plan is to bridge any gaps in the water production, strategic storage, and treatment capacities by analyzing supply and demand over the next 7 years and planning for projects accordingly.

Additionally, the 7-year statement provides guidance to concerned private sector players on the projects that are expected to be tendered by SWPC. It also provides the public with a timeline for the realization of key service delivery milestones

II. Glossary

COD	Commercial Operations Date
DSM	Demand-Side Management
EOI	Expression of Interest
EPI	Environmental Performance Index
GDP	Gross Domestic Product
H.E.	His Excellency
ISTP	Independent Sewage Treatment Plant
ISWR	Independent Strategic Water Reservoir
IWP	Independent Water Plant
IWPP	Independent Water and Power Plant
IWTP	Independent Water Transmission Pipelines
K	Thousands
K m^3/d	Thousand cubic meter(s) per day
Kingdom, KSA	Kingdom of Saudi Arabia
Km	Kilometer(s)
LCD	Liters per Capita per Day
M	Million
M^3	Cubic meter(s)
m^3/d	Cubic meter(s) per day
M m^3/d	Million cubic meter(s) per day
MEWA	Ministry of Environment, Water and Agriculture
NCP	National Center for Privatization
NTP	National Transformation Program
NWC	National Water Company
NWS	National Water Strategy
PPP	Public-Private Partnership
RFP	Request for Proposal
RFQ	Request for Qualification
RO	Reverse Osmosis (desalination technology)
SDG	Sustainable Development Goals
STP	Sewage Treatment Plant
SSTP	Small Sewage Treatment Plant
SWA	Saudi Water Authority
SWCC	Saline Water Conversion Corporation
SWPC	Saudi Water Partnership Company
TBD	To be Determined
UC	Under Construction
UFW	Unaccounted for Water
WP	Water Desalination Plant
WTTCO	Water Transmission and Technologies Company

II. Executive Summary

1. Desalination Plants

The urban water situation in the kingdom of Saudi Arabia (KSA) is undergoing a transformative phase with proactive efforts aimed at enhancing water management and sustainability, while facing challenges such as high per capita water demand and reliance on non-renewable groundwater. The ministry of environment, water, and agriculture (MEWA) has implemented robust strategies to address these issues effectively.

MEWA initiatives focus on sustaining urban water demand per capita through innovative measures. These include tackling network losses, promoting the adoption of water-efficient technologies, and implementing tariff reforms to encourage efficient water use practices. As a result, urban water demand is projected to increase from approximately 15.47M m^3/d per day in 2024 to about 17.08M m^3/d per day by 2030, reflecting growing efforts to meet future water needs sustainably.

Looking ahead to 2030, MEWA is committed to lowering reliance on groundwater and surface water for urban supply by expanding the use of desalinated water. While specific regions like Najran, Hail, Al Jowf, and Northern Borders will continue to utilize groundwater resources due to local conditions, a phased approach is set to gradually transition the remaining nine regions towards greater reliance on desalinated water.

Additionally, the Saudi Water Partnership Company (SWPC) plays a pivotal role in advancing desalination infrastructure. Current and planned desalination plants (IWPs) are poised to increase daily supply from 4.16M m^3/d in 2024 to 6.06M m^3/d within the next four years, as detailed in Table 1 below.

Table 1: SWPC Existing, Under Construction and Under Tendering Desalination Plants (IWPs)

Supply Group	Plant	COD	Status	Design Capacity (m^3/d)
Eastern: Eastern Region and Riyadh and Qassim	Jubail 3A	2023	Operational	600,000
	Jubail 3B	2024	Operational	570,000
	Jubail 4&6	2028	Under Tendering	600,000
Western: Makkah and Baha Madinah and Tabuk	Shuaibah Exp. 3.1	2009	Operational	150,000
	Shuaibah 3	2010	Operational	880,000
	Shuaibah Exp. 3.2	2019	Operational	250,000
	Rabigh 3	2021	Operational	600,000
	Yanbu 4 (Rayis 1)	2024	Operational	450,000
	Shuaibah 3 Conversion	2025	Under Construction	600,000
	Rabigh 4	2026	Under Construction	600,000
	Ras Mohaisen [1]	2028	Under Tendering	300,000
Southern: Jazan and Aseer	Shuqaiq 2	2011	Operational	212,000
	Shuqaiq 3	2021	Operational	450,000
Total Capacity (m^3/d)				6,062,000 [2]

Source: MEWA

1 Ras Mohaisen IWP will be implemented in two phases: Phase I with 100K m^3/d in 2028 and Phase II with another 200K m^3/d in 2030.

2 Excluding Ras Mohaisen 2'nd phase capacity.

As such, and given MEWA's forecast, a gap of 2.71M m^3/d is in 2024 at the national level, however, there would be a surplus capacity of about 410,000 m^3/d by 2028 and is expected to reach about 1.11M m^3/d by 2030. The current plan calls for SWPC to cover the gap till 2032 through 7 new desalination plants as listed in Table 2 below.

Table 2: SWPC Future Desalination Plants (IWPs)

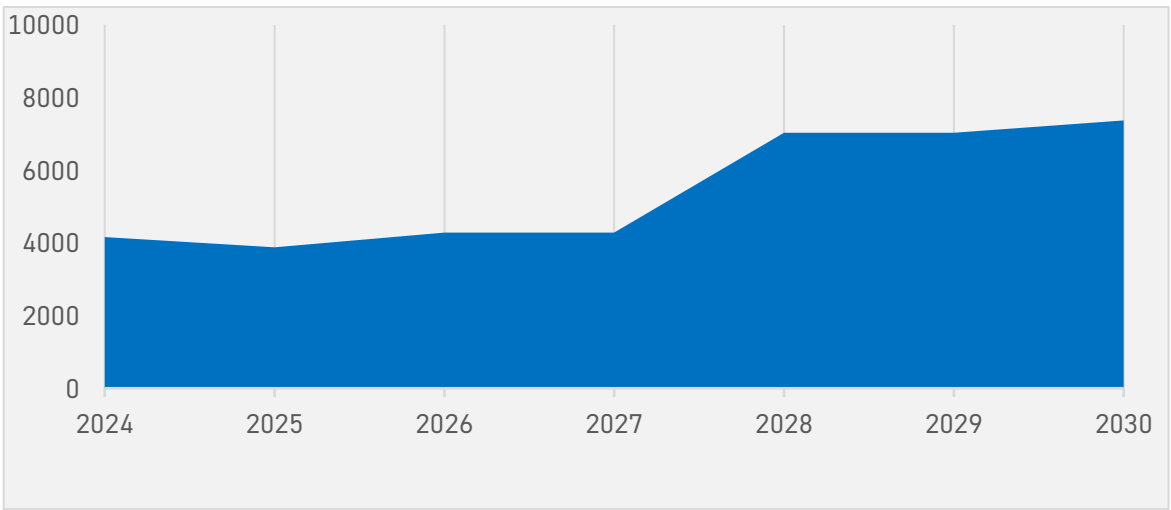
Supply Group	Plant	COD [1]	Capacity (m^3/d)
Eastern: Eastern Region, Riyadh and Qassim	Ras Al Khair 2	2028	600,000
	Ras Al Khair 3	2028	400,000
Western: Makkah, Baha, Madinah and Tabuk	Tabuk 1	2028	400,000
	Rabigh 5 (Shuaibah 5)	2030	400,000
	Rayis 2	2032	300,000
Southern: Jazan and Aseer	Jazan 1	2028	250,000
	Shuqaiq 4	2028	400,000
	Total Capacity		**2,750,000**

Source: MEWA

1 COD subjected to changes.

SWPC desalination plants portfolio will witness a growth from the current 4.16M m^3/d in 2024 to about 7.37M m^3/d in 2030 as shown in Figure 1 below, considering the end of lifespan for some IWPs.

Figure 1: SWPC Desalination Plants (IWPs) Portfolio Growth ('000 m^3/d)



Source: MEWA

2. Sewage Treatment Plants

KSA is committed to meeting several wastewater treatment and reuse objectives and targets as part of its vision 2030. The main goals are to increase network coverage in the Kingdom; boost the collected wastewater, which reduces environmental impact of sewage water and increase the availability of Sewage Treatment Plants (STPs) throughout the Kingdom. Currently, KSA has on average 64% of wastewater network coverage, and aiming to reach about 95% by 2030, as per MEWA's national water strategy.

With increase of network coverage, the collected wastewater is estimated to grow to 14.1M m^3/d in 2030, resulting in a required capacity of 14.8M m^3/d (an additional 5 % buffer is kept to counter for any unexpected increase in sewage inflow).

SWPC is currently treating 1.79 M m^3/d from the existing, under construction and under tendering ISTPs, as shown in Table 3 below, and expected to reach about 3.21M m^3/d after expansions and new ISTPs in future.

Table 3: SWPC Existing, Under Construction and Under Tendering Sewage Treatment Plants (ISTPs)

No	Region	City	Plant Name	Initial COD	Initial Capacity (m^3/d)	Capacity After Expansion [1] (m^3/d)
01	Makkah	Taif	North Taif	2022	100,000	270,000
02	Makkah	Jeddah	Jeddah Airport	2023	300,000	500,000
03	Eastern Province	Dammam	West Dammam	2023	200,000	350,000
04	Madinah	Madinah	Madinah 3	2024	200,000	375,000
05	Qassim	Buraydah	Buraydah 2	2024	150,000	-
06	Tabuk	Tabuk	Tabuk 2	2024	90,000	-
07	Riyadh	Riyadh	Al Haier	2026	200,000	-
08	Makkah	Makkah	Aranah	2027	250,000	-
09	Makkah	Makkah	Hadda	2027	100,000	150,000
10	Riyadh	Riyadh	Riyadh East	2027	200,000	500,000
				Total Capacity	**1,790,000**	**2,835,000**

Source: MEWA, NWC

1 Expansion capacities for some ISTPs might be added after 2030.

SWPC plans to propose new large plants that would not only benefit from economies of scale but also be attractive to the private sector due to their large transaction size, which makes them feasible for project financing. SWPC has identified a list of proposed STPs as detailed in Table 4 with a total capacity of 0.37M m^3/d.

Table 4: SWPC Future Sewage Treatment Plants (ISTPs)

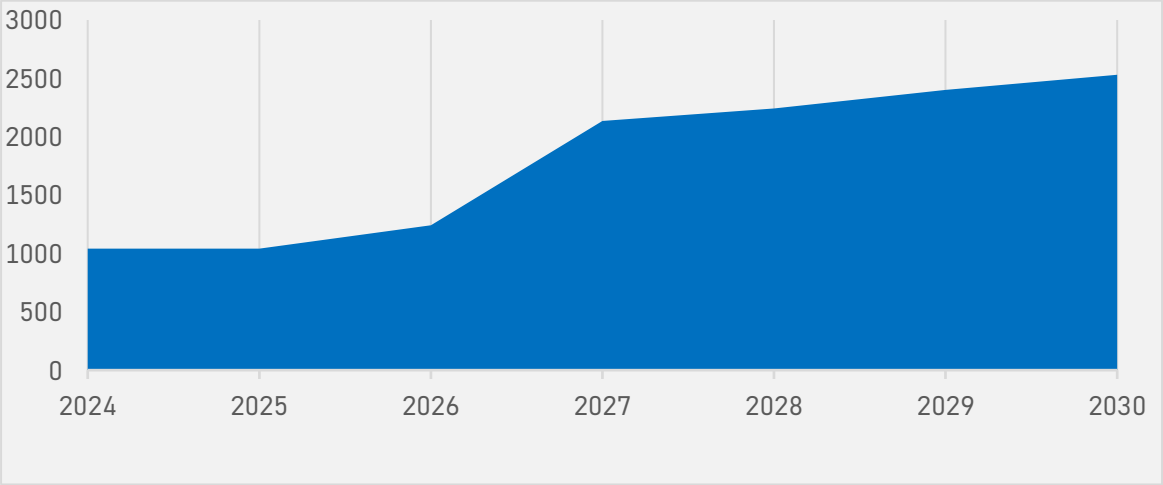
No	Region	City	Plant Name	Commencing Capacity (m^3/d)	COD [1]
01	Riyadh	Kharj	Kharj	50,000	2027
02	Jazan	Jazan	Abu Arish	50,000	2027
03	Eastern Province	Hafar Al Batin	Hafar Al Batin	50,000	2027
04	Riyadh	Riyadh	Riyadh North	120,000	2029
05	Najran	Najran	Najran South	50,000	2029
06	Asser	Khamess Masheet	Khamess Masheet	50,000	2029
07	Northern Boarder	Arar	Arar	TBD	
			Total Capacity	**370,000**	

Sources: MEWA, NWC

1 COD subjected to changes.

As shown in Figure 2 below, SWPC sewage treatment plants (large and small) portfolio is about 1.04M m^3/d in 2024 and will reach around 2.53M m^3/d in 2030, assuming the expansion capacities will be implemented after 2030.

Figure 2: SWPC Sewage Treatment Plants (ISTPs & SSTPs) Portfolio Growth ('000 m^3/d)



Source: MEWA

Additionally, SWPC started a kingdom wide program to increase the treatment coverage through partnership with private sector. This program aims to procure approximately 492,650 m^3/d of treated wastewater generated from the 123 proposed ISTPs across the kingdom, grouped in seven clusters. Table 5 below shows the total capacity of the Small Sewage Treatment Plants (SSTPs) program.

Table 5: Total Capacities of SWPC Future Small Sewage Treatment Plants (SSTPs) (less than 25.000 m^3/d)

Clusters for procurement	Jazan Cluster	Western Cluster	Eastern Cluster	Northern Cluster	Northwestern Cluster	Central Cluster	Southern Cluster
Total Commencing Capacity (m^3/d)	74,700	89,000	18,000	67,000	50,000	130,000	63,950

Sources: MEWA, NWC

3. Strategic Reservoirs

KSA water policies, particularly, the national water strategy, recognize strategic storage as a means to strengthening sector resilience, mitigating key water production and distribution risks, and to deal with emergencies. To that end, sector policies set a strategic storage target for 2030 equivalent to 7 days of municipal water demand. Accordingly, the municipal water demand will reach about 17.08M m^3/d in 2030, which required strategic storage capacity of 119.56M m^3/d to meet the target above (calculated for 7 demand days).

Currently, the total reservoir capacity in the Kingdom is 25.10M m^3/ in 2024 with another 45.82M m^3/d in construction and planning stage and expected to be available by 2030, Makkah has the highest share of almost 44% followed by Riyadh 31%. To meet this requirement, strategic reservoirs need to be designed for each major city to ensure proximity to users and reduce transmission risks and costs.

Strategic water storages will also be used for peak load management of Hajj water demand, which takes place in a span of approximately 20 days in Makkah and 40 days in Madinah, resulting in a considerable short-term peak demand water. Serving Hajj water demand entirely through desalination plants results in significant idle capacity during the off-Hajj season. Instead, sector policy opts for serving 80% of Hajj peak demand through strategic reservoirs, and an equivalent of 30% through desalination plants, 10% of which is kept as a buffer.

To augment reservoir capacities, and thorough private sector partnership, SWPC contributing with three strategic tanks, with a total capacity of 7.02M m^3, as Jua'ranah ISWR project as expected to be in operation in 2027. In addition, SWPC is also in the process of tendering Al Ahsa ISWR and Dammam ISWR which are both expected to be online by 2028 with total capacity of 4.52M m^3, as shown in Table 6.

Table 6: SWPC Independent Strategic Water Tanks (ISWRs)

ISWR	Region	Status	Storage Capacity (M m^3)
Jua'ranah	Makkah	Under Construction	2.50
Al Ahsa	Eastern	Under Tendering	1.39
Dammam	Eastern	Under Tendering	3.13
		Total Capacity	**7,02**

Sources: MEWA, NWC

4. Water Transmission Pipelines

Water transmission pipelines covering most of the regions in the Kingdom of Saudi Arabia, which was divided into four main supply groups based on the interconnectivity in their water transmission systems along with the unique features of each group, as follows:

- **Northern Supply Group**:

Composed of three regions: Hail, Northern Borders and Al Jowf.

- **Eastern Supply Group**:

Composed of three regions: Riyadh, Eastern Province and Qassim.

- **Western Supply Group**:

Composed of four regions: Tabuk, Makkah, Madinah and Baha.

- **Southern Supply Group**:

Composed of three regions: Aseer, Jazan and Najran.

Four IWTPs systems within this sector have been implemented by SWPC, the first one is under operation in 2024 (Rayis - Yanbu), the second is under construction (Rayis - Rabigh) which would be online in 2026, and the last two, Riyadh - Qassim and Jubail - Buraydah, are under tendering with total capacity of 1.34M m^3/d and total length of 1,446 KM, as they are serving the Eastern, Riyadh & Qassim Regions, as shown in table 7 below.

Table 7: SWPC Independent Water Transmission Pipelines (IWTPs) [1]

IWTP	Capacity (m^3/d)	Status	Length (Km)
Rayis - Yanbu	630,000	Operational	42
Rayis – Rabigh	500,000	Under Construction	152
Riyadh – Qassim [1]	685,000	Under Tendering	859
Jubail – Buraydah [1]	650,000	Under Tendering	587
Total Capacities	2,465,000	Total Lengths	1,640

Sources: MEWA, SWPC

1 Capacities and/or lengths might be changed due to further variations/updates from relevant stakeholder.

5. Dams

Dams in the Kingdom of Saudi Arabia classified based on their usage as groundwater dams' recharge, flood protection and drinking water supply.

Ground water recharging is a consumptive use of water whereby the surface water infiltrates into the ground directly from the pond created by the dam, 282 of the total 574 dams in KSA are ground water recharge dams.

Flood protection is a non-consumptive use of water whereby surface runoff is retained and / or diverted away from critical infrastructure, currently there are 246 flood protection dams in KSA.

Drinking water supply dams are consumptive uses of water whereby surface runoff is retained and then released for its purposes. There are currently 46 drinking water supply dams in KSA.

During 2022, a study of potential investments in dams in the Kingdom of Saudi Arabia under public-private partnerships framework was conducted by SWPC. The main objective of this study was to rank the existing brown and upcoming greenfield dams according to their potential attractiveness for private investment, brief findings can be found in the dams' chapter.

6. SWPC Updated Procurement Plan

More than 50 projects managed and tendered by SWPC, less than half of them are in planning phase. Table 8 below shows the dates of procurements stages for each project, in addition to 123 SSTPs scattered across the country and grouped in seven clusters.

Table 8: SWPC Projects' Procurement Plan

Sr	Type	Current Projects	Status			COD [1]
			Tendering Phase	Construction Phase	In-Operation	
01	IWP	Shuaibah 3 Expansion I	✓	✓	✓	2009
02	IWP	Shuaibah 3	✓	✓	✓	2010
03	IWP	Shuqaiq 2	✓	✓	✓	2011
04	IWP	Shuaibah 3 Expansion II	✓	✓	✓	2019
05	IWP	Rabigh RO3	✓	✓	✓	2021
06	IWP	Shuqaiq 3	✓	✓	✓	2021
07	IWP	Jubail 3A	✓	✓	✓	2023
08	IWP	Jubail 3B	✓	✓	✓	2024
09	IWP	Yanbu 4 (Rayis 1)	✓	✓	✓	2024
10	IWTP	Rayis-Yanbu	✓	✓	✓	2024
11	ISTP	North Taif	✓	✓	✓	2023
12	ISTP	Dammam West	✓	✓	✓	2023
13	ISTP	Jeddah Airport 2	✓	✓	✓	2023
14	IWP	Shuaibah 3 Conversion	✓	✓	Q2 2025	2025
15	IWP	Rabigh 4	✓	Q4 2023	Q1 2026	2026
16	IWTP	Rayis-Rabigh	✓	Q1 2024	Q2 2026	2026
17	ISTP	Buraydah 2	✓	✓	Q4 2024	2024
18	ISTP	Madinah 3	✓	✓	Q4 2024	2024
19	ISTP	Tabuk 2	✓	✓	Q4 2024	2024
20	ISWR	Jua'ranah	✓	Q2 2024	Q3 2027	2027

Sr	Type	Under Tendering Projects (Final Phases)	Tendering Status			COD
			Qualification	Proposal Evaluation	Financial Close	
21	ISTP	Al Haier	✓	✓	Q4 2024	2026
22	IWP	Ras Mohaisen I (COD of ph. II in 2030)	✓	✓	Q1 2025	2028
23	SSTP	Jazan cluster	✓	Q4 2024	Q2 2025	2028
24	IWP	Jubail (4&6)	✓	Q4 2024	Q1 2025	2028
25	IWTP	Jubail – Buraydah	✓	Q4 2024	Q1 2025	2029

Sr	Type	Under Tendering Projects (Initial Phases) / Future Projects	Tendering Status				COD [1]
			Appoint Advisors	EOI	RFQ	RFP	
26	IWP	Ras Al Khair (2) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
27	IWP	Ras Al Khair (3) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
28	IWP	Tabuk (1) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
29	IWP	Jazan (1) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
30	IWP	Shuqaiq (4) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
31	IWP	Rabigh (5)	Q4 2025	Q3 2025	Q4 2025	Q1 2026	2030
32	IWP	Rayis (2)	Q4 2025	Q1 2027	Q2 2027	Q3 2027	2032
33	ISTP	Aranah [2]	✓	Q3 2024	Q4 2024	Q1 2025	2027
34	ISTP	Hadda [2]	✓	Q3 2024	Q4 2024	Q1 2025	2027
35	ISTP	Riyadh East [2]	✓	✓	✓	Q4 2024	2027
36	ISTP	Abu Arish [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
37	ISTP	Al Kharj [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
38	ISTP	Hafar Al Batin [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
39	ISTP	South Najran [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2029
40	ISTP	Riyadh North	Q1 2025	Q1 2025	Q2 2025	Q3 2025	2029
41	ISTP	Khamees Msheat	Q3 2025	Q1 2026	Q2 2026	Q4 2026	2029
42	ISTP	Arar	TBD				

43	IWTP	Riyadh –Qassim	✓	✓	✓	Q3 2024	2029
44	ISWR	Al Ahsa	✓	✓	✓	Q3 2024	2028
45	ISWR	Eastern (Dammam)	✓	✓	✓	Q3 2024	2028
46	SSTP	Western Cluster	✓	Q4 2024	Q1 2025	Q3 2025	2028
47	SSTP	Eastern Cluster	✓	Q2 2025	Q3 2025	Q1 2026	2028
48	SSTP	Northern Cluster	✓	Q2 2025	Q3 2025	Q1 2026	2029
49	SSTP	Northwestern Cluster	✓	Q3 2026	Q4 2026	Q1 2027	2029
50	SSTP	Central Cluster	✓	Q4 2024	Q1 2025	Q3 2025	2030
51	SSTP	Southern Cluster	✓	Q3 2026	Q4 2026	Q1 2027	2031
✓	Completed						

Source: SWPC

1 Dates are subjected to change (except for operational projects) .

2 Developers pre-qualification program have been initiated in relation to these projects as an accelerating process.

7. Environmental Performance Index

The Environmental Performance Index (EPI) is an indicator of quantifying and numerically marking the environmental performance of a state's policies towards meeting their environmental targets set forth in the United Nations Millennium Development Goals (now Sustainable Development Goals (SDGs)). It is a composite index based on three policy objectives (climate change performance, environmental health, and ecosystem vitality) covering 11 broad issue categories, 40 sustainability indicators, and ultimately a single overall EPI score for each country. The index offers a scorecard that highlights leaders and laggards in environmental performance and provides practical guidance for countries that aspire to move toward a sustainable future.

The results for EPI 2022 show that considering all the parameters, at the Global level, Denmark leads the 180 countries with an aggregate score of 77.9 with UK coming second. Saudi Arabia stands at 109th position at the global level but improves the standing at G-20 level with 13th position, Arab League at 8th and OPEC with 7th position.

IV. SWPC Overview

Established in 2003, Saudi water partnership company (SWPC) is today the principal off-taker of water production, sewage treatment and strategic water storage in KSA, and is responsible for tendering all related PPP projects.

Vision: Becoming a leader in sustainable and reliable procurement of water in partnership with the public and private sector.

Mission: Ensuring supply of affordable water and water services through competitive and transparent tendering and efficient off taking , while being environmentally and financially sustainable.

Objectives: Tendering of projects of desalination, water purification, and sewage water treatment for the private sector (i.e., IWP, ISTP)

- **Tendering PPP Projects:**

1. Desalination, purification, treatment, and other types of water projects.
2. Strategic water reservoir projects.
3. Water transmission projects.
4. Dams' projects.

- **Offtake & Contract Management:**

1. Managing offtake agreements for public and PPP private sector projects.
2. Purchasing all public and privet sector quantities of water and selling them wholesale, excluding direct sales to consumers.
3. Procuring the necessary fuel to support the company's contractual obligations.

SWPC is fully owned by the Ministry of Finance. Its Board of Directors is chaired by H.E. the Minister of Environment, Water and Agriculture, and includes representatives of each of the Ministry of Finance, the National Center for Privatization (NCP), the Ministry of Environment Water and Agriculture, as well as a representatives from the private sector.

SWPC's value proposition to private sector investors comprises six elements:


Guarantee sale of water through off-take agreements.


Provide a clear set of rights and obligations.


Offer logistics and infrastructure support in securing land, fuel, electricity, feedstock, interconnection, and other support infrastructure.


Ensure a transparent and competitive bidding process.


Facilitate dialogues with related regulatory authorities to secure government approvals, licenses and permits required to undertake its procurement activities.


Provide sovereign guarantees through the Ministry of Finance, where appropriate.

Within the limits of its mandate, SWPC is committed to supporting the Kingdom in achieving its international and national commitments in relation to the water sector. Saudi Arabia is one out of UN's 193-member states to commit to achieve the 17 set Sustainable Development Goals (SDG) and their corresponding 169 targets. Saudi Arabia committed to SDG #6 "clean water and sanitation" which sets a list of targets to ensure availability and sustainable management of water and sanitation for all of its citizens.

These Targets Include:

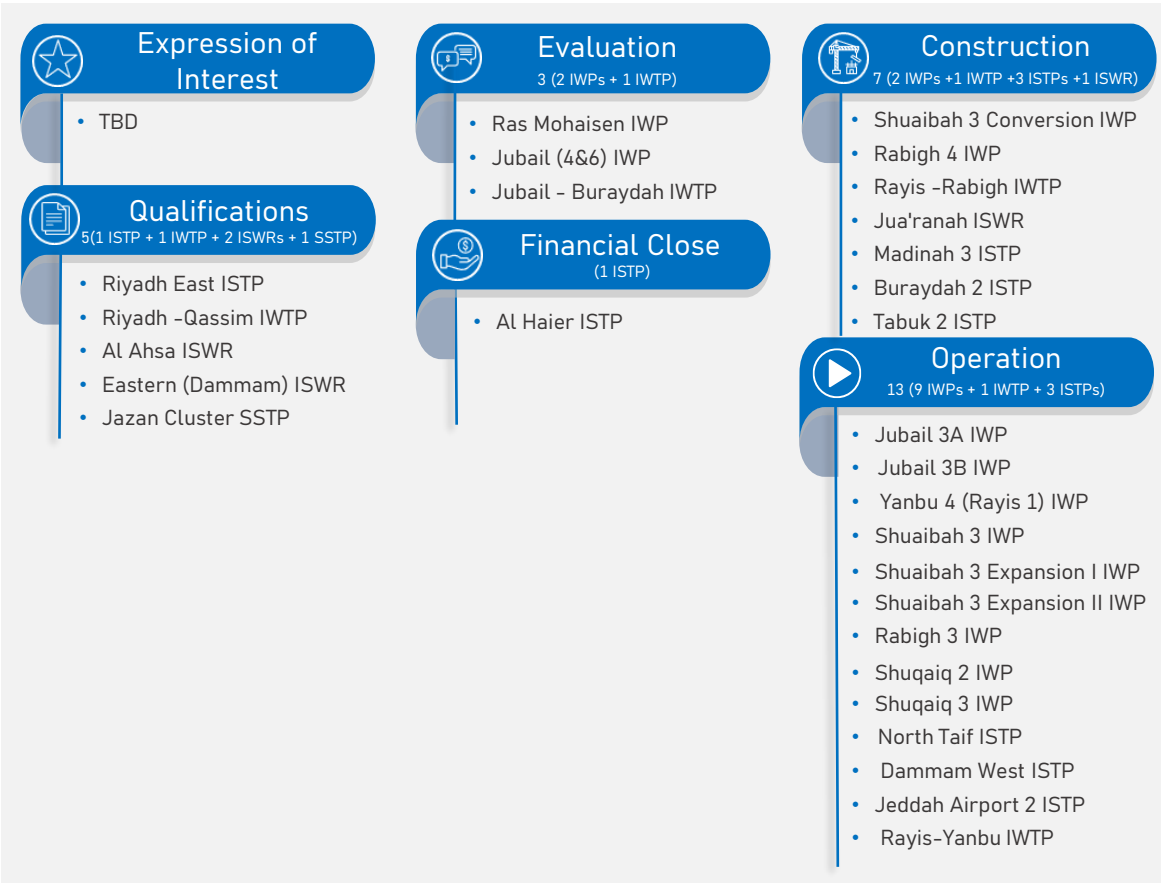
- Achieve universal and equitable access to safe and affordable drinking water for all.
- Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- Improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.
- Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
- Implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
- Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.
- Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities & programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling & reuse technologies.
- Support and strengthen the participation of local communities in improving water and sanitation management.

Today, SWPC has nine existed desalination projects (IWPs) located in the Eastern Province, Makkah and Jazan regions providing 4.16M m^3/d of desalinated water, and three existed ISTP projects located in the Western and Eastern regions conveying 600,000 m^3/d (up to 1.12M m^3/d after future expansions) of the wastewater, in addition to Rayis-Yanbu IWTP which will be able to deliver 600,000 m^3/d.

Other three IWPs on the construction stage; Shuaibah 3 Conversion (replacing Shuaibah 3) with 600,000 m^3/d and to be online in 2025, Rabigh 4 with 400,000 m^3/d in 2026 and Ras Mohaisen (first stage) scheduled to be operated with 100,000 m^3/d in 2028. Rayis – Rabigh IWTP being in construction and expected to be online in 2026 with 500,000 m^3/d. In addition, construction of Buraydah 2 ISTP, Madinah 3 ISTP and Tabuk 2 ISTP collectively will provide about 440,000 m^3/d by 2024 (up to 615,000 m3/d after expansions).

SWPC has progressed well in the tendering and development of other projects as illustrated in Figure 3.

Figure 3: Progress on SWPC's Procurement Activities

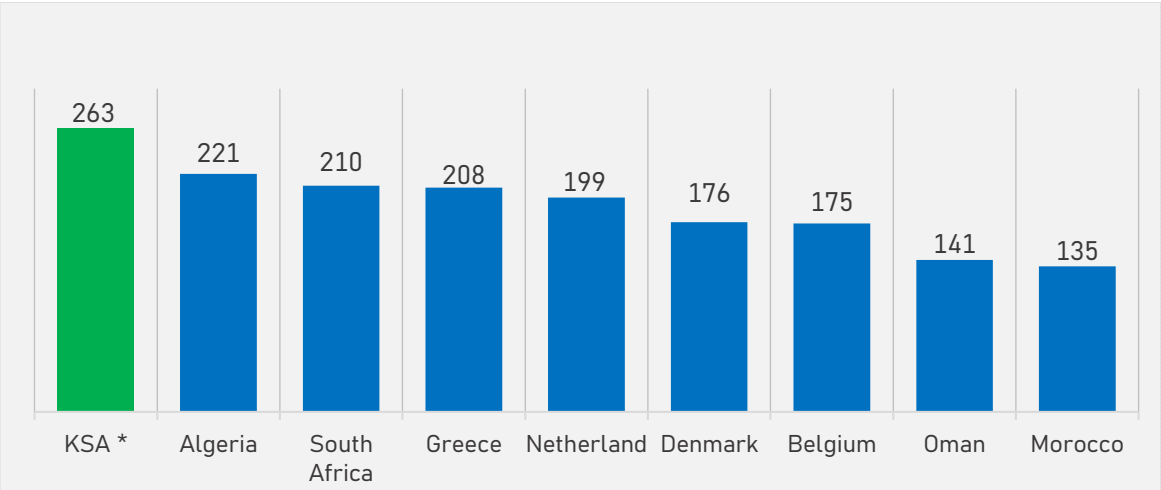


V. Desalination Capacity Plan

1. National Water Demand Context and Policies

KSA water demand context is characterized by its high per capita water requirement. As seen in Figure 4, KSA urban water demand per capita as of 2018 stands at 263 liters per capita per day, which is significantly higher than most other countries, however, KSA has plans to reduce the water demand per capita as per MEWA's strategy and the same can be seen in Figure 4.

Figure 4: Urban Water Demand Per Capita (LCD)



Source: National Water Strategy (2018)
* The losses or buffers were not counted within the demand value.

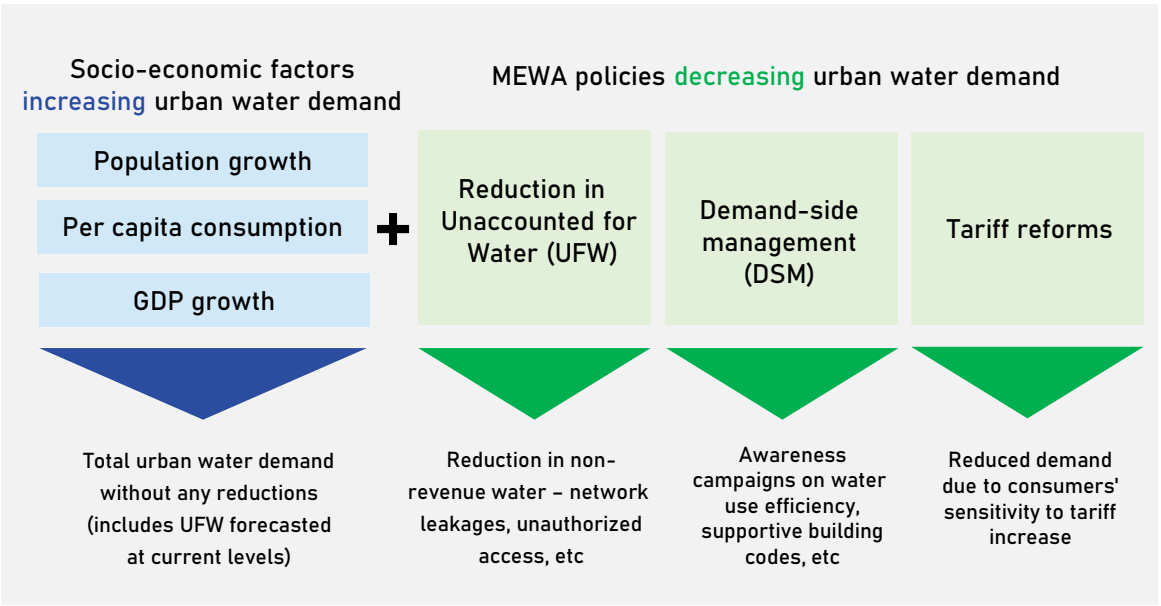
The water requirement per capita in KSA is driven by these following key factors, which will lead to high consumption without a proper measures:

1. Social behaviors.
2. Climatic change and considerations.
3. High losses and inefficiencies within housing units (after the meters).
4. Limited awareness on water use efficiency (including insufficiency to provide incentives for end-users to conserve water).
5. Limited price signaling, including issues in metering and billing.
6. High transmission and distribution losses.

As shown in Figure 5 below, MEWA plans to work across several levers with the objective of curbing national urban water per capita requirement and improving network efficiencies. These include:

1. Reducing Unaccounted for Water (UFW) through addressing network leakages and unauthorized access.
2. Engaging in Demand-Side Management (DSM) through the launch of awareness campaigns on water use efficiency, promotion of supportive building codes, retrofitting, and other measures intended to reduce water demand.
3. Introducing tariff reforms and reducing consumption by capitalizing on consumers' price sensitivity.

Figure 5: Water Demand Reduction Levers



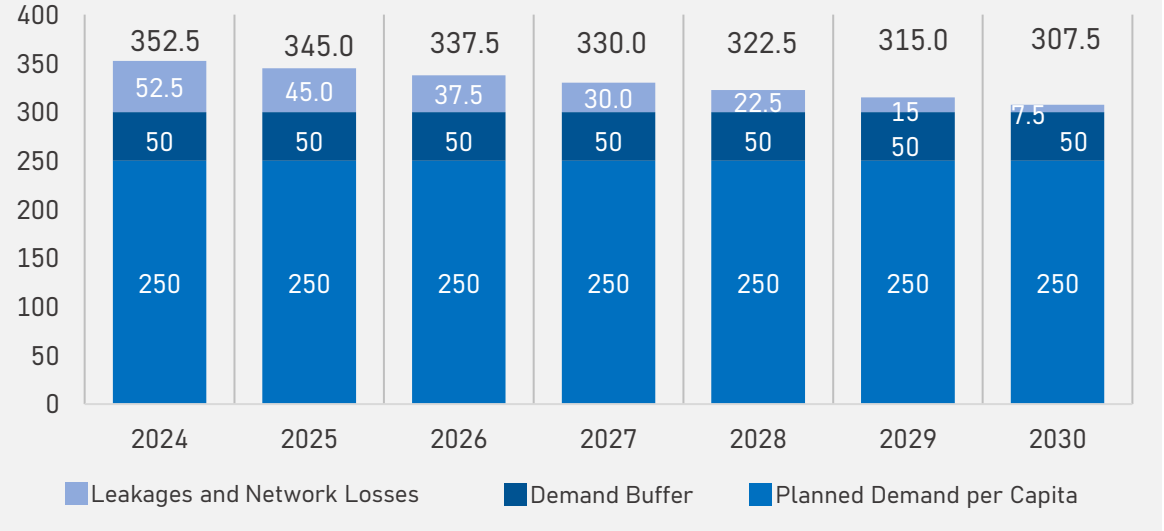
Source: MEWA, National Water Strategy

Population and GDP growth are key drivers for overall water demand. KSA's population is expected to grow at a yearly average growth rate of 1.4% in 2024 and 1.3% from 2025 till 2030 on national level as shown in Figure 8, while GDP is set to grow at an average of 2.6% per year. Prior to any improvement in leakages, urban water requirement at source is estimated to be 352.5 liters per capita per day in 2024, which consists of:

- 250 Liters Capita per Day (LCD) consumption.
- 52.5 LCD for network losses.
- 50 LCD for peak consumptions (20% of 250 LCD).

MEWA plans to reduce the water consumption per capita by improving the overall efficiency and reducing the network losses rate during 2024 to 2030 as shown in Figure 6. This reduction plan was proposed by MEWA as shown in Figure 7, as the urban water requirement in 2024 is 352.5 liters per capita per day which is expected to be 307.5 liters per capita per day by 2030 owing to the improvement in leakages and network losses

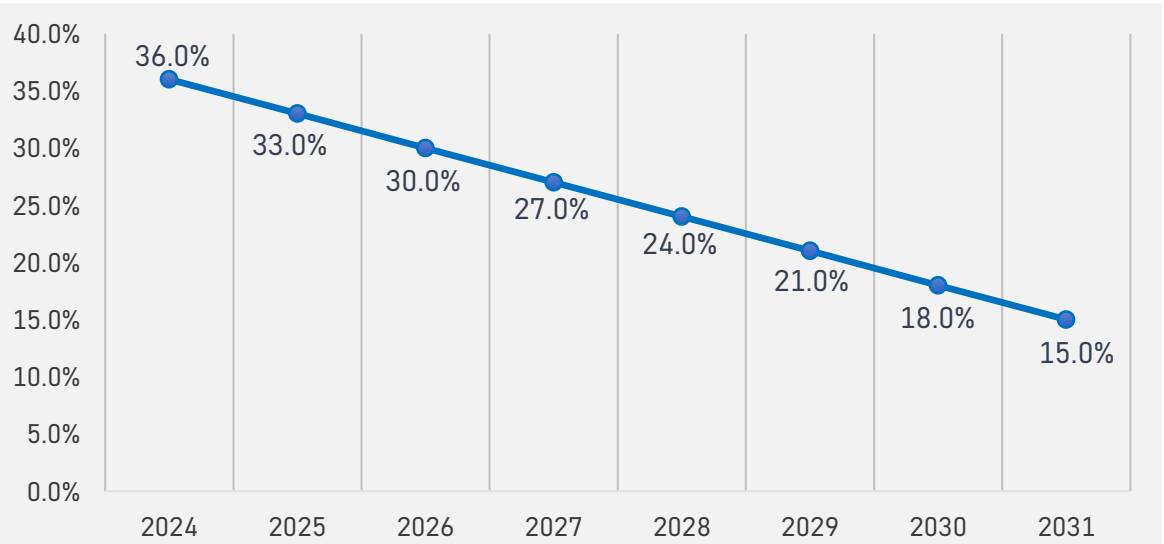
Figure 6: Daily Water Consumption Per Capita (LCD)



Source: MEWA

Reduction in water losses has started in 2021 and is expected to reach from current level of 36% in 2024 to around 15% in the target year 2030 and bayond as illustrated in Figure 7.

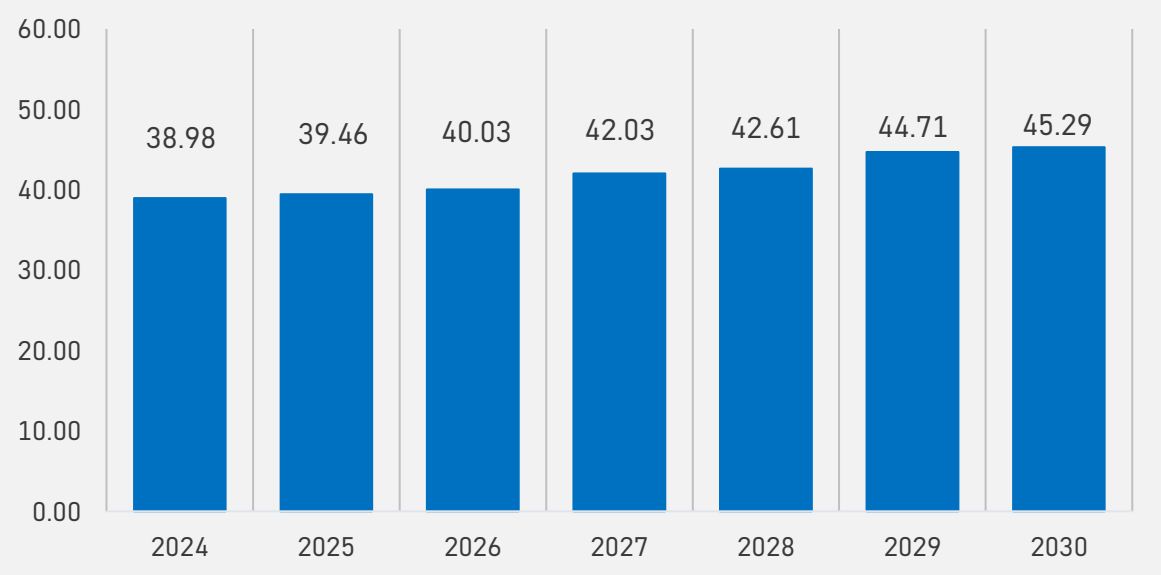
Figure 7: MEWA Strategy on Reduction of Water Losses (% Annually)



Source: MEWA

The population of KSA is expected to grow from around 39 M in 2024 to about 45 M in 2030 as shown in Figure 8.

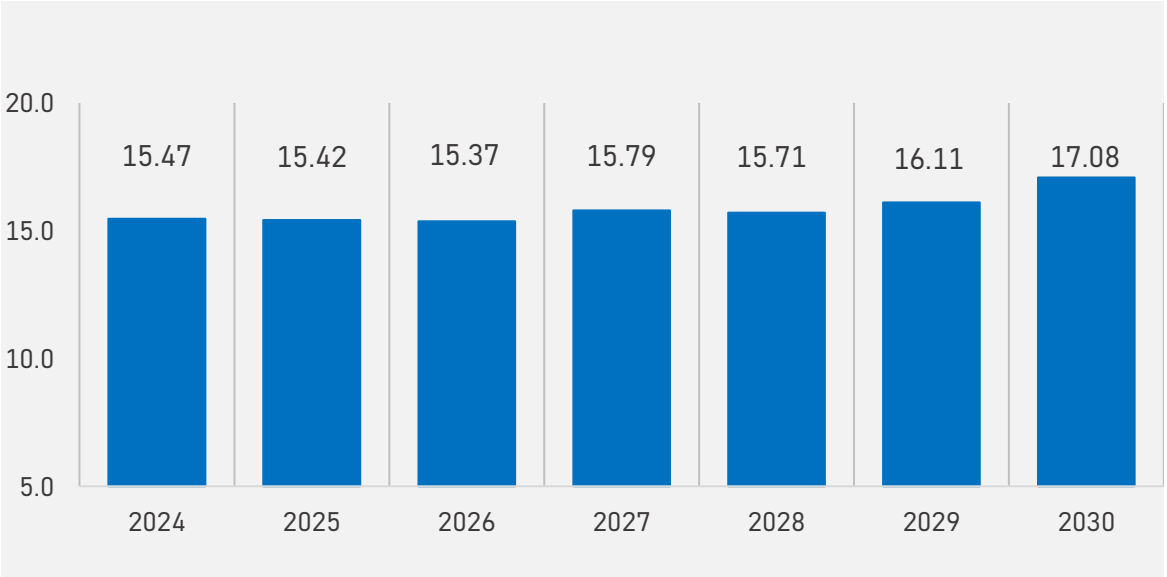
Figure 8: KSA Population (M)



Source: MEWA

The water demand in the Kingdom of Saudi Arabia is expected to grow from about 15.47M m^3/d in 2024 to about 17.08M m^3/d in 2030 as illustrated in Figure 9. This increase in demand can be attributed primarily to infrastructure development projects throughout the Kingdom, the growth of tourism, and the rapid growth of Riyadh's population.

Figure 9: National Urban Water Demand (M m^3/d)

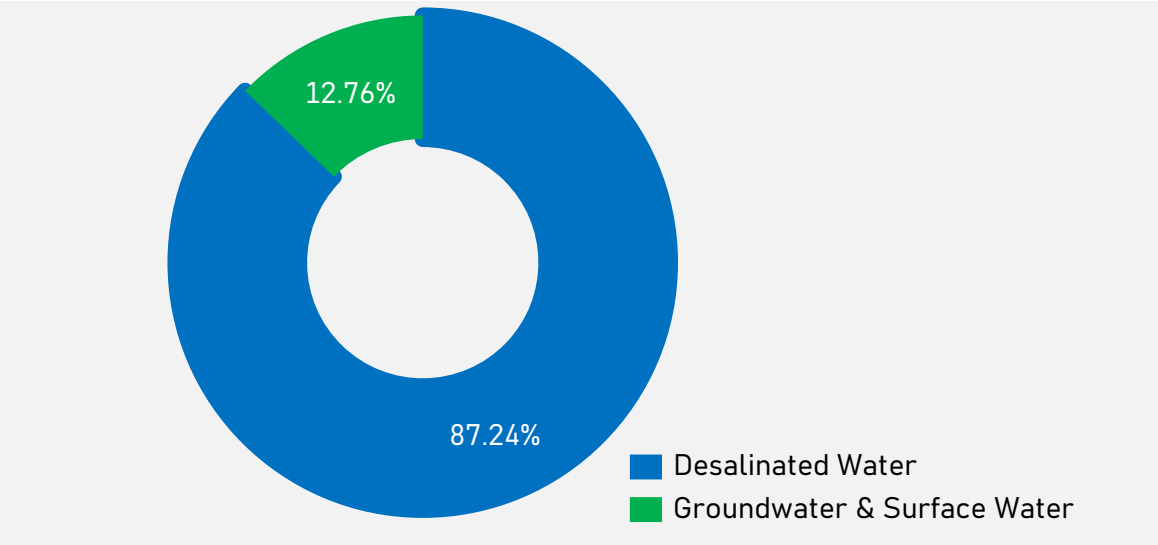


Source: MEWA

2. National Water Demand Context and Policies

Desalinated water accounts for about 87% of KSA's urban water requirement, while ground and surface water account for the rest 13% as shown in Figure 10.

Figure 10: Urban Water Supply Mix (In 2024)



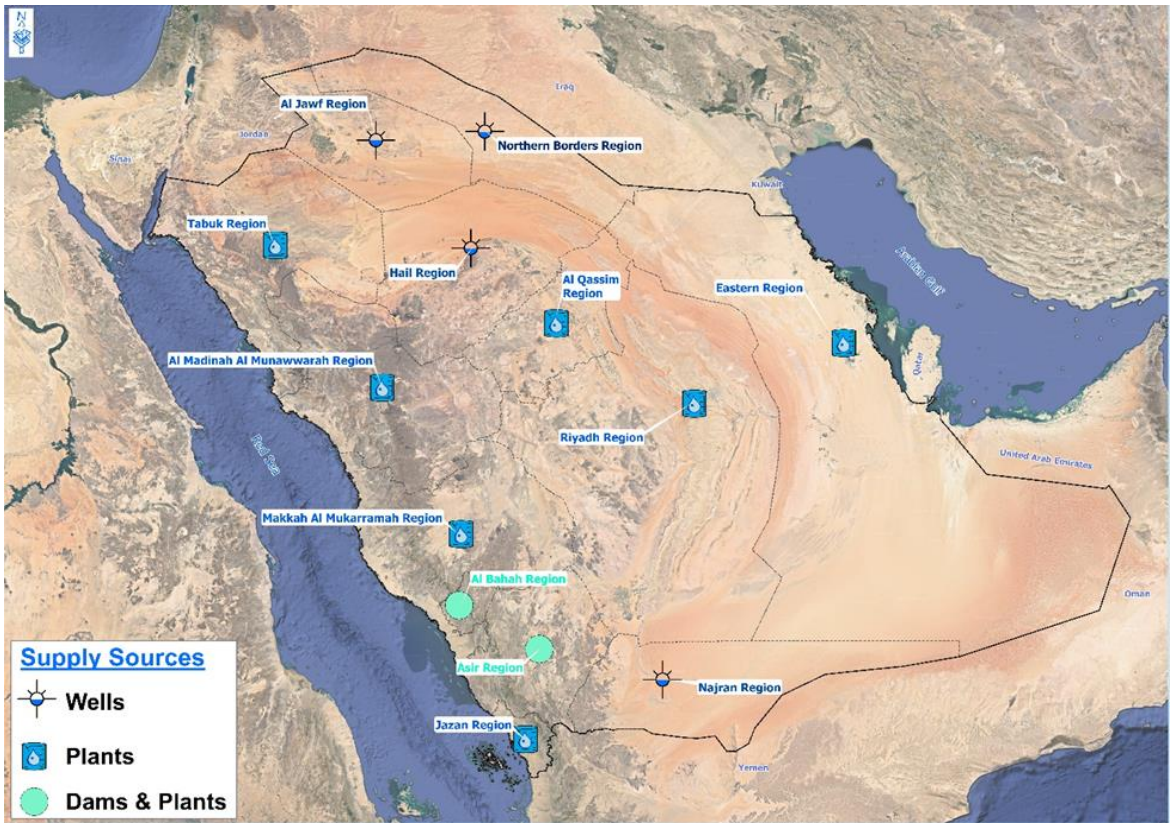
Source: MEWA

By 2030, MEWA intends to reduce the reliance on ground and surface water for urban supply by investing more in desalinated water, excluding four regions, namely Najran, Hail, Al Jowf, and Northern Borders, which will continue to rely on groundwater. Furthermore, sources with below standard water quality requirements are planned to be discontinued.

As for surface water, dams are expected to continue to feed urban supply, but at 50% of their safe capacity, as started in 2020.

Supply mix will vary amongst Saudi regions depending on unique factors such as availability of water sources, proximity to sea, and network and transmission systems connectivity, as depicted in Figure 11 below.

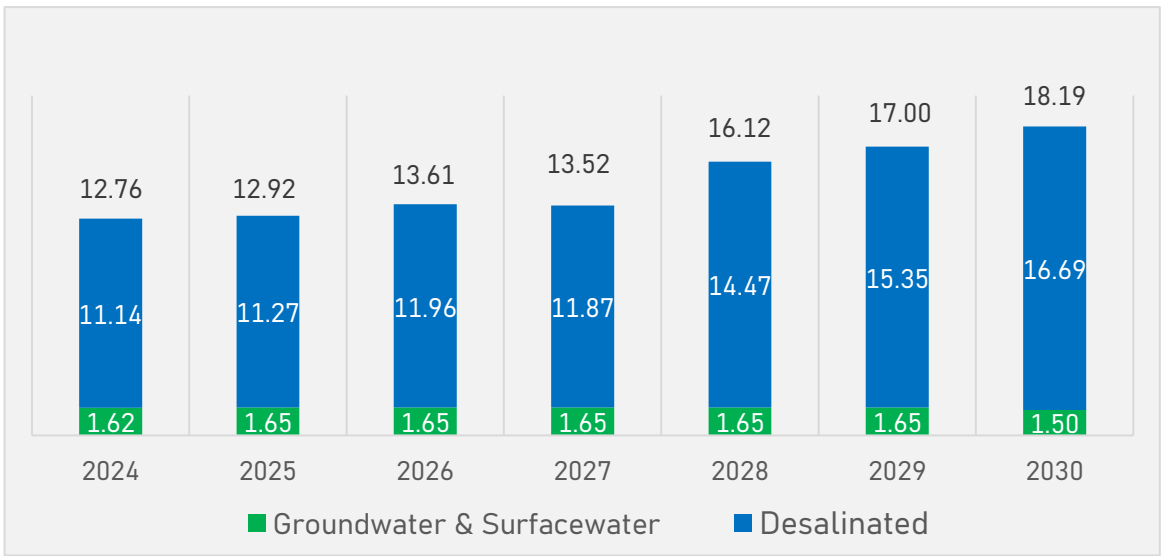
Figure 11: 2030 Target Supply Sources



Source: SWPC

Accordingly, a gradual approach has been outlined in this plan to phase out and reduce reliance on ground and surface water and transition to the 2030 target water supply mix as shown in Figure 12.

Figure 12: KSA Groundwater, Surface Water and Desalinated Water Supply Capacities (M m^3/d)

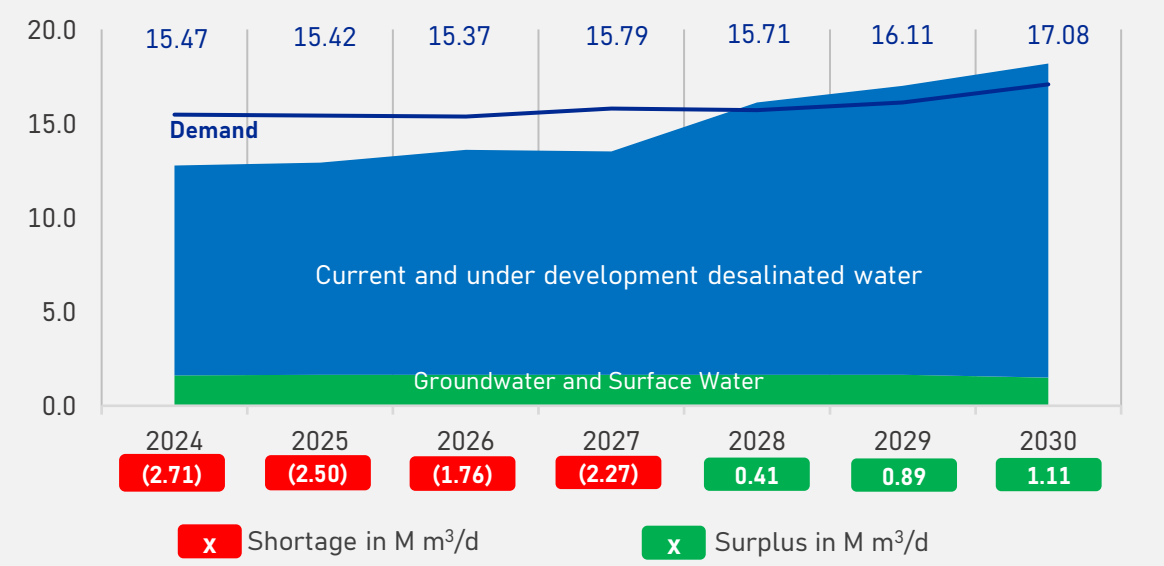


Source: MEWA

3. National Desalinated Water Need & Proposed Plants

Given the identified KSA urban water demand as well as existing and committed water supply for all regions, a shortage of 2.71M m^3/d in 2024 which is planned to be filled by new desalination plants, as shown in Figure 13.

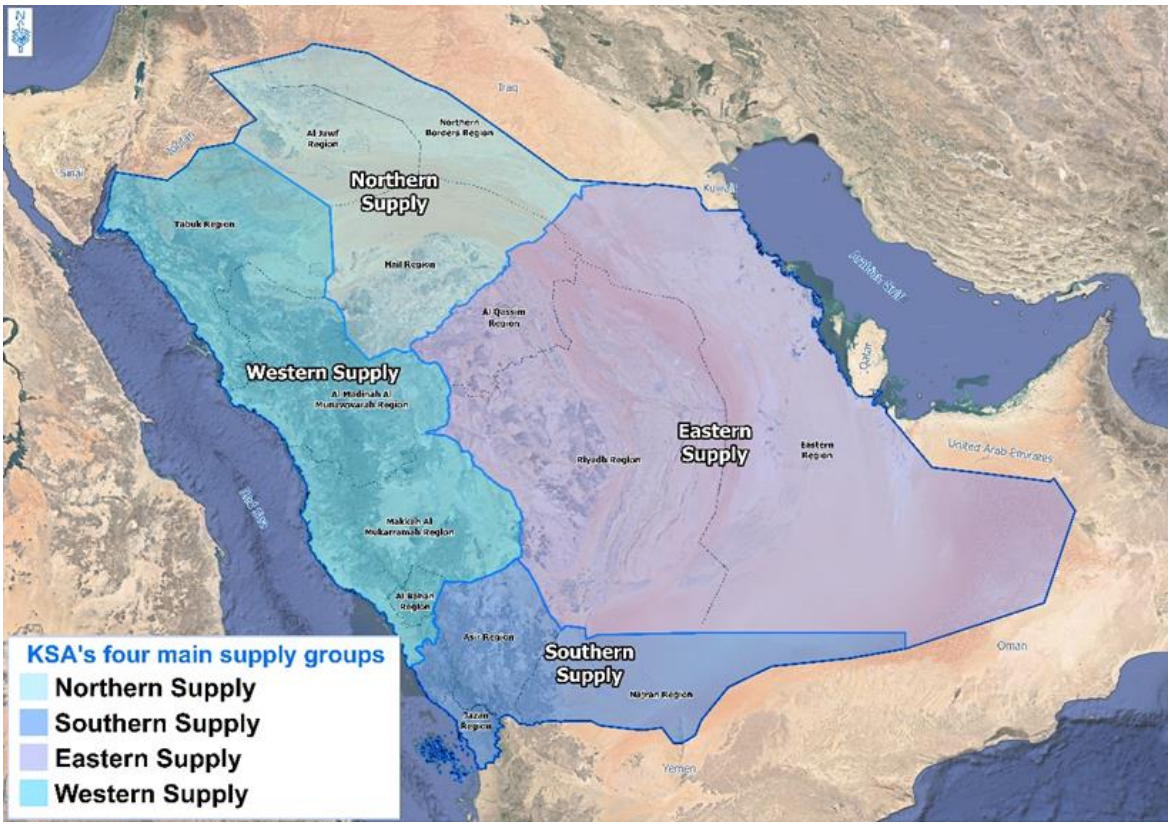
Figure 13: KSA Desalination Supply, Demand and Gap (M m^3/d)



Source: MEWA

In Figure 14, Saudi Arabia's water supply can be divided into four main supply groups based on the interconnectivity in their water transmission systems along with the unique features of each group. For these reasons, each supply group is considered separately for the water gap analysis.

Figure 14: KSA's Four Main Supply Groups



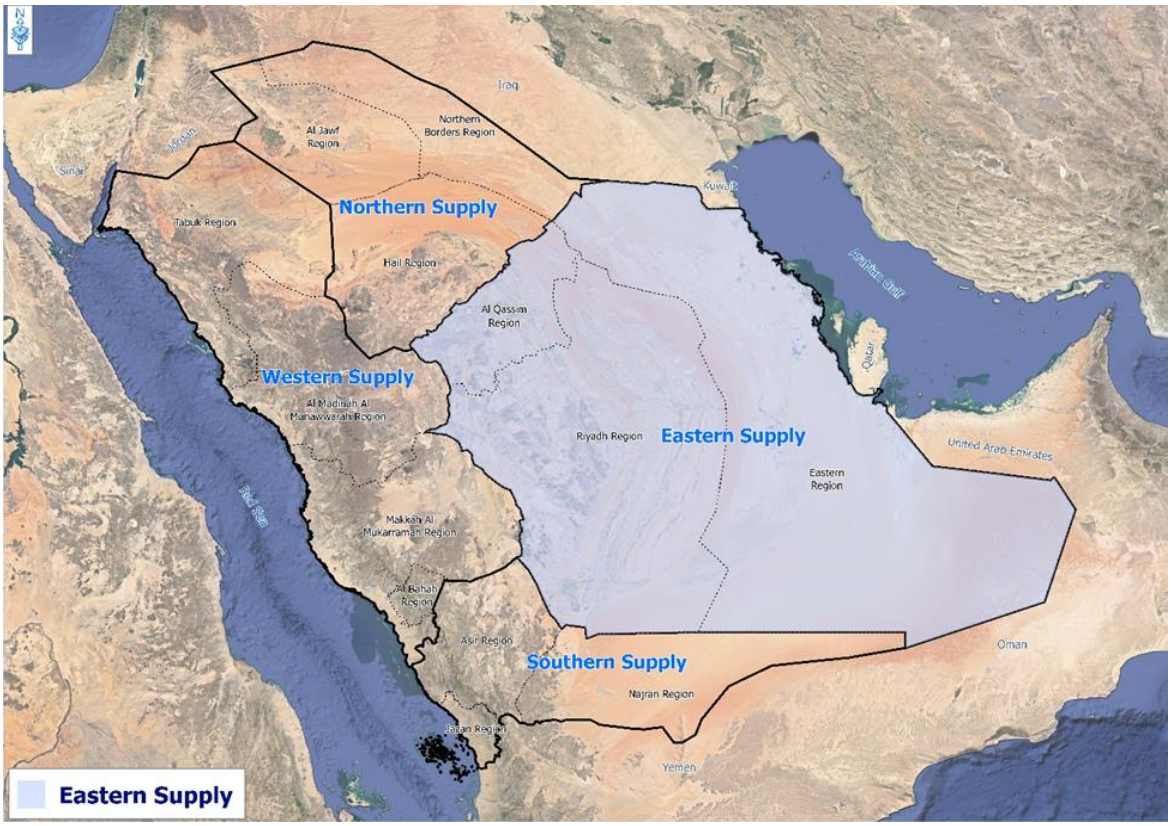
Source: SWPC

4. Regional Outlook

i. Eastern Supply Group

The Eastern supply group is composed of three regions: Riyadh, Eastern and Qassim, as seen in Figure 15. These three regions are interconnected by water transmission lines, making it feasible for the regions to be served by the same set of desalination plants.

Figure 15: Map of Eastern Supply Group



Source: SWPC

Population in Riyadh, Qassim and Eastern Province together is expected to grow from about 16.52M in 2024 to about 17.84M in 2030, as shown in Table 9.

Table 9: Riyadh, Eastern Region, and Qassim Populations (M)

	2024	2025	2026	2027	2028	2029	2030
Riyadh	9.29	9.42	9.54	9.66	9.78	9.91	10.04
Eastern Province	5.58	5.66	5.73	5.81	5.88	5.96	6.03
Qassim	1.64	1.66	1.68	1.70	1.73	1.75	1.77
Total	16.52	16.73	16.95	17.17	17.39	17.61	17.84
Yearly Growth (%)	1.32%	1.30%	1.30%	1.29%	1.29%	1.28%	-

Source: MEWA

The calculation of urban water demand from the source is driven by factors such as GDP growth and improvement in water network losses. As such, urban water demand in the Eastern supply group is expected to reach 8,29M m^3/d in 2030, as shown in Table 10.

Table 10: Riyadh, Eastern Province, and Qassim Urban Water Demand (M m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Riyadh	4.09	4.06	4.04	4.49	4.46	4.90	5.75
Eastern Province	2.02	2.01	1.99	1.97	1.95	1.93	1.95
Qassim	0.61	0.60	0.60	0.59	0.59	0.58	0.59
Total	6.72	6.67	6.63	7.06	7.00	7.41	8.29

Source: MEWA

In terms of supply, Riyadh, Qassim and Eastern Province rely mainly on desalinated water, either currently in service or under development, as shown in Table 11 below.

Table 11: Riyadh, Eastern Province and Qassim Current, Under-Development, and Planned Sources (Until 2030)

Status	WP	COD	Date Out	Design Capacity (m^3/d)	Production Factor	Export Capacity (m^3/d)
Desalination - Current (On-Production)	Khobar 3	2000	2035	280,000	0.9	252,000
	Marafiq	2010	2030	500,000	0.96	480,000
	Ras Al Khair RO1	2014	2049	310,656	0.98	304,443
	Ras Al Khair MSF(1)[2]	2015	2050	740,656	0.98	725,843
	Khafji-Solar	2018	2053	60,000	0.9	54,000
	Khobar 4 (Aramco) [3]	2020	2055	210,000	0.98	205,800
	Jubail RO2	2022	2057	400,000	0.98	392,000
	Khobar RO2	2022	2057	630,000	0.98	617,400
	Jubail 3A [1]	2023	2048	600,000	0.98	588,000
	Jubail 3B [1]	2024	2049	570,000	0.98	558,600
Desalination – Under Tendering / Construction	JUBIL 5 (Jubail 2 RO-REPLACMENT)	2024	2059	1,000,000	0.98	980,000
	Jubail (4&6) [1]	2028	2053	600,000	0.98	588,000
Desalination – Under Planning/Studying	Mega Ton Plant - Ras Al Khair	2025	2060	50,000	0.98	49,000
	Qaddiyah	2025	2063	150,000	0.98	147,000
	Ras Al Khair (2) [1]	2028	2053	600,000	0.98	588,000
	Ras Al Khair (3) [1]	2028	2053	400,000	0.98	392,000
	Ras Al Khair 4	2029	2071	500,000	0.98	490,000
	Ras Al Khair 5	2030	2051	450,000	0.98	441,000
	New Location Plant #1 (New Pop Riyadh)	2030	2075	850,000	0.98	833,000

Source: MEWA

1 Managed & Tendered by SWPC

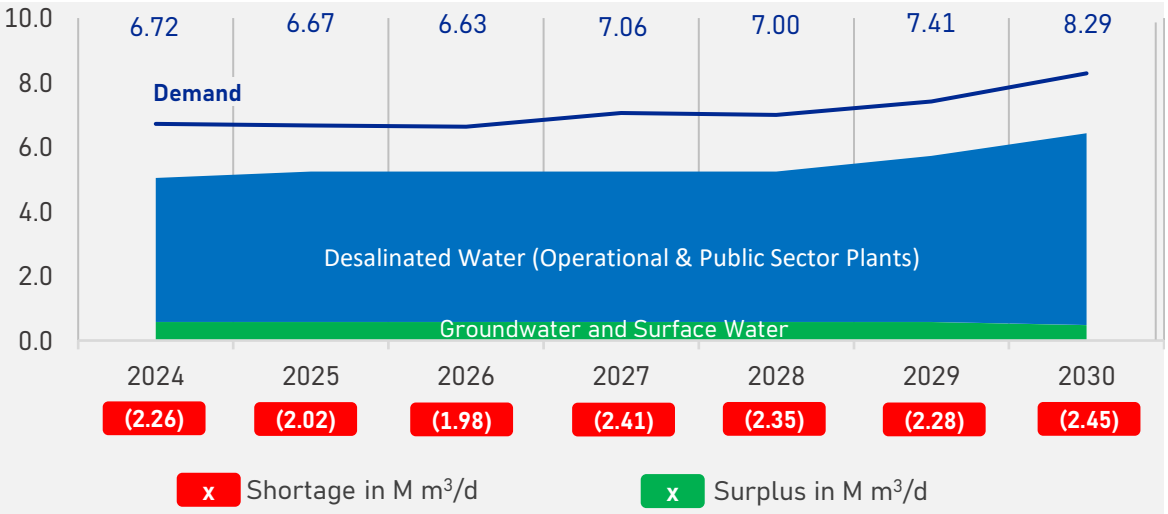
2 Ras Al Khair MSF (1) caters 96% of its total capacity to Eastern Supply Group and the rest 4% to Others.

3 Khobar 4 (Aramco) caters 50% of its total capacity to Eastern Supply Group and the rest 50% to Others.

For all water supplies presented in this section, current water sources include only those with an acceptable quality of water. Under-development water desalination includes all committed plants that are currently under construction or in the tender process. The decommissioning date of plants is considered at 35 years for public sector, mainly for SWCC/SWA managed plants, and 25 years for SWPC plants (linked to the Water Purchase Agreement).

Taking into account the total urban water demand and current and under-development capacities, Figure 16 shows a shortage of 2.26M m^3/d in 2024 and expected to increase to 2.45M m^3/d by 2030.

Figure 16: Riyadh , Eastern Region and Qassim's Desalination Supply, Demand, and Gap



Source: MEWA

Several new plants are expected to be available to reduce the water shortages in 2023 & beyond, five among them are managed by SWPC for the private sector, namely, Jubail 3A, Jubail 3B, Jubail 4 & 6, Ras Al Khair 2 and Ras Al Khair 3, with total capacity of 2.77M m^3/d as shown in Table 12 below.

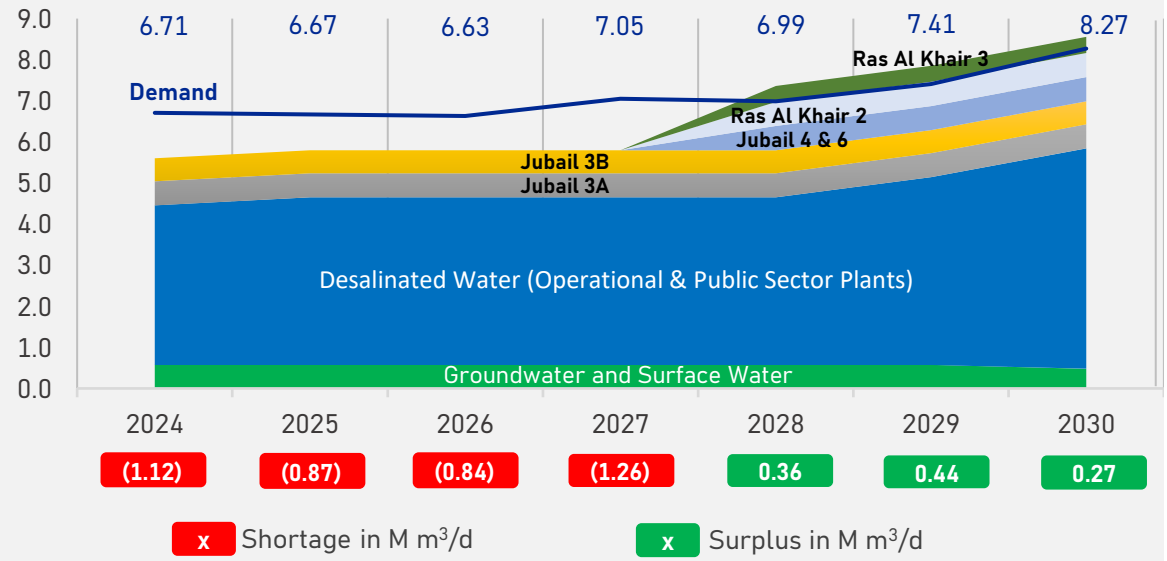
Table 12: Eastern Supply Group - IWPs

Supply Group	Plant	COD	Capacity (m^3/d)
Eastern Supply Group (Riyadh , Qassim and Eastern Regions)	Jubail 3A	2023	600,000
	Jubail 3B	2024	570,000
	Ras Al Khair 2	2028	600,000
	Ras Al Khair 3	2028	400,000
	Jubail 4 & Jubail 6	2028	600,000
		Total Capacity	**2,770,000**

Source: MEWA

These plants will be located within Eastern Province, serving Riyadh, Eastern and Qassim regions, and are expected to be in operation by 2028 or earlier. The shortage will become a surplus of 270,000 m^3/d in 2030, as shown in Figure 17.

Figure 17: Riyadh, Eastern Province and Qassim's Shortage and Plants (M m^3/d)



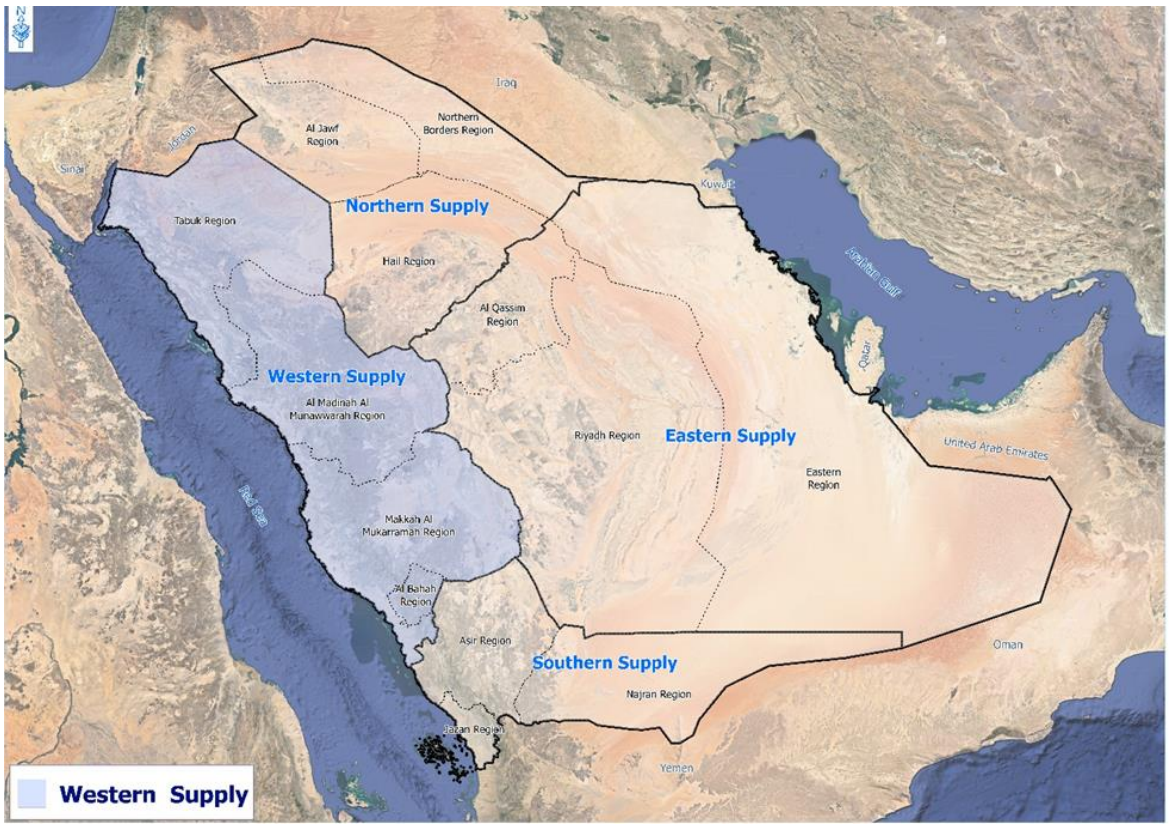
Source: MEWA

ii. Western Supply Group

The Western supply group combined four regions; Tabuk, Makkah, Madinah and Baha, as illustrated in Figure 18 below. From a water supply perspective, these four regions are served by three supply systems:

- Makkah and Baha, which are inter-connected and hence both served by the several similar plants, such as Rabigh 3, Shuaibah 3 Conversion, Rabigh 4, Ras Mohaisen, Rabigh 5, Rayis 2 and others.
- Madinah has an independent supply system. Madinah and Makkah systems are considered isolated, even though Yanbu 4 is planned to serve both regions through two planned independent transmission lines (Rayis-Yanbu and Rayis-Rabigh).
- Tabuk Water Transmission System is currently not connected to other regions. However, given the topographic nature of the northwestern area, Tabuk 1 will serve both Tabuk and Madinah regions.

Figure 18: Map of Western Supply Group



Source: SWPC

Demand in the Western Supply Group is split into three main categories: demand from residents (locals), demand from Hajj and Omrah (overseas and local visitors) and demand from development projects.

a. Makkah and Baha Regions

Population in Makkah and Baha is expected to grow from 10.09M in 2024 to almost 10.90M in 2030, as shown in Table 13.

Table 13: Makkah and Baha Population (M)

	2024	2025	2026	2027	2028	2029	2030
Baha	0.55	0.56	0.57	0.57	0.58	0.59	0.60
Makkah	9.54	9.67	9.79	9.92	10.04	10.17	10.30
Total	10.09	10.22	10.36	10.49	10.62	10.76	10.90
Yearly Growth (%)	1.31%	1.29%	1.29%	1.28%	1.28%	1.27%	-

Source: MEWA

In addition to population growth, urban water demand in these two areas is driven by GDP growth, improvement in water losses, and the impact of price (tariff) elasticity. Hajj & Omrah demand from direct sources (i.e. other than storage) is expected to grow from 0.73M m^3/d in 2024 to 0.95M m^3/d in 2030. This demand is driven by the number of visitors, which is expected to reach about 4.6M for Hajj and 30M for Omrah (foreign visitors) in 2030. This demand is also based on the assumption that each visitor consumes 250 liters per day and resides in Makkah for 20 days. 80% of total Hajj demand is served through the strategic reservoirs, and 30% served through desalination with 10% kept as a buffer.

As a result, total water demand will grow from 4.38M m^3/d in 2024 to 4.43M m^3/d in 2030, as shown in Table 14 below.

Table 14: Makkah and Baha Water Demand (M m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Baha: Urban water demand	0.21	0.21	0.20	0.20	0.20	0.20	0.21
Makkah: Urban water demand (including Hajj & Omrah)	4.18	4.19	4.20	4.21	4.21	4.21	4.22
Total urban water demand	4.38	4.39	4.40	4.41	4.41	4.41	4.43

Source: MEWA

Current and under-development water sources in Makkah and Baha including IWPs as shown in Table 15.

Table 15: Makkah and Baha Current and Under-Development, and Planned Sources (Until 2030)

Status	WP	COD	Date Out	Capacity (m^3/d)	Production Factor	Export Capacity (m^3/d)
Desalination – Current (On-Production)	Shuaibah 2	2001	2025	455,000	0.90	409,500
	Shuaibah Exp (3.1) [1]	2009	2030	150,000	0.96	144,000
	Shuaibah (3) [1,3]	2010	2025	880,000	0.80	704,000
	Jeddah RO3	2013	2038	240,000	0.90	216,000
	Shuaibah 2 MED	2018	2025	91,200	0.90	82,080
	Shuaibah Exp (3.2) [1]	2019	2044	250,000	0.98	245,000
	Al Qunfudah New	2020	2055	51,000	0.98	49,980
	Shuaibah 4 (Jeddah RO4)	2020	2055	400,000	0.98	392,000
	Al Lith New	2021	2056	42,500	0.98	41,650
	Rabigh (3) [1]	2021	2046	600,000	0.98	588,000
	Yanbu 4 (Rayis 1) [1, 2]	2024	2049	450,000	0.98	441,000
Desalination Under Construction / Tendering	Shuaibah RO1 (Replacement)	2024	2058	600,000	0.98	588,000
	Shuaibah RO2 (Replacement)	2025	2060	550,000	0.98	539,000
	Shuaibah 3 Conversion [1,3]	2025	2050	600,000	0.98	588,000
	Rabigh (4) [1]	2026	2051	600,000	0.98	588,000
	Ras Mohaisen ph. I [1,4]	2028	2053	100,000	0.98	98,000
Desalination Under Planning/Studying	Yanbu 2 (Replacement) [5]	2026	2061	500,000	0.98	490,000
	Ras Mohaisen ph. II [1,4]	2030	2055	200,000	0.98	196,000
	Shuaibah 5 (Rabigh 5) [1]	2030	2055	400,000	0.98	392,000

Source: MEWA

1 Managed & Tendered by SWPC

2 Yanbu 4 (Rayis 1) caters 28% of its total capacity to Makkah and the rest 72% to Madinah.

3 Replaceable at 2025 (Shuaibah 3 phase out / Shuaibah 3 Conversion Phase in)

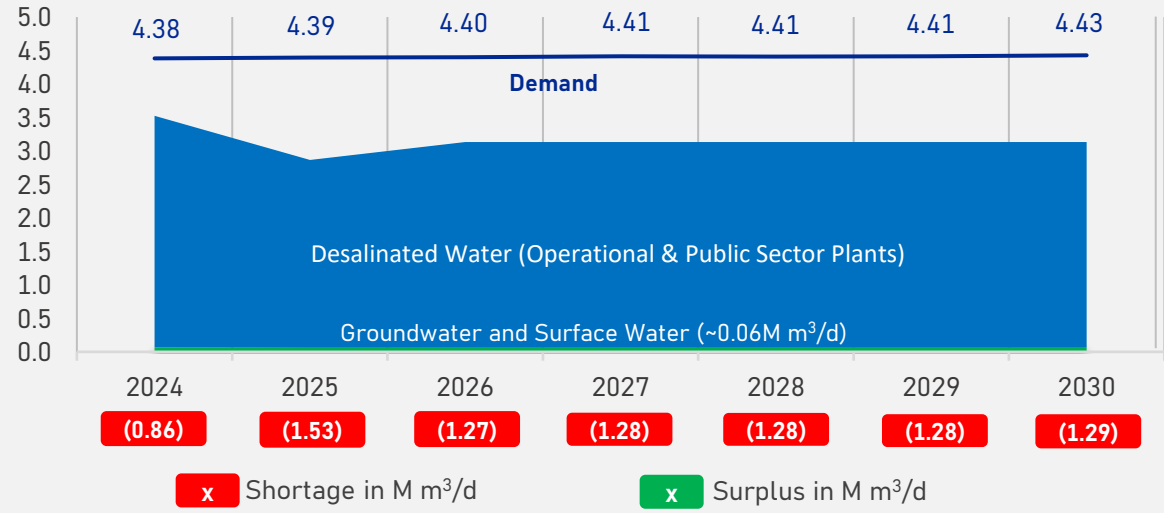
4 Ras Mohaisen will be implemented in two phases:

- Capacity of phase I would cater 64% to Makka Region and the rest 36% to Al-Baha region.
- Capacity of phase II would cater 58.5% to Asseer Region, 36% to Al-Baha region and the rest 5.5% to Makkah region.

5 Yanbu 2 (Replacement) caters 55% of its total capacity to Makkah and the rest 45% to Madinah.

Considering the total water demand for current and under-development capacities and to the fact of the end service life of Shuaibah 3 plant (880,000 m^3/d) in 2025, the shortage of 0.86 m^3/d in 2024 will continue to reach 1.29M m^3/d in 2030, as seen in Figure 19 below.

Figure 19: Makkah and Baha Current Desalination Supply, Demand, and Gap (M m^3/d)



Source: MEWA

SWPC plans to fill the water shortages in Makkah and Baha in 2024 & beyond through several plants to be added between 2024 and 2030. These plants will be located in the Western Supply Group and will provide around 1.91M m^3/d , as shown in Table 16.

Table 16: Western Supply Group - IWPs (Makkah & Baha)

Supply Group	Plant	COD	Capacity (m^3/d)
Western Supply Group (Makkah & Baha Regions)	Yanbu 4 (Rayis 1) [1]	2024	126,000
	Shuaibah 3 Conversion	2025	600,000
	Rabigh 4	2026	600,000
	Ras Mohaisen	2028 - 2030 [2]	183,000 [3]
	Shuaibah 5 (Rabigh 5)	2029	400,000
		Total Capacity	1,909,000

Source: MEWA

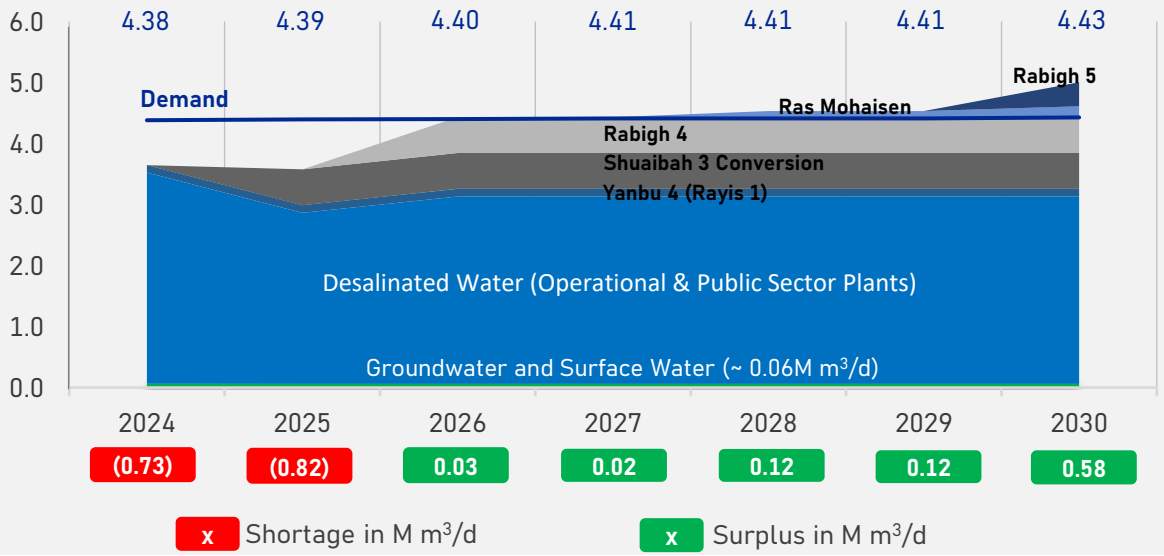
1 Yanbu 4 (Rayis 1) capacity allocated 28% to the Makkah region and the rest 72% to the Madina region.

2 Ras Mohaisen two phases' CODs.

3 Total capacity of Ras Mohaisen supplying the Western Group (Makkah & Baha Regions) from both phases.

Hence, as seen in Figure 20 below, the shortage of these plants will become a surplus of 580,000 m³/d in 2030.

Figure 20: Makkah and Baha Shortage and Plants (M m³/d)



Source: MEWA

b. Madinah Region

The population of Madinah is expected to grow from 2.40M in 2024 to 2.59M in 2030, as shown in Table 17.

Table 17: Madinah Population (M)

	2024	2025	2026	2027	2028	2029	2030
Madinah	2.40	2.43	2.46	2.49	2.52	2.56	2.59
Yearly Growth (%)	1.32%	1.30%	1.30%	1.29%	1.29%	1.28%	-

Source: MEWA

This translates into an urban water demand by residents from 1.46M m³/d in 2024 to 1.57M m³/d in 2030. (includes Hajj, Omrah and development projects demand from direct sources – i.e., other than storage), as seen in Table 18.

Table 18: Madinah Water Demand (M m³/d)

	2024	2025	2026	2027	2028	2029	2030
Total Urban water demand (including Hajj & Omrah)	1.46	1.47	1.48	1.48	1.49	1.49	1.57

Source: MEWA

In terms of supply, Madinah's current sources including IWPs as shown in Table 19 below.

Table 19: Madinah Current, Under-Development, and Planned Sources (Until 2030)

Status	WP	COD	Date Out	Capacity (m^3/d)	Production Factor	Export Capacity (m3/d)
Desalination – Current (On-Production)	Yanbu RO	1998	2026	127,800	0.90	115,020
	Yanbu 2	1998	2026	143,808	0.55	79,094
	Yanbu MED	2013	2032	68,190	0.90	61,371
	Yanbu 3 Phase 1	2017	2052	97,000	0.90	87,300
	Portable Unit	2018	2038	30,000	0.90	27,000
	Yanbu 3 Remaining Units	2019	2052	453,000	0.98	443,940
	Yanbu 4 (Rayis 1) [1,2]	2024	2049	450,000	0.98	441,000
Desalination Under Construction Tendering	Bwarj Jazan (Ph. 2)	2028	2048	100,000	0.98	98,000
Desalination Under Planning/Studying	Yanbu 2 (Replacement)	2026	2061	500,000	0.98	490,000
	Tabuk 1 [1, 3]	2028	2053	400,000	0.98	392,000
	Yanbu 5	2028	2055	200,000	0.98	196,000

Source: MEWA

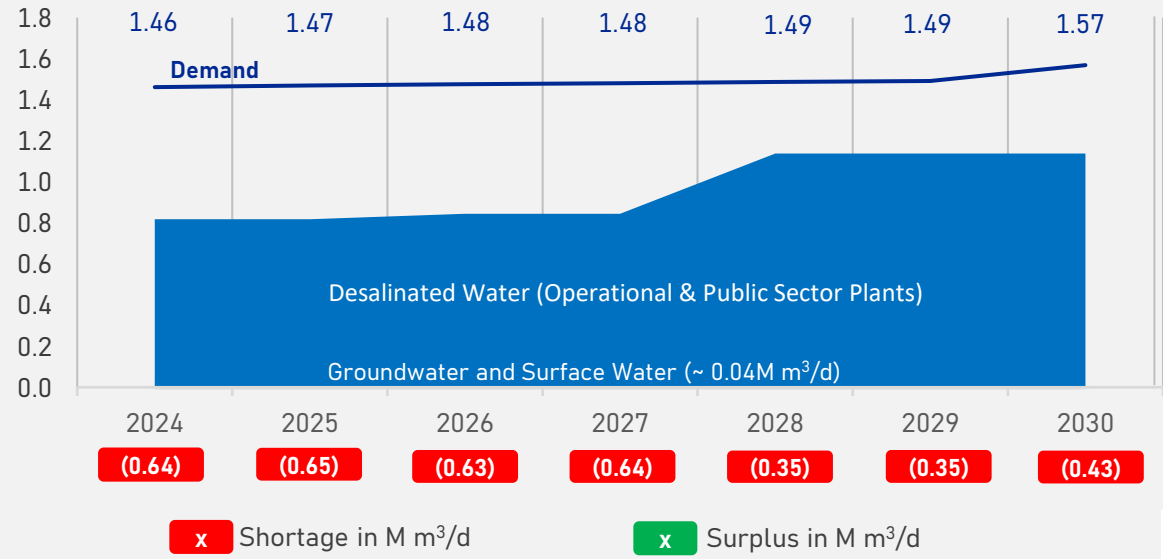
1 Managed & Tendered by SWPC

2 Yanbu 4 (Rayis 1) caters 72% of its total capacity to Madinah and the rest 28% to Makkah.

3 Tabuk 1 caters 30% of its total capacity to Madinah and the rest 70% to Tabuk.

Considering the total water demand and current and under-development capacities, a shortage of 0.64M m^3/d in 2024 is expected to be continued to reach 0.43M m^3/d in 2030. This is illustrated in Figure 21 below.

Figure 21: Madinah's Current Desalination Supply, Demand and Gap (M m^3/d)



Source: MEWA

SWPC plans to reduce the water shortage beyond 2024 by introducing Yanbu 4, which is ready to be in operation by the end of 2024 with a total capacity of 450,000 m^3/d, of which; 324,000 m^3/d will be covering Madinah's shortage and Tabuk 1, which is planned in be operated in 2028 with a capacity of 400,000 m^3/d, of which; 120,000 m^3/d covering Madinah's shortage as identified in Table 20.

Table 20: Western Supply Group - IWPs (Madinah)

Supply Group	Plant	COD	Capacity (m^3/d)
Western Region	Yanbu 4 (Rayis 1) [1]	2024	324,000
	Tabuk 1 [2]	2028 [3]	120,000
		Total Capacity	**444,000**

Source: MEWA

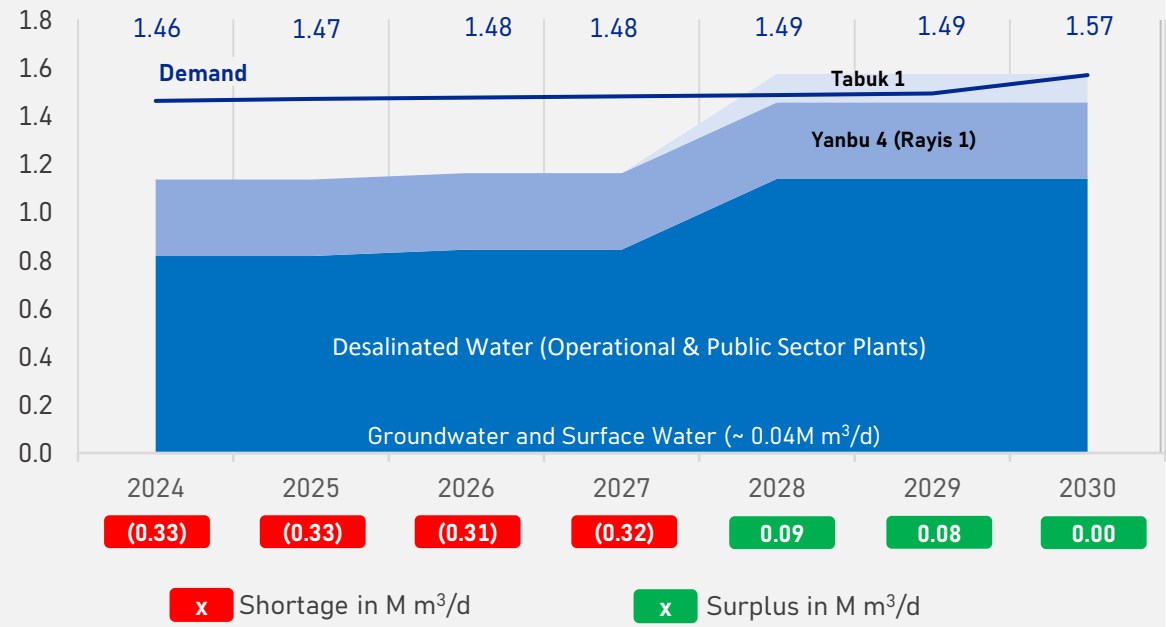
1 Rayis 1 (Yanbu 4) capacity allocated to the Medina (72%), and the rest 28% to the Makkah region.

2 Tabuk (1) capacity allocated to the Medina (30%), and the rest 70% to the Tabuk region.

3 COD subjected to change.

By the operation Yanbu 4 and Tabuk 1 plants at the end of 2024 and 2028 respectively, there will be surplus in 2028, as seen in Figure 22.

Figure 22: Madinah's Shortage and Plants (M m^3/d)



Source: MEWA

c. Tabuk Region

The population in Tabuk is expected to grow from 1.06M in 2024 to 1.15M in 2030, as shown in Table 21.

Table 21: Tabuk Population (M)

	2024	2025	2026	2027	2028	2029	2030
Tabuk	1.06	1.07	1.09	1.10	1.12	1.13	1.15
Yearly Growth (%)	1.34%	1.32%	1.32%	1.31%	1.31%	1.30%	1.34%

Source: MEWA

Urban water demand from residents is expected to reach 0.38M m^3/d in 2030, as shown in Table 22 below.

Table 22: Tabuk Water Demand (M m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Tabuk	0.40	0.40	0.39	0.39	0.39	0.38	0.38

Source: MEWA

The desalination plants in Tabuk are either currently in service or under development, including the IWP, as shown in Table 23.

Table 23: Tabuk Current, Under-Development, and Planned Sources (Until 2030)

Status	WP	COD	Date Out	Capacity (m^3/d)	Production Factor	Export Capacity (m^3/d)
Desalination Current(On-Production)	Al Wajh New	2020	2055	25,500	0.98	24,990
	Duba New	2020	2055	25,500	0.98	24,990
	Haql New	2020	2055	17,000	0.98	16,660
	Umluq 4	2020	2055	25,500	0.98	24,990
Desalination Under Planning/Studying	Bwarj Jazan (Ph.1)	2027	2048	50,000	0.98	49,000
	Tabuk (1) [1,2]	2028[3]	2053	400,000	0.98	392,000

Source: MEWA

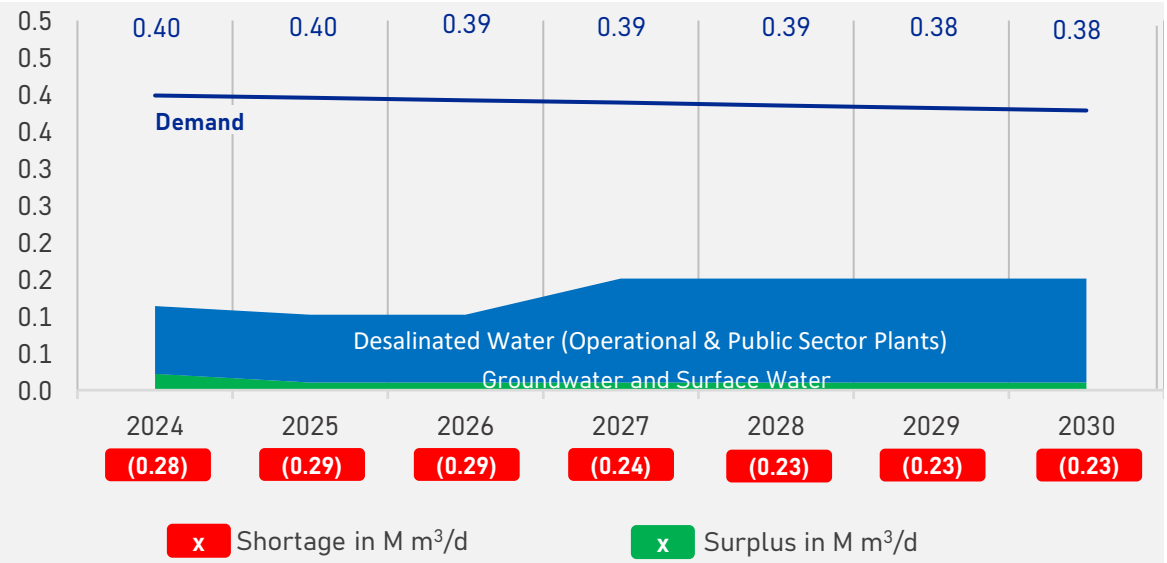
1 Managed & Tendered by SWPC

2 Tabuk (1) caters 70% of its total capacity to Tabuk and the rest 30% to Madinah.

3 COD subjected to change.

Considering the total water demand and current and under-development capacities, a shortage of 0.28M m^3/d in 2024 is expected to be continued to 0.23M m^3/d till 2030. This is illustrated in Figure 23 below.

Figure 23: Tabuk Desalination Supply, Demand and Gap (M m^3/d)



Source: MEWA

Table 24 shows plant Tabuk 1 is expected to be online in 2028 by SWPC with 400,000 m^3/d capacity of which 280,000 m^3/d capacity will be dedicated to Tabuk. This plant will be in Duba (Western of Tabuk).

Table 24: Western Supply Group - IWP (Tabuk)

Supply Group	Plant	COD	Capacity (m^3/d)
Western Supply Group(Tabuk Region)	Tabuk 1 [1]	2028 [2]	280,000

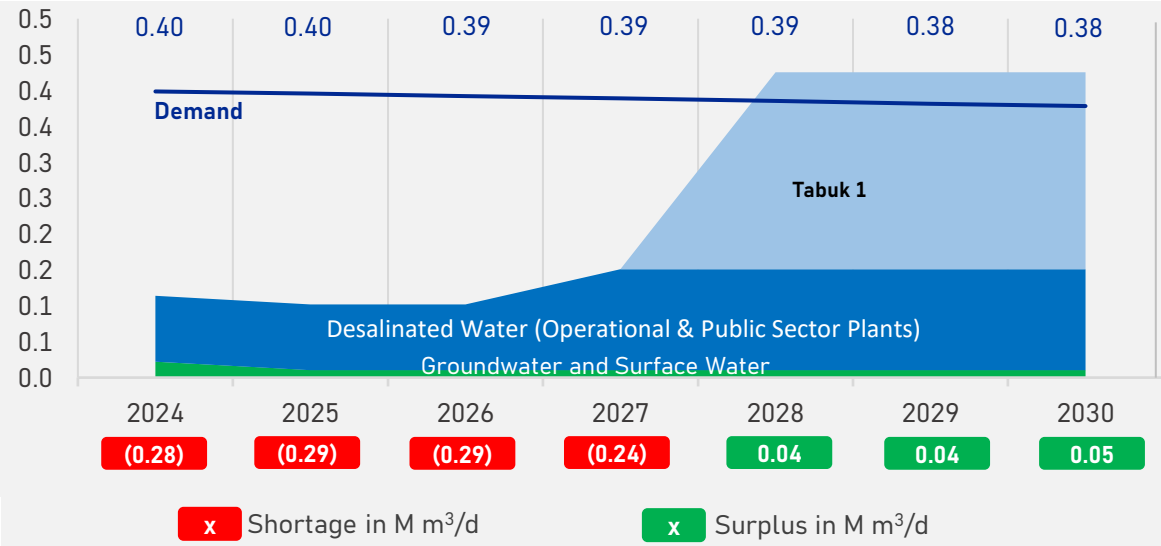
Source: MEWA

1 Tabuk (1) capacity allocated to the Tabuk (70%), and the rest 37% to the Madina region.

2 COD is subjected to change.

As seen in Figure 24, Tabuk 1 plant will enhance the water future budget, as the shortage of 0.24M m^3/d in 2027 is expected to be turn to a surplus in 2028, reaching 50,000 m^3/d in 2030.

Figure 24: Tabuk's Shortage and Plants (M m^3/d)

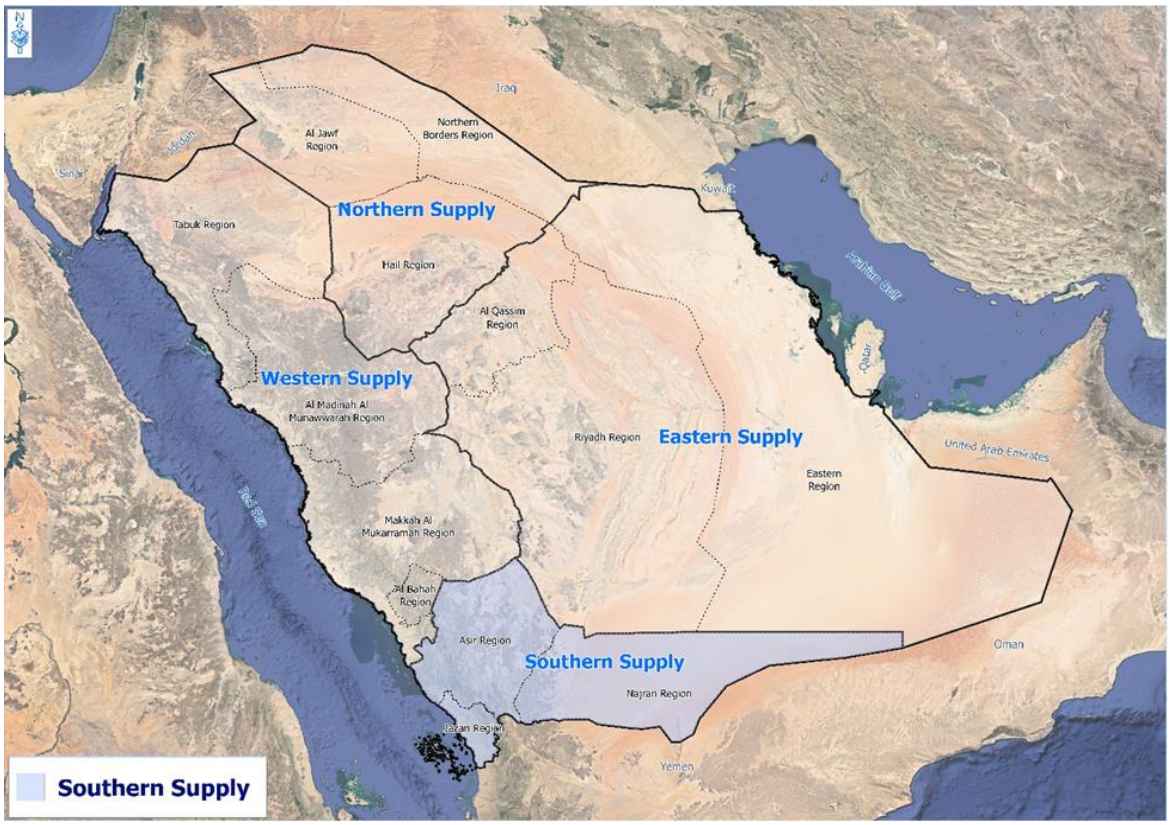


Source: MEWA

iii. Southern Supply Group

The Southern supply group is composed of three regions: Aseer, Jazan and Najran as shown in Figure 25. Jazan Region is connected to Aseer via Jazan - Shuqaiq 4 water transmission system. However, no water transmission connection is currently available between Aseer and Najran. Hence, Najran is considered on its own, though it is part of the Southern supply group.

Figure 25: Map of Southern Supply Group



Source: SWPC

Population in Aseer and Jazan is expected to grow from 4.39M in 2024 to 4.75M in 2030, as shown in Table 25.

Table 25: Aseer and Jazan Population (M)

	2024	2025	2026	2027	2028	2029	2030
Jazan	1.83	1.86	1.88	1.91	1.93	1.96	1.96
Aseer	2.54	2.54	2.61	2.65	2.65	2.72	2.75
Total	4.37	4.44	4.49	4.56	4.61	4.68	4.73
Yearly Growth (%)	1.2%	1.6%	1.1%	1.6%	1.1%	1.5%	1.1%

Source: MEWA

Urban water demand is expected to grow from 1.61M m^3/d in 2024 to 1.56M m^3/d in 2030 as shown in Table 26 below.

Table 26: Aseer and Jazan Urban Water Demand (M m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Jazan	0.68	0.67	0.66	0.66	0.65	0.65	0.65
Aseer	0.93	0.92	0.91	0.90	0.89	0.89	0.90
Total	1.61	1.59	1.57	1.56	1.54	1.54	1.55

Source: MEWA

In terms of supply, Aseer and Jazan current and under-development sources include ground water and desalination, operational by 2024, as shown in Table 27. Following MEWA's supply/demand projections and the retirement plan of existing plants, the supply mix will be significantly affected.

Table 27: Aseer and Jazan Current, Under-Development and Planned Sources (Until 2030)

Status	WP	COD	Date Out	Capacity (m^3/d)	Production Factor	Export Capacity (m^3/d)
Desalination Current (On-Production)	Shuqaiq (2) [1]	2011	2026	212,000	0.96	203,520
	Farasan New	2020	2055	8,500	0.98	8,330
	Shuqaiq 3A (Rabigh shifted to Shuqaiq)	2020	2055	42,500	0.80	34,000
	Shuqaiq 3 [1]	2021	2046	450,000	0.90	405,000
	Bwarj Jazan	2022	2027	150,000	0.90	135,000
	Shuqaiq RO1 replacement	2023	2058	400,000	0.98	392,000
Desalination Under Planning/Studying	Jazan (1) [1]	2028	2053	250,000	0.98	245,000
	Suqaiaq (4) [1]	2028	2053	400,000	0.98	392,000
	Ras Mohaisen ph. II [1,2]	2030	2055	200,000	0.98	196,000

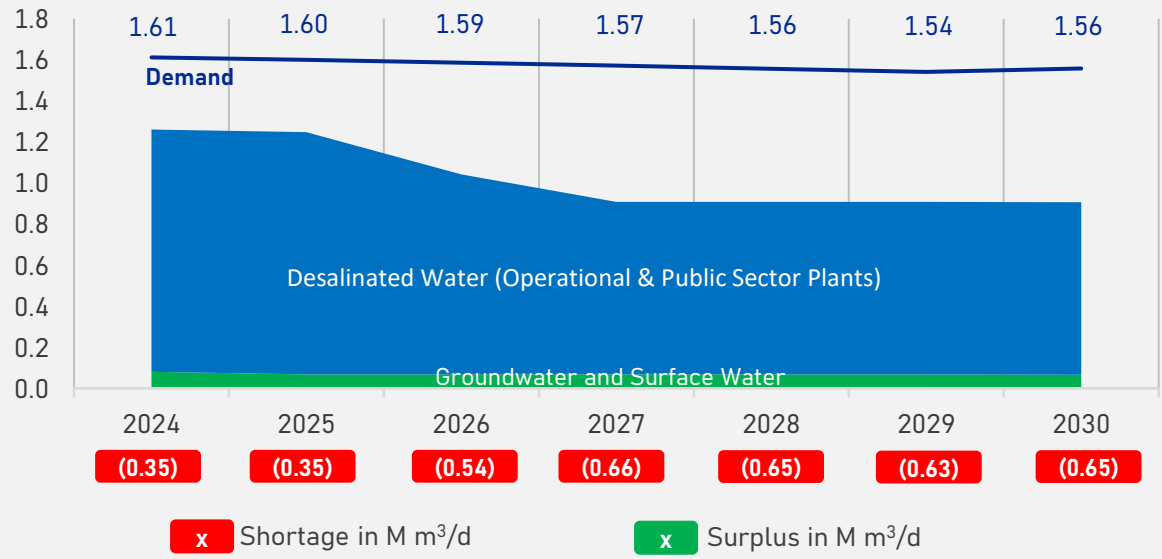
Source: MEWA

1 Managed & Tendered by SWPC.

2 Ras Mohaisen ph. II caters 58.5% of its total capacity to the Southern supply group and the rest 41.5% to the Makkah & Baha regions.

As such, there is a shortage of 0.35M m^3/d in 2024 and expected to increase to 0.65M m^3/d in 2030. This change is due to certain plants being decommissioned over the planning period and a slight reduction in the demand as shown in Figure 26 below.

Figure 26: Aseer and Jazan Desalination Supply, Demand and Gap (M m^3/d)



Source: MEWA

SWPC plans to reduce the water shortage beyond 2024 by tendering and managing three plants: Shuqaiq 4, Jazan 1 and Ras Mohaisen (phase 2) as shown in Table 28 below.

Table 28: Southern Supply Group - IWPs

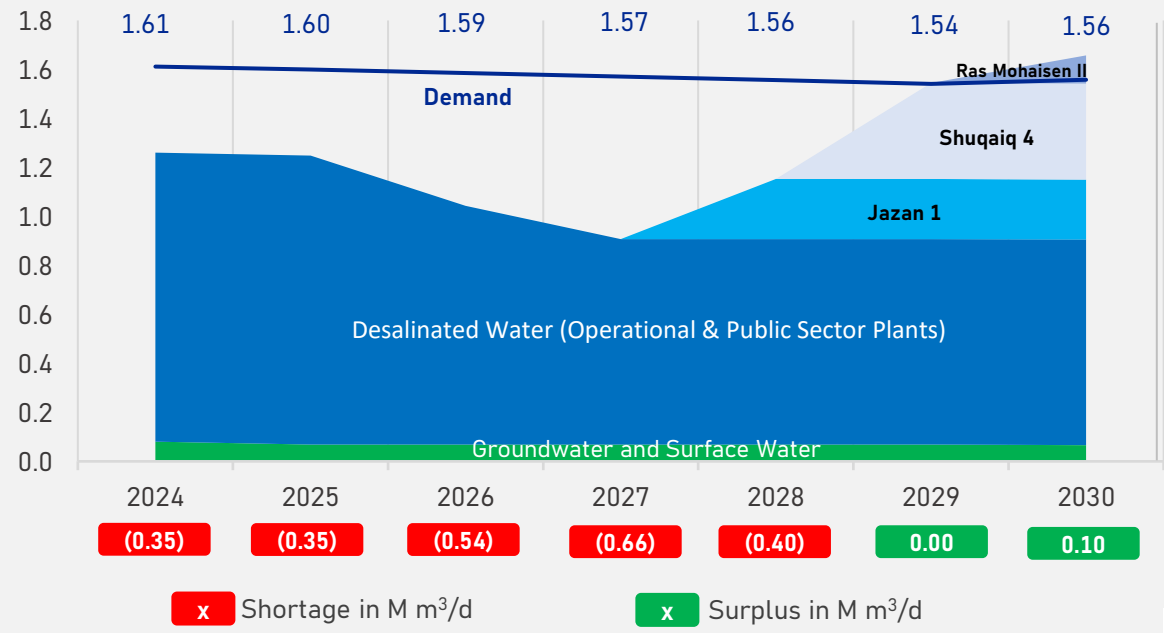
Supply Group	Plant	COD	Capacity (m^3/d)
Southern Group (Jazan Region)	Jazan 1	2028	250,00
	Shuqaiq 4	2029	400,000
Western Group (Makkah Region)	Ras Mohaisen ph. II [1]	2030	117,000
		Total Capacity	**767,000**

Source: MEWA

1 Ras Mohaisen ph. II capacity allocated to the Southern Regions (58.5%), and the rest to the Makka & Baha Regions.

These three plants will be in the Jazan region and will serve Jazan and Aseer as well and starting in 2028 by reducing the shortage gap, as shown in Figure 27.

Figure 27: Aseer and Jazan Shortage and Plants (M m^3/d)



Source: MEWA

As seen above, the new plants' capacities will neutralize the shortage starting from 2028, to a surplus production, which will reach up to 100,000 m^3/d in 2030.

VI. Sewage Treatment Capacity Plan

1. National Water Context Policies

Sewage treatment underlines KSA's commitment to accomplish some of the UN's sustainable development goals by meeting several wastewater treatment and reuse objectives.
In addition, the Saudi National Water Strategy (NWS) highlights the need for

"Reducing the environmental footprint of the water sector, particularly in terms of greenhouse gas emissions, untreated sewage and Impact on natural ecosystems".

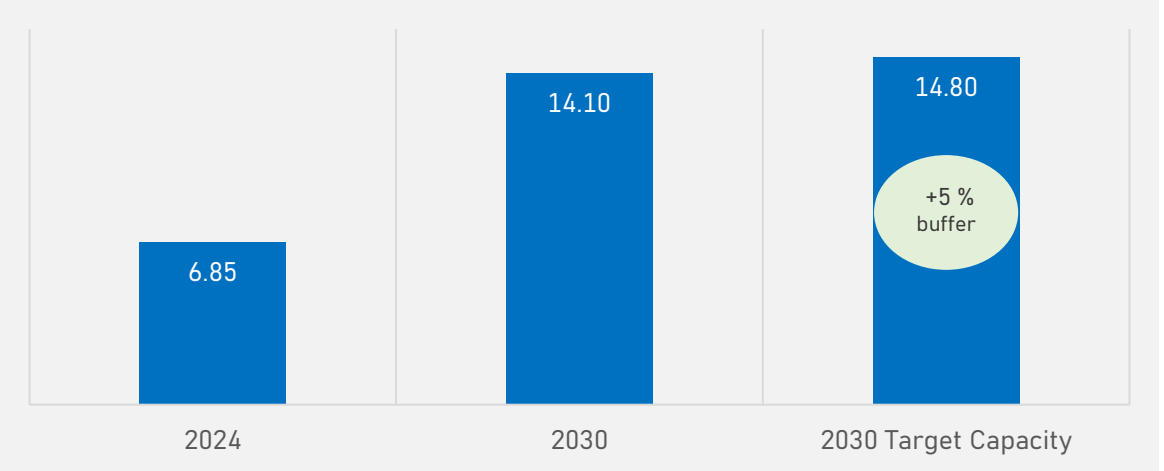
Furthermore, national strategies and programs have set targets for:

- Wastewater network coverage has grown from 56.7% in 2019 to 64% in 2024, and finally to reach 95% in 2030, on equal steps based on the average in 2024 towards 2030.
- Treated water production via strategic partners to grow to 100% in 2030.
- Treated sewage effluent reuse to grow to 70% in 2030.

KSA population is expected to grow from 38.98M in 2024 to 45.29M in 2030. The average population growth is forecasted to be around 1.3% per year. Average water consumption per capita is estimated to be 250 LCD in 2030. Total Hajj and Omrah water demand is expected to grow from 1.13M m^3/d in 2024 to 1.39M m^3/d in 2030. The wastewater generated is estimated at 212.5 liters per capita per day (85% of water consumption).

According to the current information provided by NWC, around 64% of the wastewater generated at the regional level is currently collected, with 95% coverage anticipated by MEWA in 2030. The total wastewater generated is projected to grow from 6.85M m^3/d in 2024 to 14.10M m^3/d in 2030, resulting in a required treatment capacity of 14.80M m^3/d after accounting for a 5% buffer. This capacity buffer is added to ensure proper treatment of unexpected increases in sewage inflow and to avoid any negative environmental impact related to untreated sewage, as illustrated in Figure 28.

Figure 28: Wastewater Collected for Treatment and Required Capacity (M m^3/d)



Source: MEWA, NWC

Currently, 10 ISTPs are existing, under construction and under tendering with a total capacity of 1.79M m^3/d and expected to be expanded in future to treat 2.84M m^3/d, as identified in Table 29 and Figure 29.

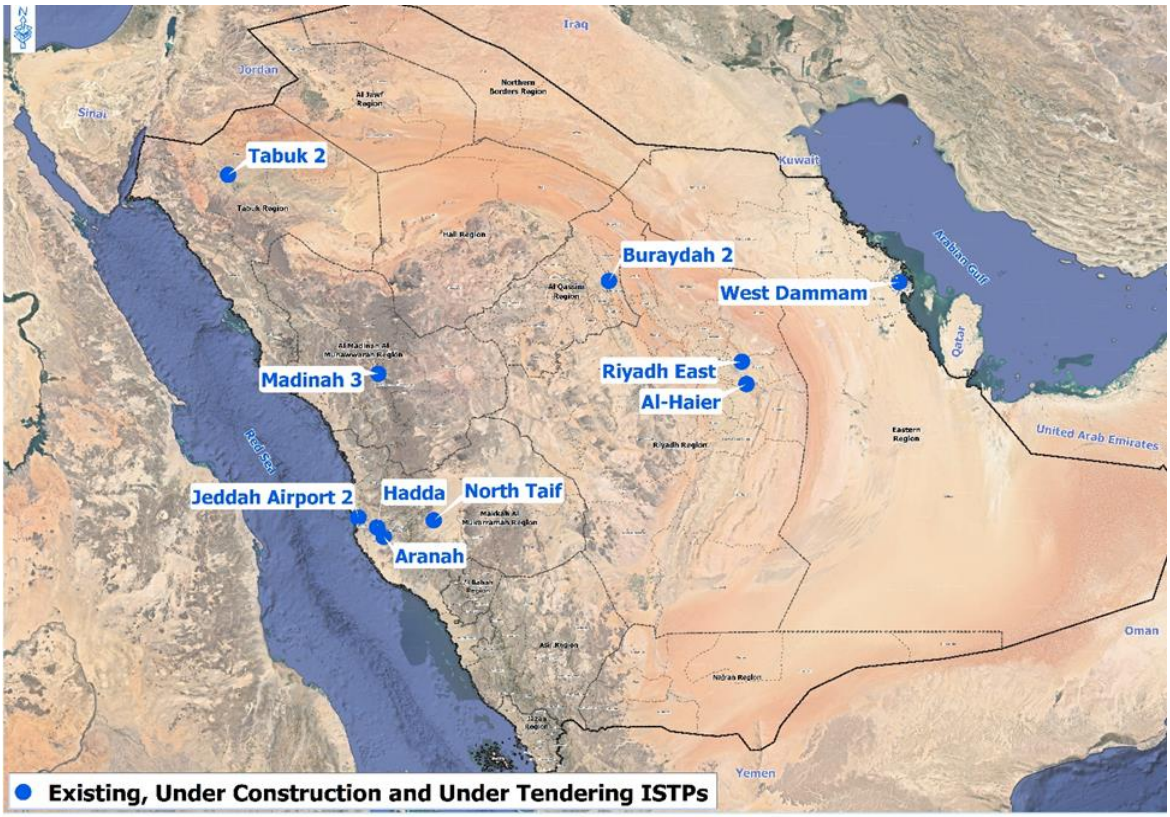
Table 29: List of Existing, Under Construction and Under Tendering ISTPs

No	Region	City	Plant Name	Initial COD	Initial Capacity (m^3/d)	Capacity after Expansion [1] (m^3/d)
01	Makkah	Taif	North Taif	2022	100,000	270,000
02	Makkah	Jeddah	Jeddah Airport	2023	300,000	500,000
03	Eastern Province	Dammam	West Dammam	2023	200,000	350,000
04	Madinah	Madinah	Madinah 3	2024	200,000	375,000
05	Qassim	Buraydah	Buraydah 2	2024	150,000	-
06	Tabuk	Tabuk	Tabuk 2	2024	90,000	-
07	Riyadh	Riyadh	Al Haier	2026	200,000	-
08	Makkah	Makkah	Aranah	2027	250,000	-
09	Makkah	Makkah	Hadda	2027	100,000	150,000
10	Riyadh	Riyadh	Riyadh East	2027	200,000	500,000
				Total Capacity	**1,790,000**	**2,835,000**

Source: MEWA, NWC

1 Expansion capacities expected be added after 2030.

Figure 29: Existing, Under Construction and Under Tendering ISTPs



Source: SWPC

Before 2030, six more ISTPs are planned to enhance sewage treatment with a total capacity of 0.37M m^3/d. These will serve large cities with populations amenable to private sector participation, as shown in Table 30 and Figure 30. The total commencing capacities (current and future) will reach 2.16M m^3/d by 2030.

Table 30: List of Future ISTPs

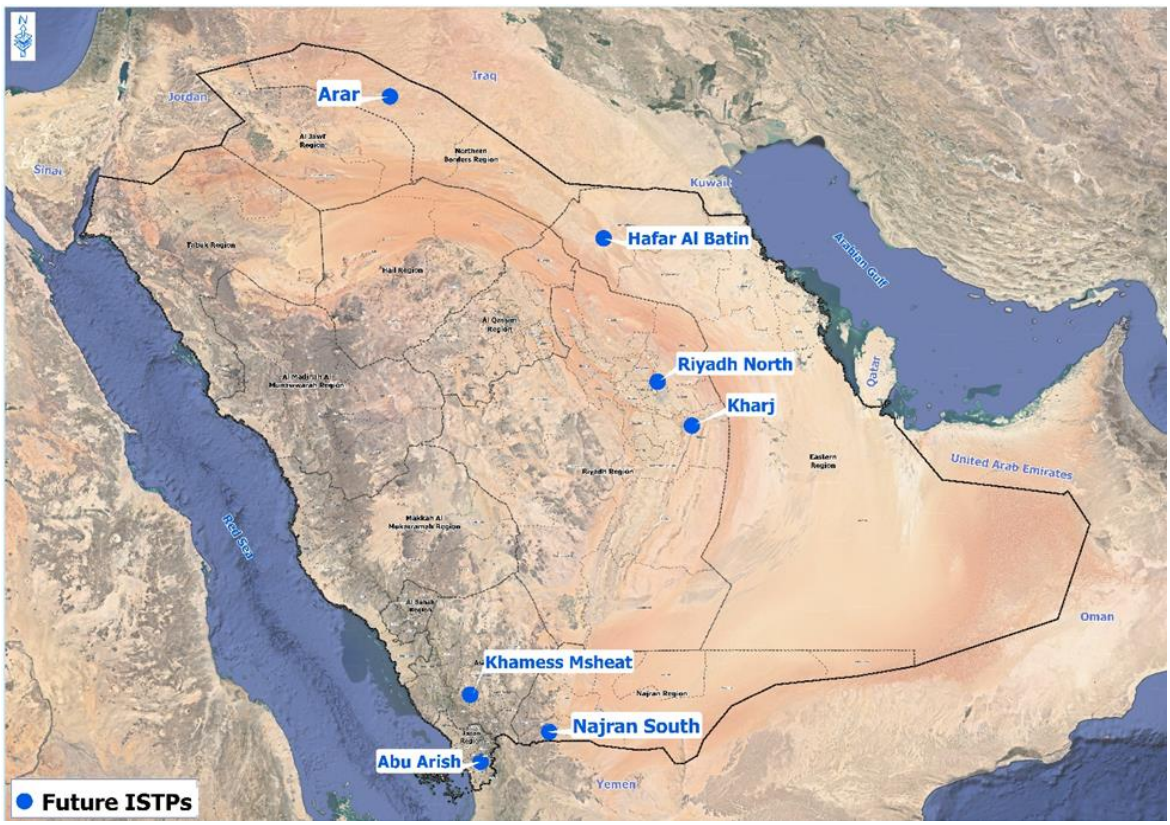
No	Region	City	Plant Name	Commencing Capacity (m^3/d)	COD [1]
01	Riyadh	Kharj	Kharj	50,000	2027
02	Jazan	Jazan	Abu Arish	50,000	2027
03	Eastern Province	Hafar Al Batin	Hafar Al Batin	50,000	2027
04	Riyadh	Riyadh	Riyadh North	120,000	2029
05	Najran	Najran	Najran South	50,000	2029
06	Asser	Khamess Masheet	Khamess Masheet [2]	50,000	2029
07	Northern Boarder	Arar	Arar	TBD	
			Total Capacity	**370,000**	

Sources: MEWA, NWC

1 CODs are expected and can be modified.

2 Under further studies., as it will be incorporated in the next 7-year release.

Figure 30: Future ISTPs



Source: SWPC

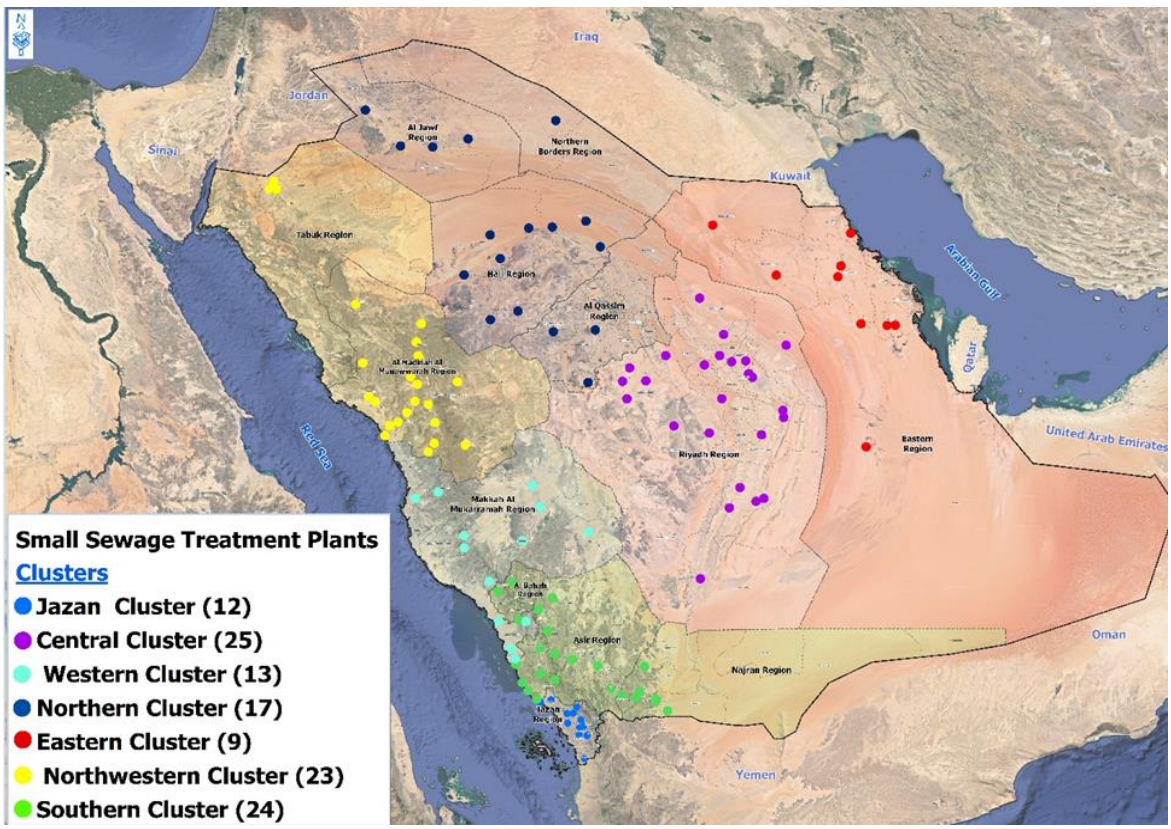
In addition, 123 SSTPs (less than 25,000 m^3/d) with a total capacity of 492,650 m^3/d are planned to be constructed within the next ten years as shown in Figure 31, the capacity of each cluster listed in Table 31.

Table 31: Total Capacities of Future SSTPs (less than 25.000 m^3/d)

Clusters for procurement	Jazan Cluster	Western Cluster	Eastern Cluster	Northern Cluster	Northwestern Cluster	Central Cluster	Southern Cluster
Total Commencing Capacity (m^3/d)	74,700	89,000	18,000	67,000	50,000	130,000	63,950

Source: MEWA, NWC

Figure 31: Future SSTPs



Source: SWPC

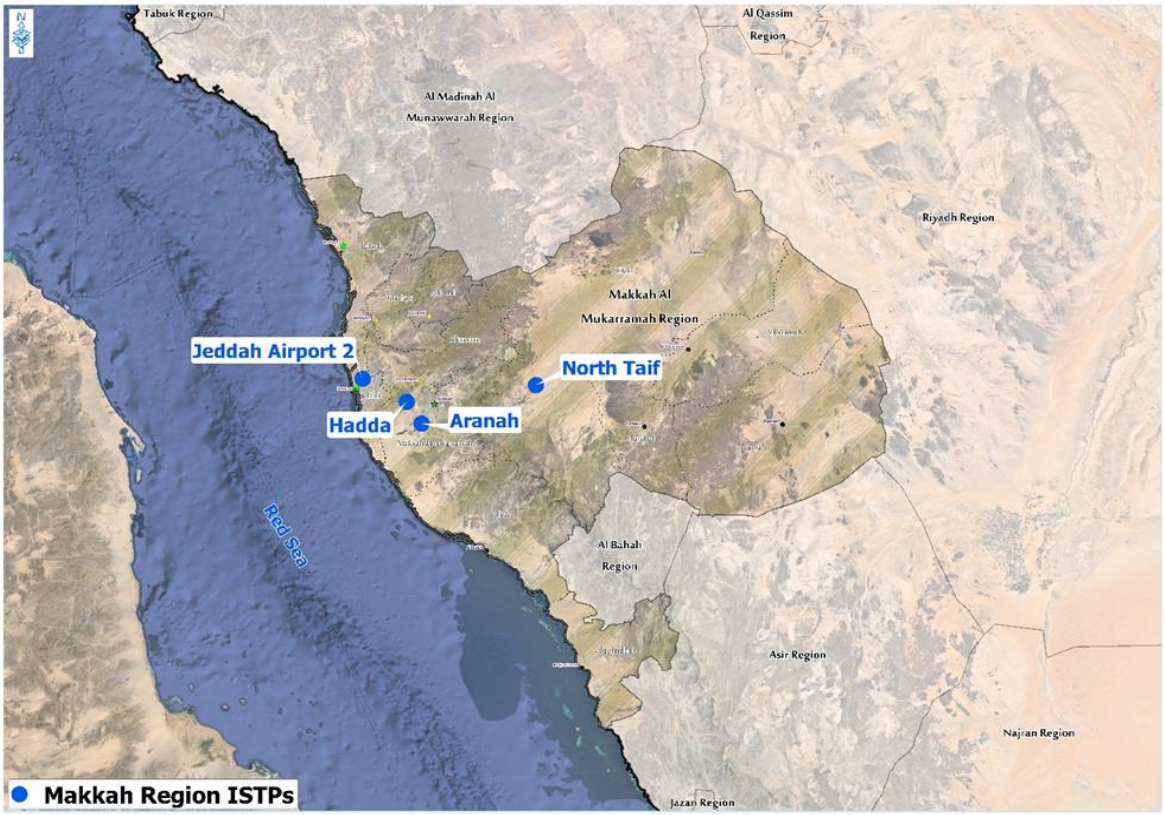
2. Regional Outlook for Medium to Large ISTPs

i. Makkah Region

Currently, Ten ISTPs are serving the region of Makkah, including Makkah, Jeddah, Rabigh Al Qunfudhah, Al Leith, Thuwal and other cities, with total capacity of 2,02M m^3/d, four ISTPs among them, with total initial capacities of 750,000 m^3/d will be added by SWPC, as shown in Figure 32.

Makkah city, the largest city in the region, can be divided into two areas at the center. The north part drains to Hadda ISTP, and the south goes to Aranah ISTP. Each catchment area is provided with a conventional collection system where wastewater is collected through gravity networks and conveyed by trunk mains to the existing ISTPs at Hadda and Aranah for treatment. Therefore, the whole region of Makkah is considered for the wastewater treatment capacity, as shown in Table 32.

Figure 32: Makkah Region – SWPC ISTPs



Source: SWPC

Table 32: Makkah Region Existing and Future ISTPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	1,874	2,054	2,735	2,933	3,131	3,154	3,341
Available Capacities	1,463	1,470	1,470	1,470	1,470	1,470	1,470
Additional Capacities (by SWPC)	400	400	400	750	839	839	839
(Shortage)/Surplus	(11)	(184)	(865)	(713)	(822)	(845)	(1032)

Source: MEWA

The wastewater collected for treatment is expected to grow from 1.87M m³/d in 2024 to 3.34M m³/d in 2030. SWPC plans to add two ISTPs in Hadda and Aranah, with capacities of 100,000 m³/d and 250,000 m³/d respectively, in 2027.

These will be developed by the private sector. Additionally, small STPs with a capacity of 89,000 m³/d will be added in 2028. SWPC will enhance the current capacity with the Jeddah Airport ISTP by 300,000 m³/d, with a future expansion of 200,000 m³/d, and North Taif by 100,000 m³/d, with a future expansion of 170,000 m³/d, in addition to western cluster SSTPs which will add 89,000 m³/d in 2028.

However, a shortage of 1.03M m³/d is expected by 2030, against a target coverage of 95% for the whole region.

ii. Madinah Region

Madinah Region is in the northwest of the Kingdom as illustrated in Figure 33. The whole region of Madinah is considered for the wastewater treatment through 8 STPs, as shown in Table 33 below.

Figure 33: Madinah Region – SWPC ISTP

Source: SWPC

Table 33: Madinah Region Existing and Future STPs Capacity Plan ('000 m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	560	683	765	832	1,106	1,188	1,270
Available Capacities	520	534	534	534	534	534	534
Additional Capacities (by SWPC)	200	200	200	200	200	246	246
(Shortage)/Surplus	160	51	(31)	(98)	(372)	(408)	(491)

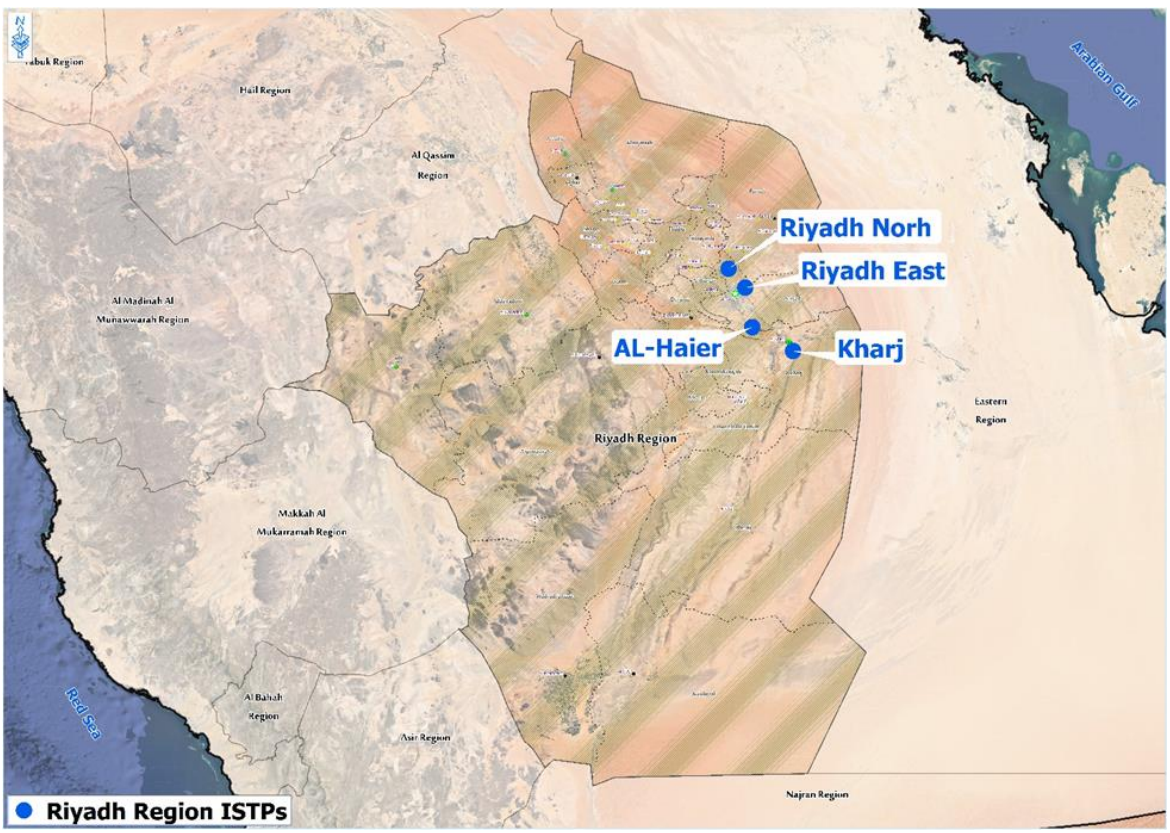
Source: MEWA

The wastewater collected for treatment is expected to reach 1,27M m^3/d in 2030, with 95% network coverage, as driven by the increasement in population growth. Madinah region is currently served by 7 plants with a design capacity of 520,000 m^3/d. Madinah 3 ISTP (shows at above figure) is planned to come online with a capacity of 200,000 m^3/d (phase1) at the end of 2024, along with 45,500 m^3/d in 2029 from SSTPs. A shortage of 0.49M m^3/d is expected by 2030.

iii. Riyadh Region

The Riyadh region is currently served by more than 12 STPs covering the 22 governates, Four ISTPs will be added by SWPC in Riyadh metropolitan city: Riyadh, East Riyadh North, Al Haier and Kharj as illustrated in Figure 34 below. Therefore, the whole region of Riyadh is considered for the wastewater treatment capacity, as shown in Table 34.

Figure 34: Riyadh Region – SWPC ISTPs



Source: SWPC

Table 34: Riyadh Region Existing and Future STPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	2,062	2,280	2,371	3,442	3,569	4,079	4,817
Available Capacities	1,897	1,897	1,897	1,897	1,897	1,897	2,278
Additional Capacities (by SWPC)	0	0	200	450	450	570	700
(Shortage)/Surplus	(166)	(383)	(275)	(1095)	(1223)	(1612)	(1839)

Source: MEWA

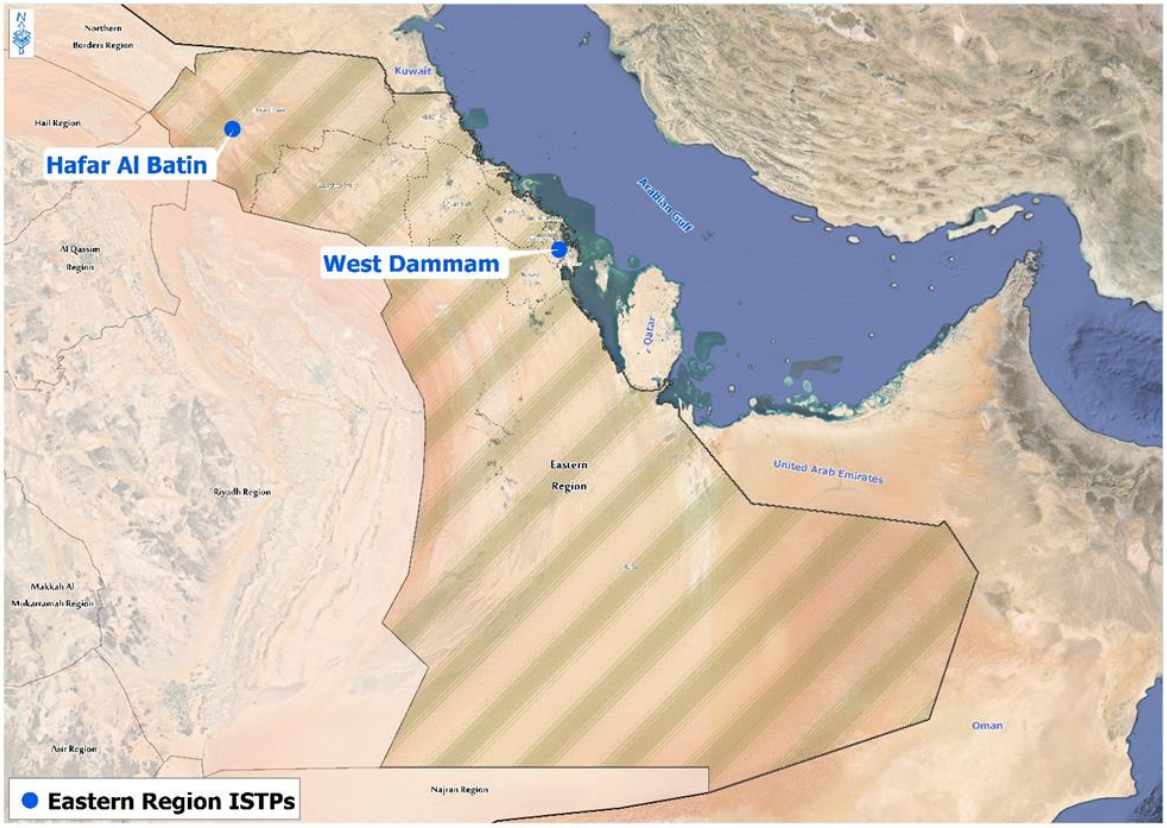
The wastewater collected for treatment is expected to reach 4.82M m³/d by 2030, driven by the rapidly increasing population in Riyadh city, as assumed by MEWA and RCRC. The additional treatment plants by SWPC in; Al Haier with a capacity of 200,000 m³/d is expected to be online in 2026, East Riyadh and Al Kharj with a capacity of 200,000 m³/d and 50,000 m³/d, respectively, both to join in 2027 and lastly, North Riyadh with capacity of 120,000 m³/d to be added in 2029. SSTPs for the central cluster are expected to be in operation in 2030 with a total capacity of 130,000 m³/d .

However, due to the expected rapid development of Riyadh metropolitan areas accompanying the high population growth, the shortage is expected to reach 1.84M m³/d by 2030 with a 95% network coverage on district level.

iv. Eastern Region

The Eastern region currently has 16 STPs with total capacity of 1.68M m³/d, with a future expansion will enhance the total capacity up to 1.81M m³/d till 2030. Dammam city is the largest city in the region with one catchment area. Therefore, the whole eastern region is considered for the wastewater treatment capacity, as shown in Table 35. Figure 35 shows the eastern region and the two ISTPs which are managed by SWPC.

Figure 35: Eastern Region – SWPC ISTPs



Source: SWPC

Table 35: Eastern Region Existing and Future STPs Capacity Plan ('000 m^3/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	1,198	1,242	1,285	1,491	1,540	1,589	1,606
Available Capacities	1,476	1,476	1,476	1,476	1,476	1,476	1,538
Additional Capacities (by SWPC)	200	200	200	250	268	268	268
(Shortage)/Surplus	478	434	391	235	204	155	200

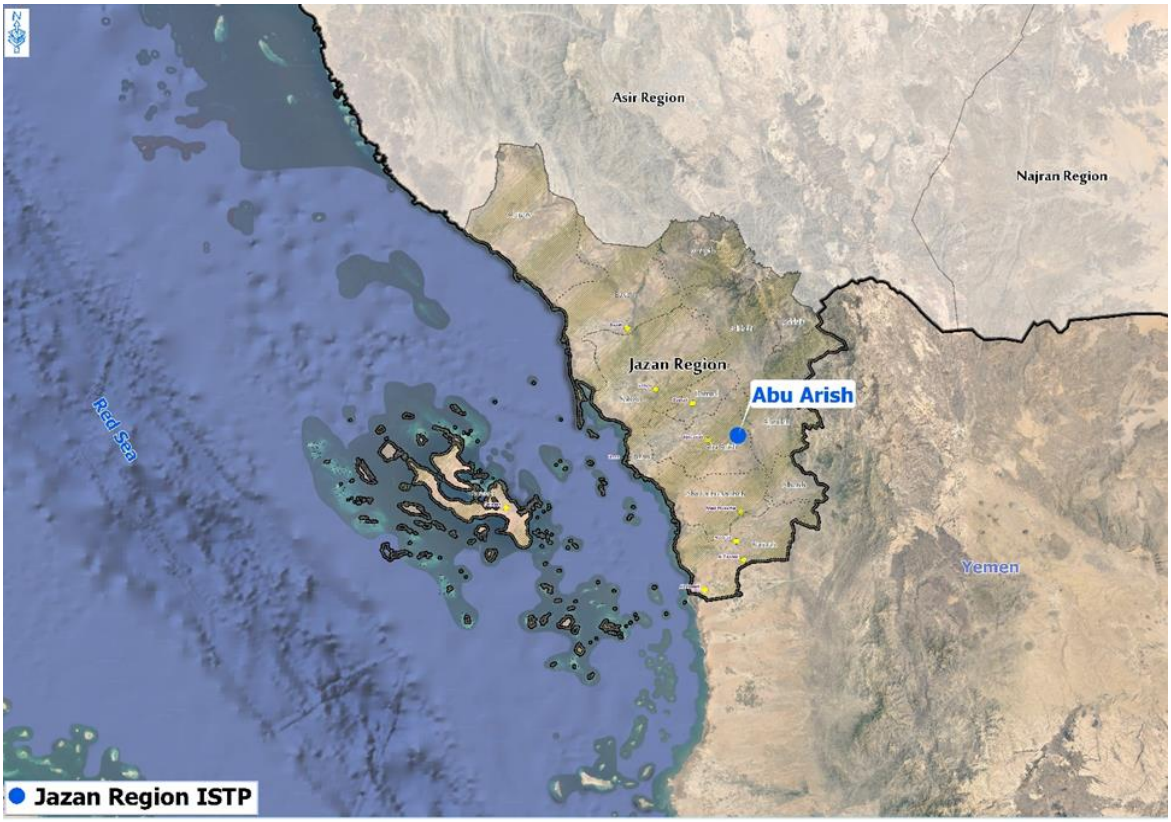
Source: MEWA

The wastewater collected for treatment is expected to reach 1.61M m^3/d in 2030, driven by the increase in population and network coverage of 95%. Hafar Al Batin ISTP is planned to come online with a capacity of 50,000 m^3/d in 2027, and SSTPs for the Easter cluster is expected to be online in 2028 with total capacity of 18,000 m^3/d, a surplus of about 200,000 m^3/d is expected by 2030.

v. Jazan Region

Jazan is in the southern part of the Kingdom of Saudi Arabia. The whole region of Jazan is taken into account for the wastewater treatment capacity from more than 15 STPs and SSTPs, as identified in Table 36. Abu Arish ISTP which is managed by SWPC can be seen in Figure 36 below.

Figure 36: Jazan Region – SWPC ISTP



Source: SWPC

Table 36: Jazan Region Existing and Future STPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	52	107	134	311	405	486	568
Available Capacities	172	194	194	194	194	194	194
Additional Capacities (by SWPC)	0	0	0	50	125	125	125
(Shortage)/Surplus	120	88	60	66	(86)	(167)	(249)

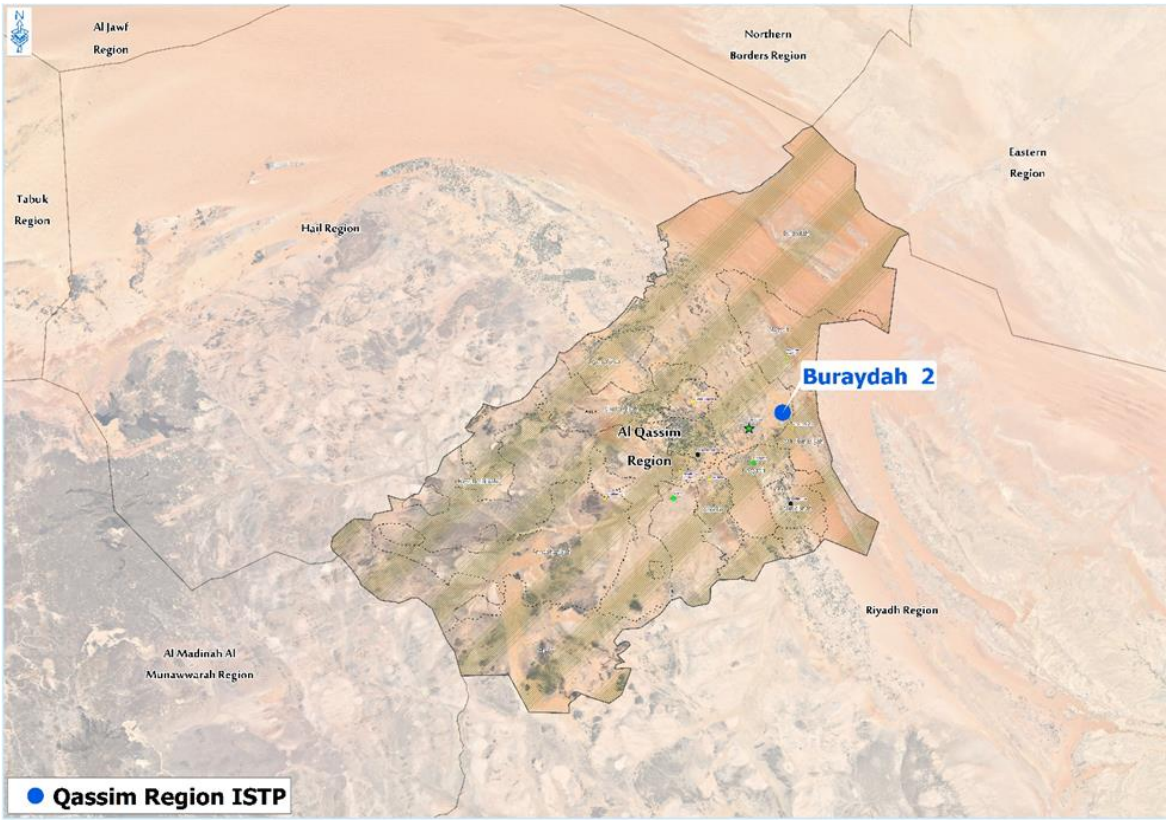
Source: MEWA

The wastewater collected for treatment is expected to reach 568,000 m³/d by 2030, with 95% network coverage. This increase is driven by population growth and network projects in the region. The Abu Arish ISTP is planned to come online in 2027 with a capacity of 50,000 m³/d, along with the Jazan small sewage plants, which will have a total capacity of 74,700 m³/d. However, a shortage of 249,000 m³/d is expected by 2030.

vi. Qassim Region

Qassim Al-Qassim is located in the northern cluster of Saudi Arabia, with Buraydah as the capital of the region. Currently, Al-Qassim is served by eight existing STPs with a total capacity of 287,250 m³/d. Buraydah City is composed of two catchment areas: Buraydah and West Buraydah. Therefore, the entire region of Al-Qassim is considered for wastewater treatment capacity, as shown in Table 37. Figure 37 shows Qassim region and Buraydah ISTP which is managed by SWPC.

Figure 37: Qassim Region - SWPC ISTP



Source: SWPC

Table 37: Qassim Region Existing and Future STPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	344	368	391	415	439	463	487
Available Capacities	287	290	290	290	290	290	290
Additional Capacities (by SWPC)	150	150	150	150	150	159	159
(Shortage)/Surplus	94	72	48	24	0	(15)	(38)

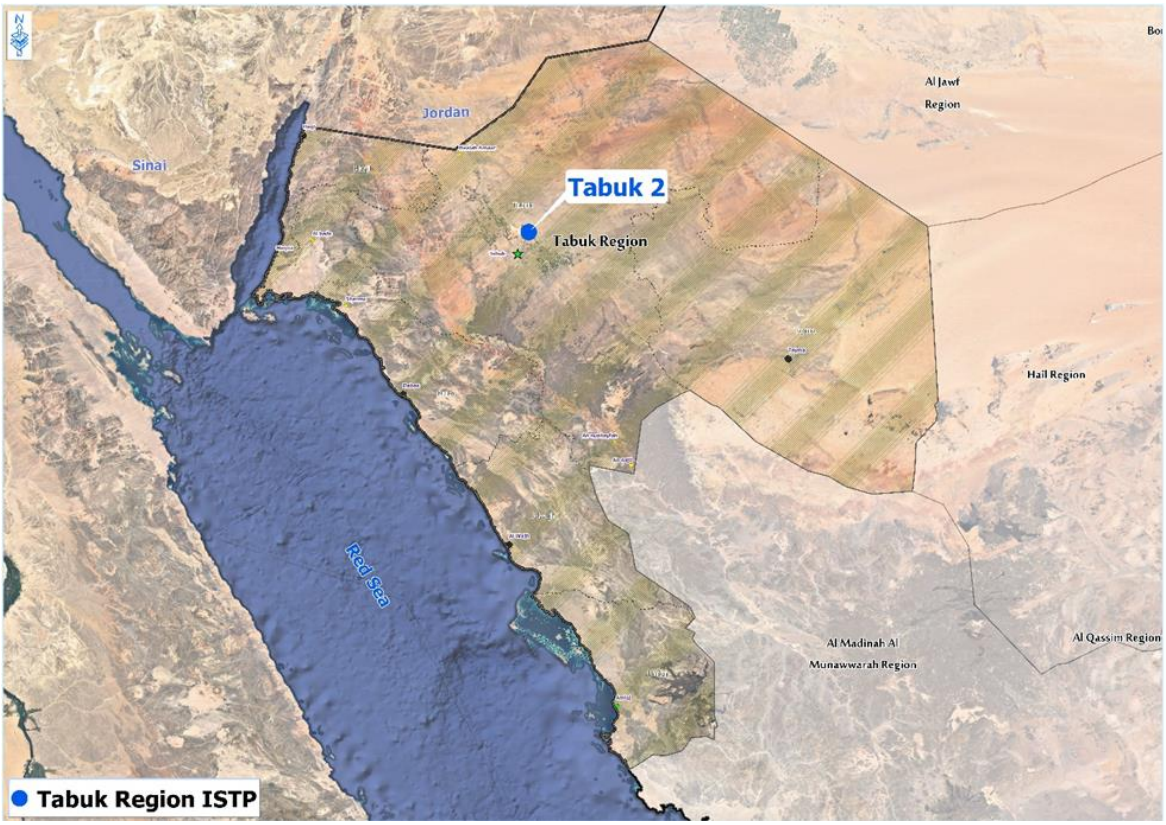
Source: MEWA

The wastewater collected for treatment is expected to reach 487,000 m³/d by 2030, driven by population growth and increased network coverage in the region. In terms of supply, Buraydah 2 ISTP is planned to come online with a capacity of 150,000 m³/d by the end of 2024, in addition to a 9,000 m³/d from the SSTPs in 2029. However, a shortage of 38,000 m³/d is expected by 2030.

vii. Tabuk Region

Tabuk, located in the northwest of the Kingdom, is currently served by eight STPs with a total capacity of 260,000 m³/d. Tabuk City, the largest city in the region, is formed of one catchment area. Therefore, the entire region of Tabuk is considered for wastewater treatment capacity, as shown in Table 38. Figure 38 shows Tabuk region and SWPC's managed ISTP near Tabuk city.

Figure 38: Tabuk Region - SWPC ISTP



Source: SWPC

Table 38: Tabuk Region Existing and Future STPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	65	229	244	293	310	327	343
Available Capacities	258	258	258	258	258	258	258
Additional Capacities (by SWPC)	90	90	90	90	90	95	95
(Shortage)/Surplus	283	119	104	55	38	26	9

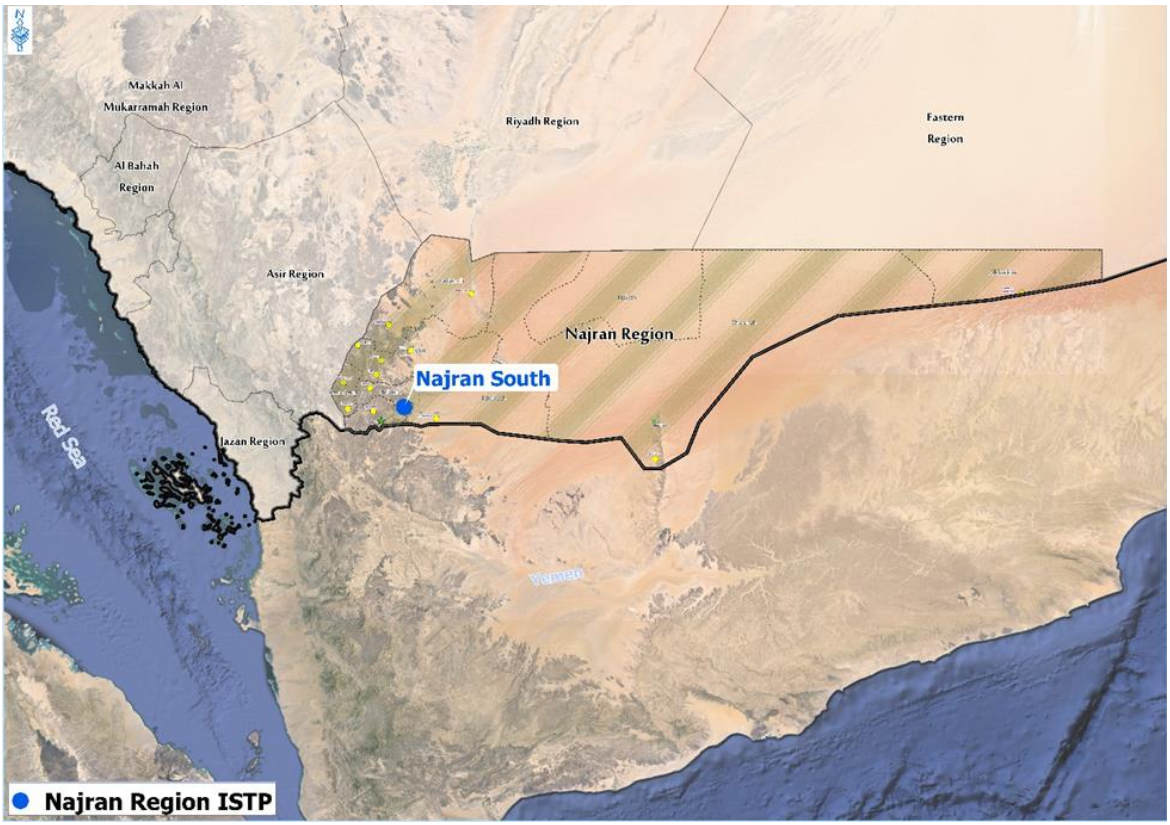
Source: MEWA

The increase in population and network coverage in Tabuk will lead to a rise in wastewater collected for treatment, reaching approximately 343,000 m³/d by 2030. To meet the rapid growth of the region, SWPC will introduce Tabuk 2 at the end of 2024 with a capacity of 90,000 m³/d, and an additional 4,500 m³/d from SSTPs in the Northwestern cluster by 2029.

viii. Najran Region

Najran, located in the southern part of Saudi Arabia, is currently served by three STPs with a total capacity of about 80,000 m³/d. Najran City is the capital of the region. Therefore, the entire region of Najran is considered for wastewater treatment capacity, as illustrated in Table 39. Figure 39 shows SWPC's managed ISTP located western of Najran region.

Figure 39: Najran Region - SWPC ISTP



Source: SWPC

Table 39: Najran Region Existing and Future STPs Capacity Plan ('000 m³/d)

	2024	2025	2026	2027	2028	2029	2030
Wastewater Collected for Treatment	64	87	108	128	148	168	182
Available Capacities	80	80	80	80	80	80	80
Additional Capacities (by SWPC)	0	0	0	0	0	50	50
(Shortage)/Surplus	16	(7)	(28)	(48)	(68)	(38)	(52)

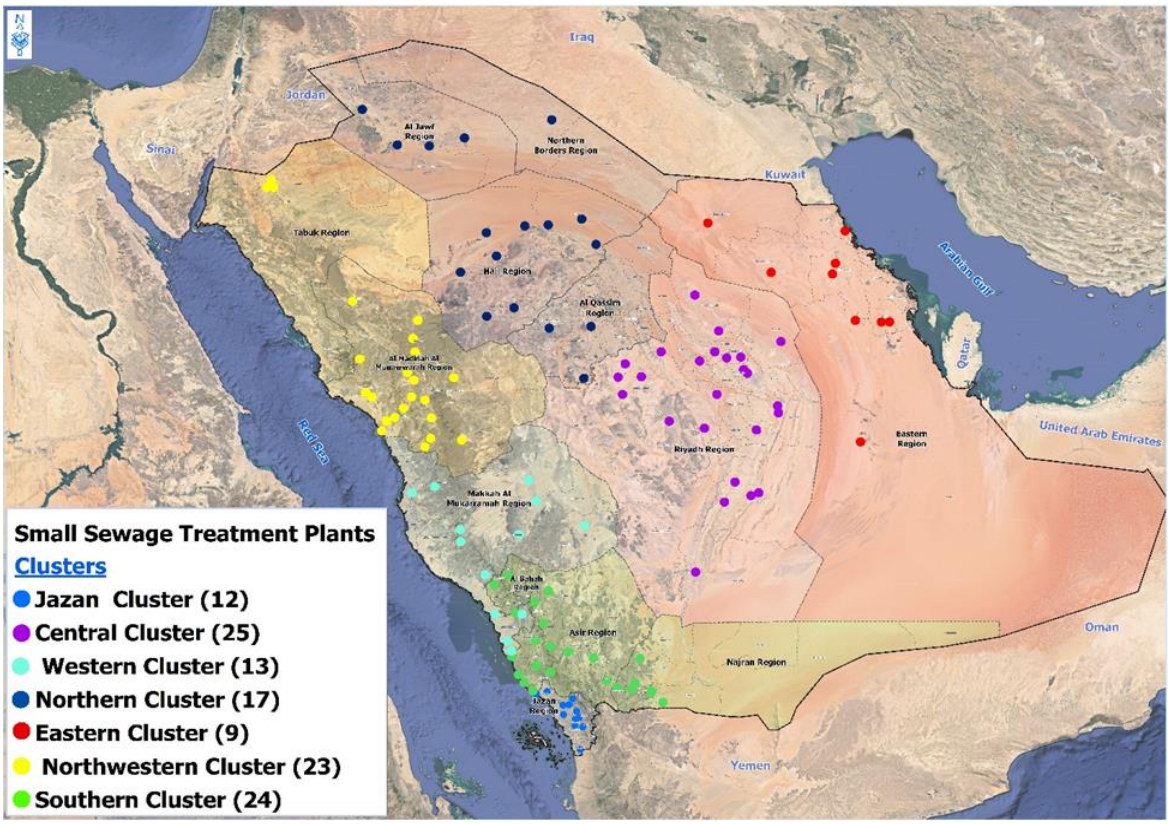
Source: MEWA

The wastewater collected for treatment is expected to reach 182,000 m³/d by 2030, driven by population growth and increased network coverage. The South Najran ISTP is planned to come online in 2029 with a capacity of 50,000 m³/d. However, a shortage of 52,000 m³/d is expected by 2030.

3. Regional Outlook for Small STPs

SWPC plans to start a kingdom-wide program to increase treatment coverage through partnerships with the private sector. This program has adopted a wider approach from the pre-feasibility study, which proposed 123 Small Scale Sewage Treatment Plants distributed across seven clusters in 13 different regions, as illustrated in Figure 40. Additionally, it includes a sewage collection system. This program aims to procure 492,650 m³/d (658,250 m³/d after expansions) of treated wastewater generated from the proposed SSTPs throughout the Kingdom. Table 40 provides a summary of the Small Sewage Treatment Plants program.

Figure 40: Small Sewage Treatment Plants



Source: SWPC

Same criteria to identify each STP capacity in all regions were followed, including:

- Sewage flow between 1,000 till 25,000 m³/d at year 2030,
- Consideration of each STP topography and population density,
- Prioritizing the environmentally affected area,
- Availability of networks and coverage percentage, and
- Possibility of combining adjacent centers.

Table 40: Summary of the Small Sewage Treatment Plants (SSTPs Clusters)

Clusters for procurement	Jazan Cluster	Western Cluster	Eastern Cluster	Northern Cluster	Northwestern Cluster	Central Cluster	Southern Cluster
Regions Covered	Jazan	Makkah	Eastern Province	Qassim, Hail, Al Jowf & Northern Borders	Madinah & Tabuk	Riyadh	Al Baha, Aseer & Najran
Cluster Capacity (1'st Phase) (m^3/d)	74,700	89,000	18,000	67,000	50,000	130,000	63,950
Cluster Capacity (2'st Phase) (m^3/d)	74,700	173,000	28,100	87,500	71,500	159,500	63,950
Cluster Collection Networks Lengths (KM)	1,349	1,600	610	1,973	1,945	3,611	1,645
Number of Plants	12	13	9	17	23	25	24
COD [1]	2028	2028	2028	2029	2029	2030	2031

Sources: MEWA & NWC

1 CODs of the 1'st phase which subjected to changes (The 2'nd phase CODs have not scheduled yet).

VII. Strategic Reservoirs Capacity Plan

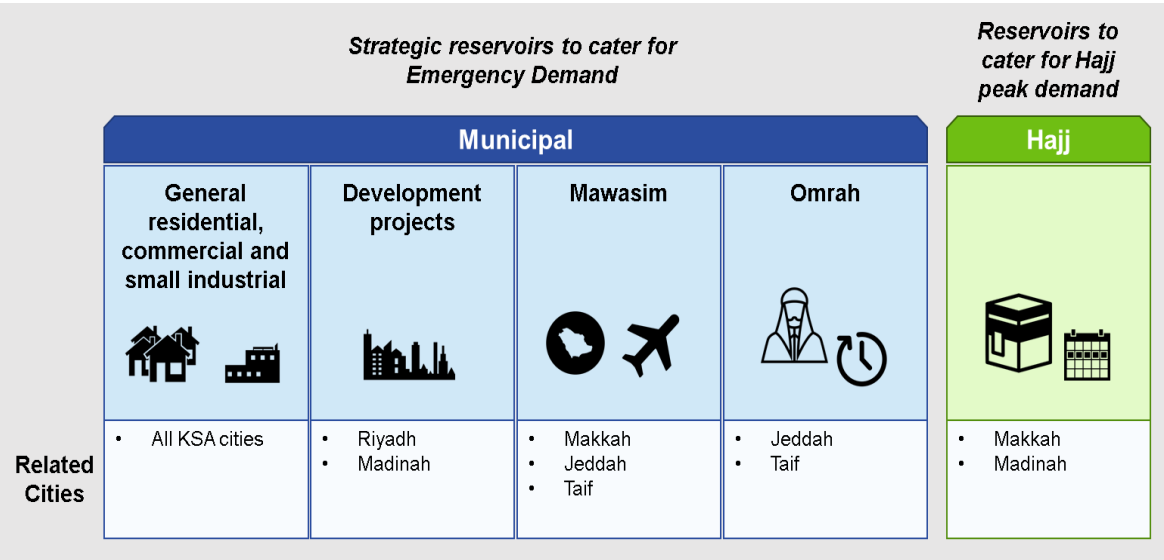
1. National Water Context Policies

Strategic water storage underlines one of KSA's commitments to fulfill some of the UN's Sustainable Development Goals. It is also in line with KSA's water policies, particularly the National Water Strategy, which recognizes strategic storage as a means for strengthening sector resilience.

Strategic reservoirs will also be used for two main purposes as detailed below and described further in Figure 41:

- Emergency water demand for all the regions of the Kingdom
- Peak demand in Makkah and Madinah during the Hajj season

Figure 41: Strategic Reservoirs Uses

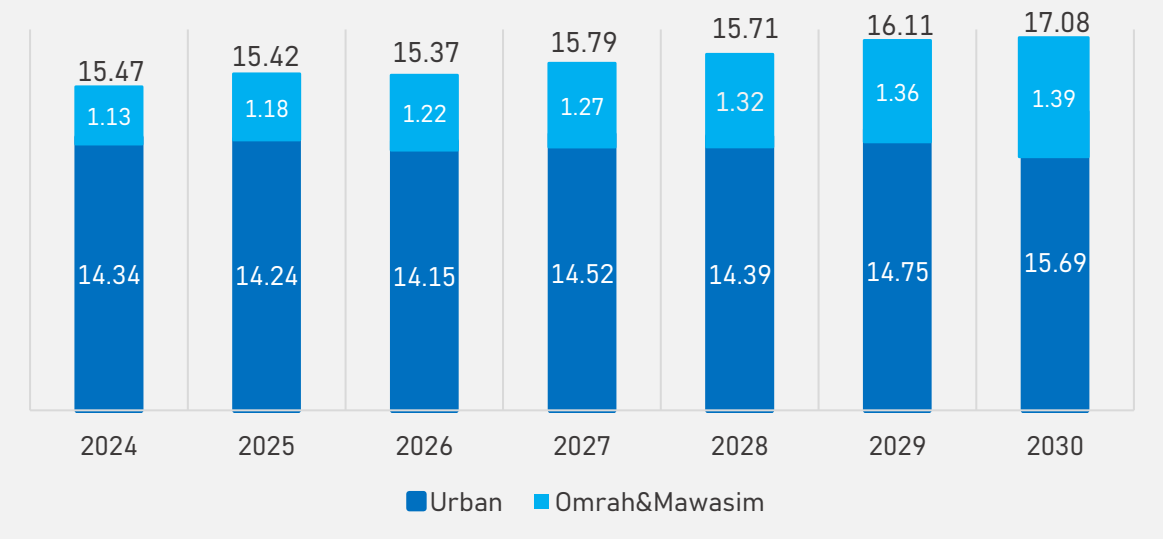


Source: MEWA

Based on the above goals and policies, KSA sets targets for emergency water strategic reservoirs via strategies and programs such as Vision 2030, National Transformation Program (NTP) and National Water Strategy (NTP). These targets translate into a number of storage days required to meet emergency demand, which will grow from 1.2 day in 2024 to 7 days in 2030, according to NWC's data.

Strategic storage demand is mainly driven by factors such as population growth, average GDP growth, water losses which will be gradually reduced by 2030, and price elasticity. The urban water demand is about 15.47M m^3/d in 2024 including Omrah & Mawasim demands and is expected to reach 17.08M m^3/d as illustrated in Figure 42.

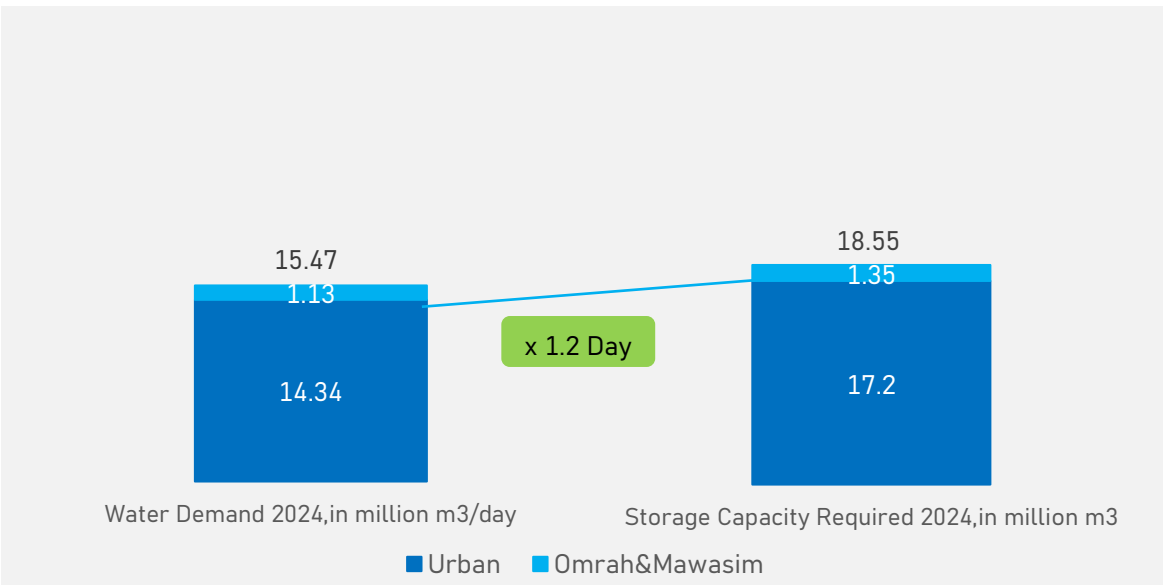
Figure 42: Urban Water Demand (M m^3/d)



Source: MEWA

As an example, the current demand of the urban emergency demand, using equivalent of 1.2 day, is measured 15.47M m^3/d and accordingly the strategic capacity required in 2024 is about 18.55M m^3 as shown by Figure 43, the current available reservoir capacity is more than the recent emergency demand by 35 %.

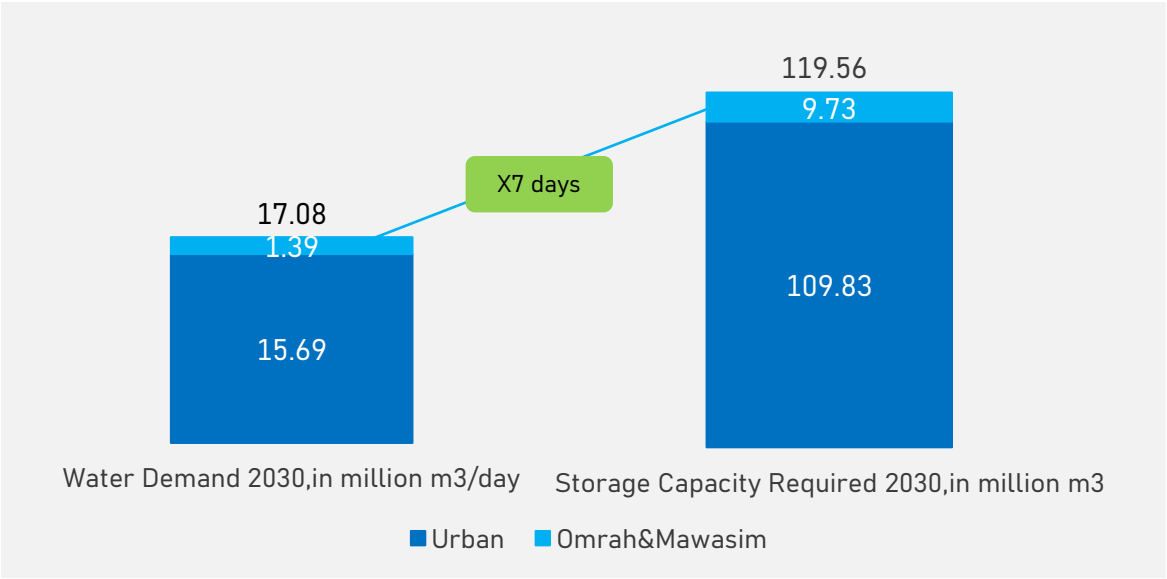
Figure 43: Current Demand and Strategic Storage Capacity In 2024 For Urban Emergency Demand



Source: MEWA, NWC

As shown in Figure 44, an equivalent of 7 days of water demand has been used to estimate the required capacity. A strategic storage capacity of about 119.56M m^3 is targeted by 2030 and beyond, to satisfy the urban water demand of 15.69M m^3/d and 1.39M m^3/d for Omrah & Mawasim at the Kingdom level.

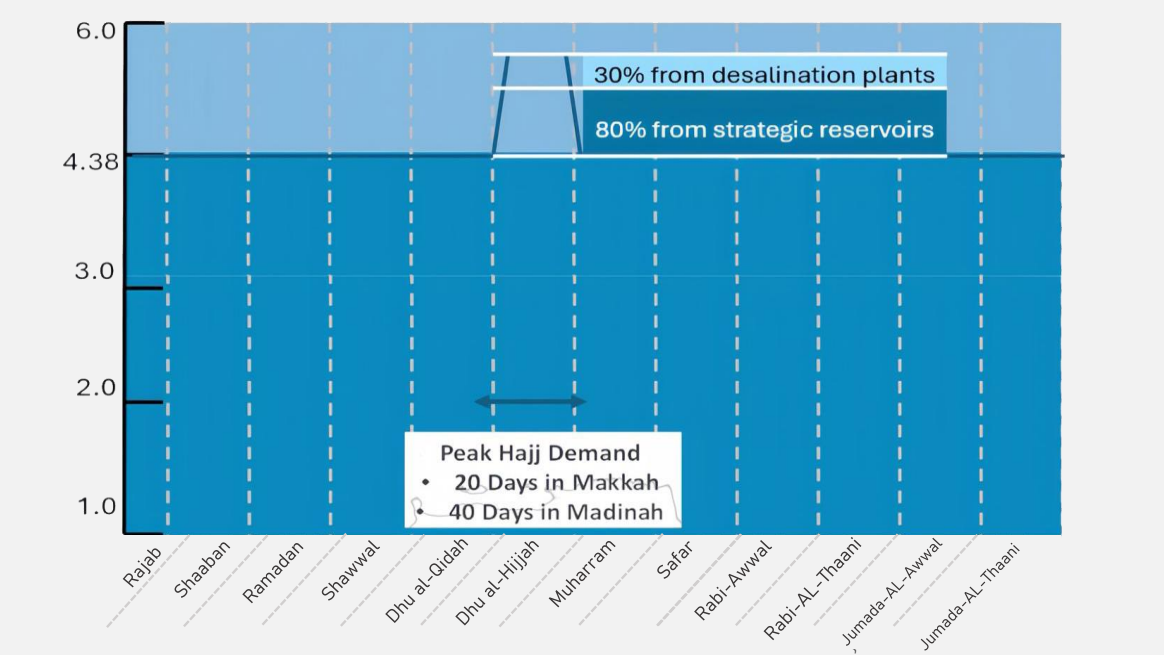
Figure 44: Strategic Storage Capacity Required By 2030 For Urban Emergency Demand



Source: NWC

In addition to their emergency role, strategic reservoirs will be used to cover 80% of Hajj peak demand in Madinah & Makkah regions, as illustrated in Figure 45 below. The peak demand for Hajj season occurs over a span of approximately 20 days in Makkah and 40 days in Madinah at the beginning of Dhu al-Hijjah holy month, resulting in a short-term peak demand of water. MEWA adopted a policy for serving 80% of Hajj demand through storage tanks and 30% of Hajj demand through desalination plants (5% is kept as a buffer) to avoid having large idle capacities during off-peak periods.

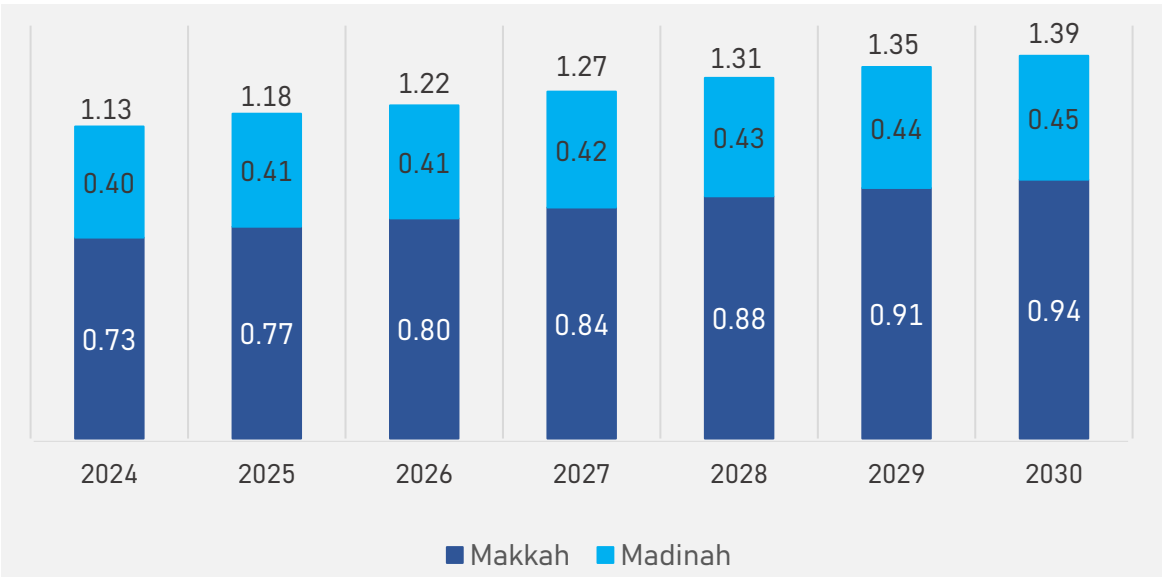
Figure 45: Hajj Water Demand Peak (At 2030) - (M m³/d)



Source: MEWA

As shown in Figure 46, the Hajj demand (covering Makkah and Madinah) will grow from 1.13 M m³/d in 2024 to approximately 1.39 M m³/d in 2030.

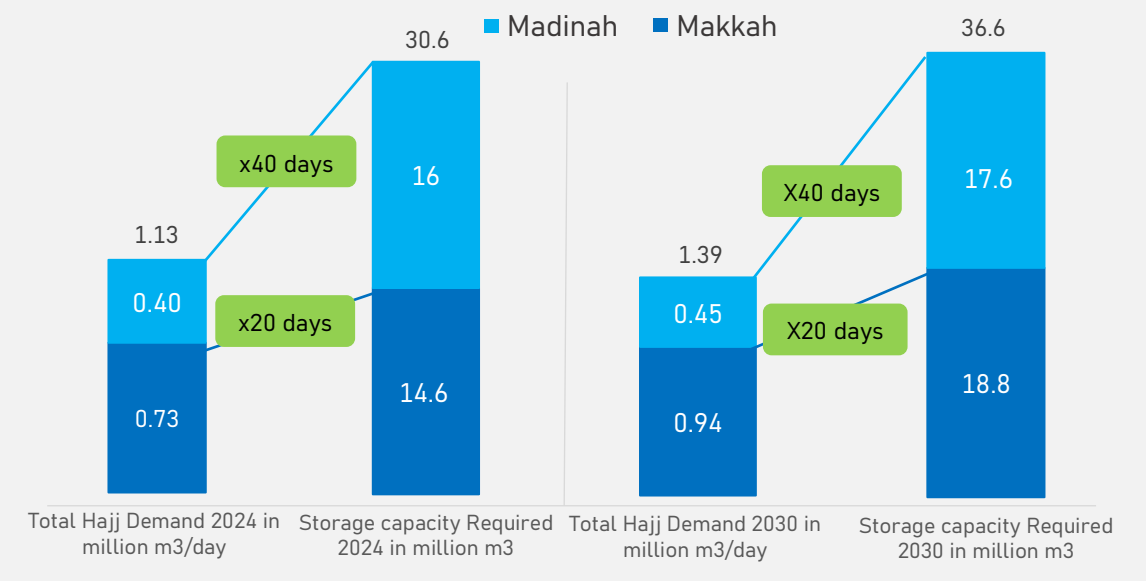
Figure 46: Hajj Water Demand (M m³/d)



Source: MEWA

Based on Figure 47, the total water demand for Hajj at Makkah for 20 days, and Madinah for 40 days is expected to be approximately 31M m^3 in 2024 and about 3٧M m^3 in 2030. 80% of this demand will be supplied exclusively from strategic reservoirs.

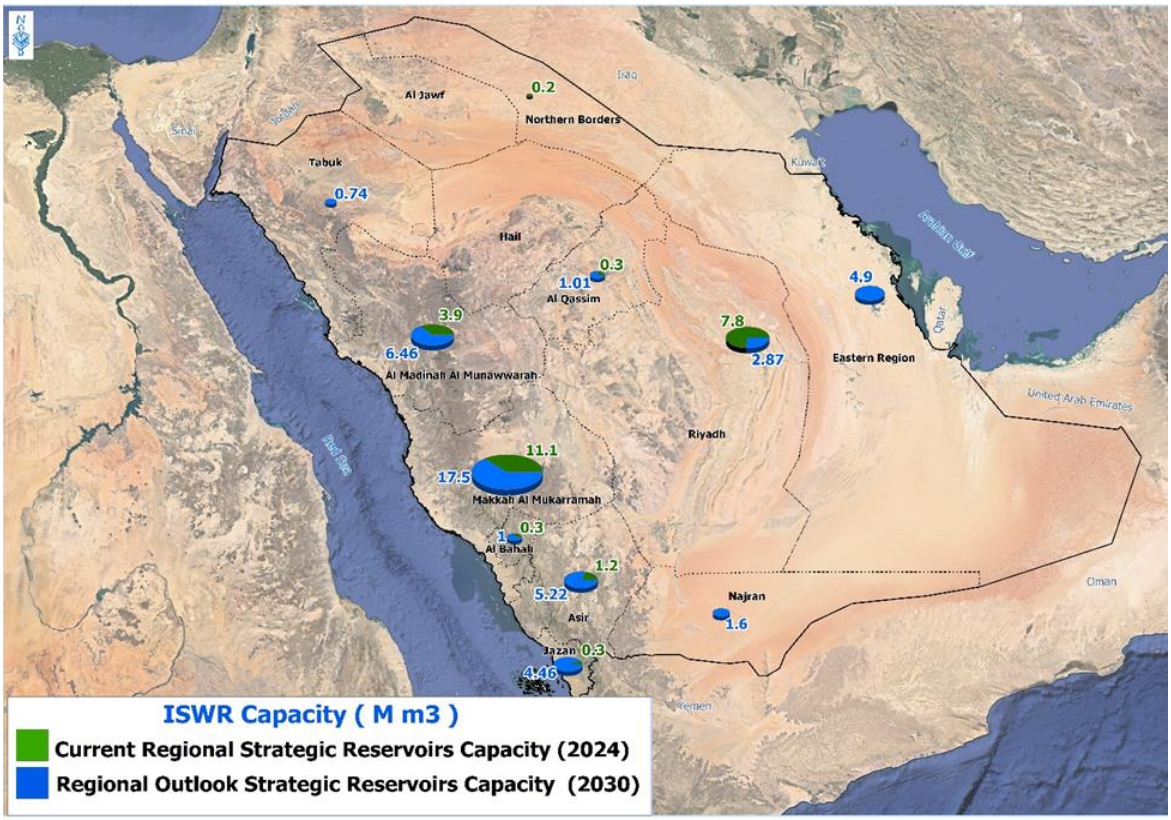
Figure 47: Storage Capacity Required for Hajj (2024 and 2030)



Source: MEWA

As of 2024, around 25.1M m^3 of strategic storage is available with an emergency capacity cover equal to (1.2 day) of demand. Currently, several projects with a potential capacity of about 46M m^3 are under development, raising the total capacity to 71M m^3 in 2030, equivalent to 5.6 days. Figure 48, shows the storage capacities for 2024 and 2030, respectively, for each region. NWC is the primary operator for operational reservoirs, while WTTCO is responsible for strategic reservoirs.

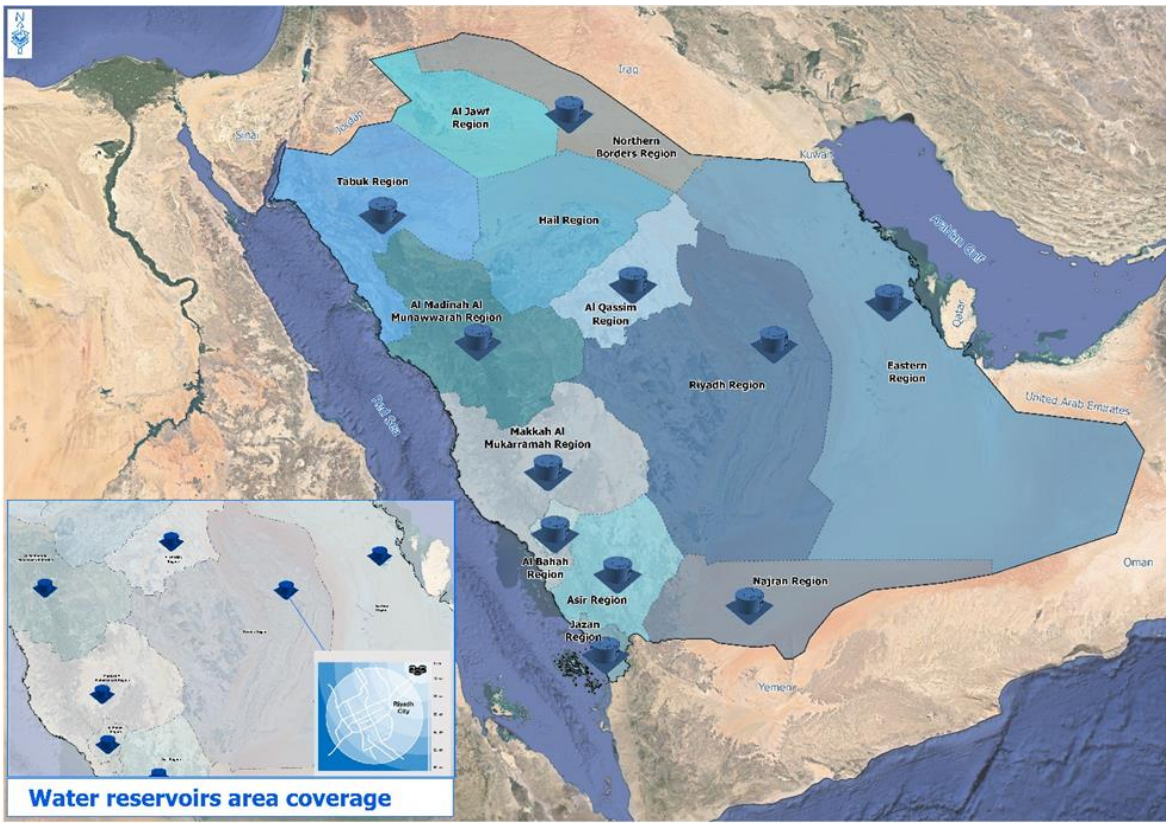
Figure 48: Existing, Under Construction and Under Planning Strategic Reservoirs In KSA



Source: SWPC

Strategic reservoirs need to be located in close vicinity to the cities in order to ensure proximity to users and in an effort to reduce transmission risks and costs. Strategic reservoirs are implemented to cover a service area within a radius of 60 kilometers of the city, while taking into account the direction of the transmission lines, as illustrated in Figure 49 below. This policy was set by MEWA in order to not only reduce transmission risks but also to allow for greater maneuverability in emergency cases, facilitating for instance, the transport of water via tankers from the reservoirs to the nearby city.

Figure 49: Water Reservoirs Area Coverage



Source: SWPC

2. Regional Outlook

The focus throughout this section is on regard to meeting the strategic storage requirements for the next 7 years in the cities with the largest gaps. These gabs were identified and summarized in Tables 41 below. Currently, the total reservoir capacity in the Kingdom is 25.1M m^3 in 2024 with Makkah having almost 44% followed by Riyadh 31%.

Table 41: Current Regional Strategic Reservoirs Capacity (2024)

Region	Current Storage Capacity in 2024 (M m3)
Makkah	11.1
Riyadh	7.8
Madinah	3.9
Aseer	1.2
Qassim	0.3
Baha	0.3
Jazan	0.3
Northern Border	0.2
Total Capacity (M m^3)	25.1

Source: MEWA

As per the reservoir capacity augmentation plan, additional capacity of about 45.82M m^3 will be added during the next 6 years and the total capacity will reach 70.92M m^3 by 2030. Table 42 shows future capacities that will be added by relevant stakeholders.

Table 42: Regional Outlook Strategic Reservoirs Capacity Plan (2030)

Region	Current Storage Capacity in 2024 (M m3)
Makkah	17.50
Riyadh	2.87
Madinah	6.44
Aseer	5.22
Eastern	4.90
Jazan	4.46
Najran	1.60
Qassim	1.01
Baha	1.08
Tabuk	0.74
Total Capacity (M m^3)	45.82

Source: MEWA

i. Makkah Region

The water needed to meet municipal demand in Makkah city is expected to reach about 3.27M m^3/d in 2030 and Hajj demand in is expected to reach about 0.94M m^3/d as shown in Table 43. Given the 7-day target, a strategic storage capacity required of about 29.5M m^3 is required in 2030 for municipal & Hajj demand.

Table 43: Makkah Population Forecast, Municipal Water Requirements and Hajj Demand

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	9,54	9,66	9,79	9,91	10,04	10,17	10,30
Municipal Water Requirements (M m^3/d) (Urban)	3.47	3,41	3,56	3,52	3,48	3,30	3,27
Hajj Demand (M m^3/d)	0.73	0.77	0.80	0.84	0.88	0.91	0.94

Sources: MEWA, NWC

To augment Makkah's reservoir capacities, SWPC is bringing additional capacity of 2.5M m^3 for Jua'ranah ISWR project which is expected to be in operation in 2027.

ii. Madinah Region

Madinah's water needed for municipal demand increases throughout the years and reached 1,11M m^3/d in 2030. Furthermore, Hajj demand exists in Madinah and reached about 0.45M m^3/d in 2030, as shown in Table 44. Given the 7-day target, a strategic storage capacity required of about 10.9M m^3/d is required in 2030 for municipal & Hajj demand.

Table 44: Madinah Population Forecast, Municipal Water Requirements and Hajj Demand

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	2,39	2,42	2,45	2,49	2,52	2,55	2,58
Municipal Water Requirements (M m^3/d) (Urban)	1,06	1,05	1,06	1,06	1,05	1,05	1,11
Hajj Demand (M m^3/d)	0.40	0.41	0.41	0.42	0.43	0.44	0.45

Sources: MEWA, NWC

Madinah's reservoir capacity will be increased by another 6.44M m^3/d and expected to be available by 2030.

iii. Riyadh Region

As shown in Table 45, Riyadh has an urban or municipal demand for water of about 4,08M m^3/d in 2024 and it's expected to reach 5,75M m^3 in 2030 Given the 7-day target, a strategic storage capacity of about 40.25M m3 is required in 2030 for municipal demand.

Table 45: Riyadh Population Forecast and Municipal Water Requirements.

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	9,29	9,14	9,53	9,66	9,78	9,91	10,03
Municipal Water Requirements (M m^3/d) (Urban)	4,08	4,05	4,04	4,49	4,45	4,90	5,75

Sources: MEWA, NWC

iv. Eastern Region

Eastern Province cities consist of nine adjacent cities, the largest in terms of population size being: Al Ahsa, Khobar, Dhahran, Dammam, Saihat, Qatif, Safwa, Ras Tanura, Nabiyah and Jubail. Total water demand for the Eastern Province will be reached about 1,95M m^3/d in 2030 as shown in Table 46 below. Given the 7-day target, a strategic storage capacity required of about 13,65M m^3 is required in 2030 for municipal demand. Due to the lack of current storage capacity in the Eastern Province cities, the gap should be filled by construction of new strategic reservoirs.

Table 46: Eastern Province Cities Population Forecast and Municipal Water Requirements

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	5,58	5,65	5,73	5,80	5,88	5,95	6,03
Municipal Water Requirements (M m^3/d) (Urban)	2,02	2,00	1,98	1,97	1,95	1,93	1,95

Sources: MEWA, NWC

To resolve Eastern Province's water supply issue, SWPC is already in the process of tendering Al Ahsa ISWR and Dammam ISWR and it's expected to be online by 2028 with total capacity of 4.9M m^3, which will be available for the private sector tendering.

v. Qassim Region

This section covers four cities, referred to as Qassim cities: Buraydah, Unaizah, Badayea and Bukayriyah. These cities fall within less than 60 km apart and have a large population size. The water needed to meet municipal demand in these cities is about to 0.59M m^3/d in 2030 as shown in Table 47. Given the 7-day target, a strategic storage capacity of about 4,06M m^3 is required in 2030 for municipal demand.

Table 47: Qassim Cities Population Forecast and Municipal Water Requirements

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	1,63	1,65	1,68	1,70	1,72	1,74	1,77
Municipal Water Requirements (M m^3/d) (Urban)	0,60	0,60	0,59	0.59	0,58	0,58	0,59

Sources: MEWA, NWC

vi. Tabuk Region

The water needed for municipal demand in Tabuk increases throughout the year and reaches 0.37M m^3/d in 2030 as shown in Table 48 below. Given the 7-day target, a strategic storage capacity of about 2,59M m^3 is required in 2030 for municipal demand. With no available capacity in Tabuk, the gap stands at 2,59M m^3 that should be filled through construction of new strategic reservoirs to meet the target.

Table 48: Tabuk Population Forecast and Municipal Water Requirements

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	1,06	1,07	1,09	1,10	1,12	1,13	1,15
Municipal Water Requirements (M m^3/d) (Urban)	0,39	0,39	0,39	0,38	0,38	0,38	0,37

Sources: MEWA, NWC

Vii. Jazan Region

Four cities are covered in this section, Jazan, Abu Arish, Sabya and Damad, which are referred to as “Jazan cities”. These cities fall within less than 60km apart and have a large population size. The water needed to meet municipal demand in these cities increases to 0.65M m^3/d in 2030 as shown in Table 49. Given the 7-day target, a strategic storage capacity of about 4,55M m^3 is required in 2030 for municipal demand. There is a storage capacity gap of 4,25M m3 that should be filled through the construction of new strategic reservoirs to meet the target.

Table 49: Jazan Cities Population Forecast and Municipal Water Requirements

	2024	2025	2026	2027	2028	2029	2030
Population Forecast (M)	1,83	1,86	1,88	1,91	1,93	1,96	1,98
Municipal Water Requirements (M m^3/d) (Urban)	0,68	0,67	0,66	0,66	0,65	0,65	0,65

Sources: MEWA, NWC

VIII. Water Transmission Pipelines Capacity Plan

The regular supply situation is considered part of the national supply strategy and includes supplying the regions through local sources to the maximum extent possible, in addition to linking with the neighboring regions when needed.

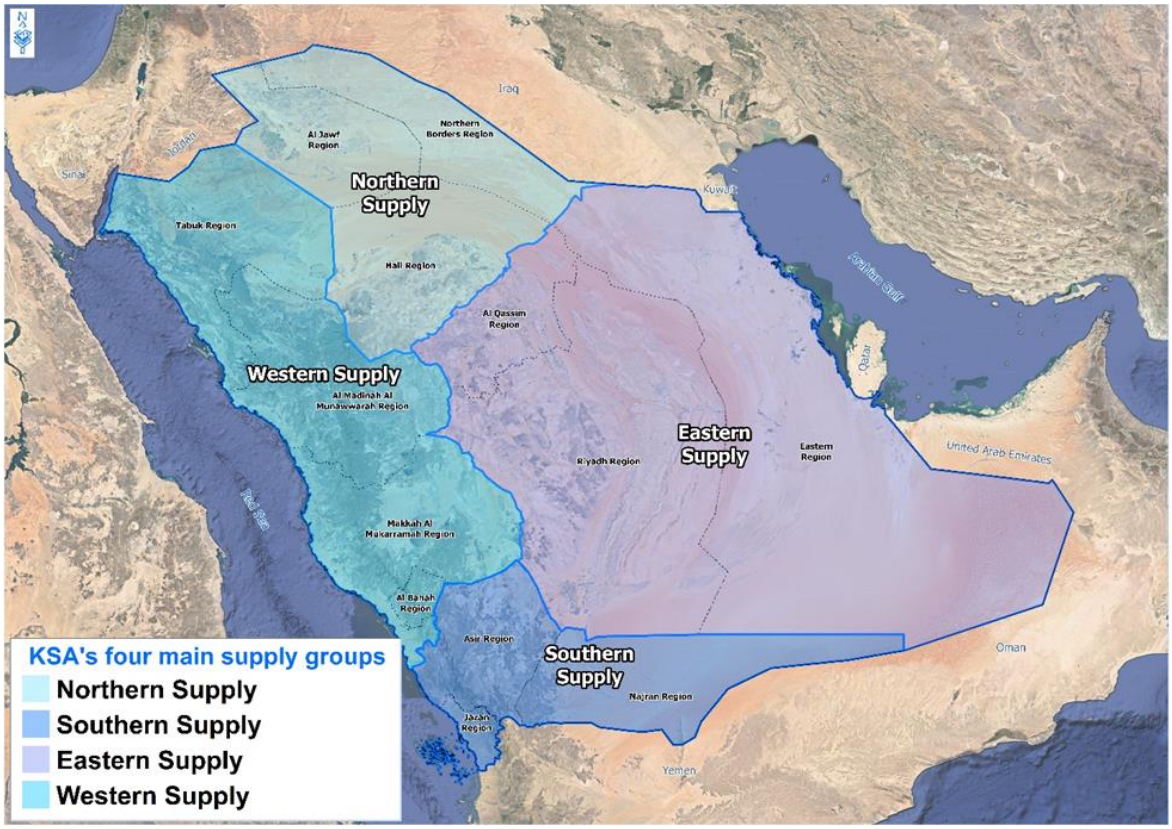
The water supply in the Kingdom of Saudi Arabia is developed and partially connected and does not need improvement except with regard to future demand growth developments. Further linkage could improve the water supply in several regions in the event of the interruption of the main supply systems.

The Saudi Water Partnerships Company relies on the development of its projects on the seven-year resource plan that it issues, and the Ministry of Environment, Water and Agriculture adopts it, which is built on a number of policies, especially the National Water Strategy 2030 and the Ministry's plan. According to that, this statement is in line with the strategic direction of the water sector in KSA by translating the current policies into applicable executive plans, draw the private sector route for the SWPC projects as the final goal of the NWS 2030, which is filling the gap between supply and demand.

As seen in Figure 50, Saudi Arabia's water supply systems can be divided into four main supply groups based on the interconnectivity in their water transmission systems along with the unique features of each group. For these reasons, each supply group is considered separately for the water gap analysis. The main four groups are as follows:

- **Northern Supply Group:** is composed of three regions: Hail, Northern Borders and Al Jowf.
- **Eastern Supply Group:** is composed of three regions: Riyadh, Eastern Province and Qassim.
- **Western Supply Group**: is composed of four regions: Tabuk, Makkah, Madinah and Baha.
- **Southern Supply Group**: is composed of three regions: Aseer, Jazan and Najran.

Figure 50: KSA's Four Main Supply Groups



Source: SWPC

Four IWTPs systems have been implemented by SWPC; Rayis–Yanbu pipeline in transition phase from construction to operational, while Rayis–Rabigh pipeline is currently financially closed and expected to be under construction soon, both pipelines' lengths and capacities reach 192 KM and 1.13M m^3/d respectively, In addition, two new IWTPs with total capacity of 1.34M m^3/d and lengths of 1,446 KM in under tendering, as illustrated in Table 50.

Table 50: Independent Water Transmission Pipelines (IWTPs)

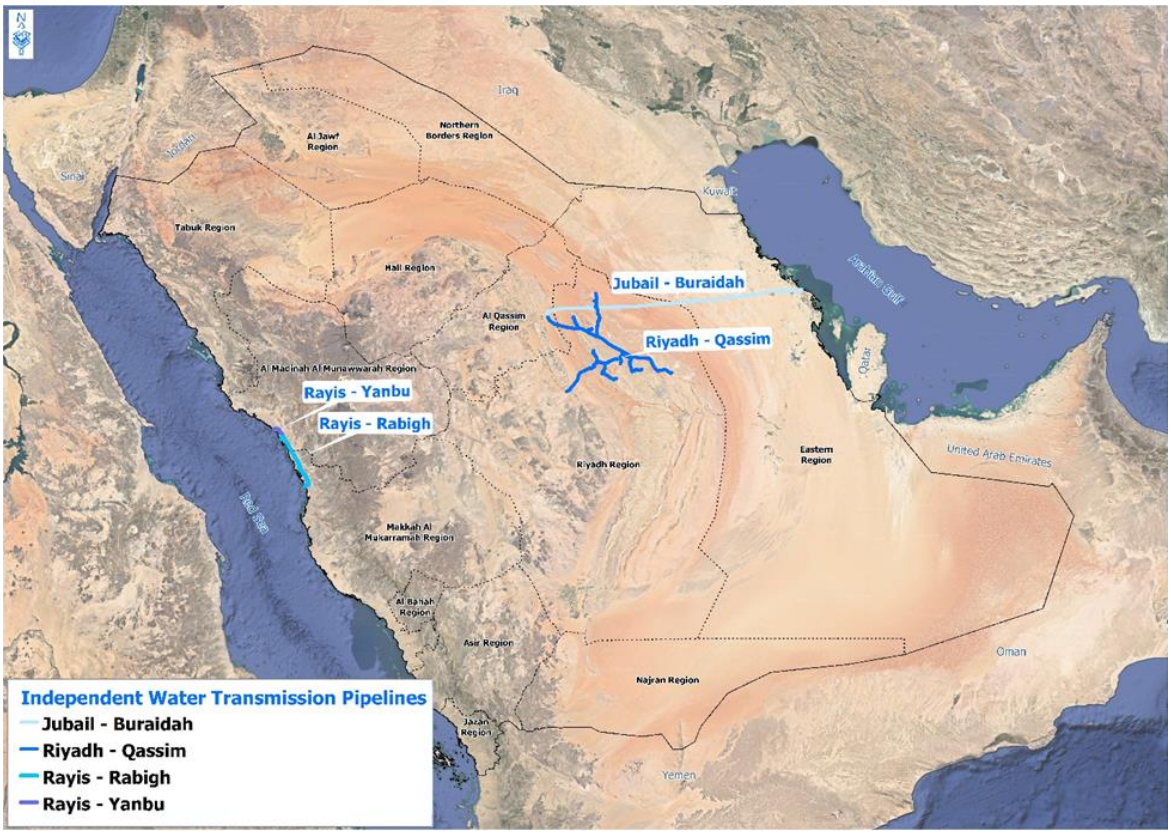
IWTP	Capacity (m^3/d)	Status	Length (Km)	PCOD
Rayis - Yanbu	630,000	Operational	42	2024
Rayis - Rabigh	500,000	Under Construction	152	2026
Riyadh – Qassim [1]	685,000	Under Tendering	859	2029
Jubail – Buraydah [1]	650,000	Under Tendering	587	2029
Total Capacities	2,465,000	Total Lengths	1,640	-

1 Capacities and lengths might be changed due to further variations with relevant stakeholders.

Rayis–Yanbu and Rayis–Rabigh pipelines' systems both interlinked in Rayis and served the four western regions in general. Several WPs discharge water to both systems, among them there are Yanbu 4 (Rayis 1) and Rabigh 4 which are managed by SWPC.

The latter two systems, Riyadh-Qassim and Jubail-Buraydah, served the Eastern, Riyadh & Qassim Regions, both interlinked in Al-Shimasiyah (North-West of both systems) , as shown in Figure 51 below, and connect various IWPs and ISWRs in Jubail and Riyadh into the conveyance system, among them, SWPC tendering three new IWPs in Jubail.

Figure 51: Independent Water Transmission Pipelines (IWTPs)



Source: SWPC

IX. Dams

1. Dams in Saudi Arabia

Dams in the Kingdom of Saudi Arabia are classified based on their usage as recharge, flood protection or drinking water supply. Augmentation of the existing use of water at a dam for other purposes could create investment opportunities amenable to PPP. SWPC conducted the first stage of the study of public-private partnership in dams in the Kingdom of Saudi Arabia with its partners in 2022 and the study was consisting of four phases as below:

Phase 1: Data collection and verification for dams

Phase 2: Utilization options for each dam

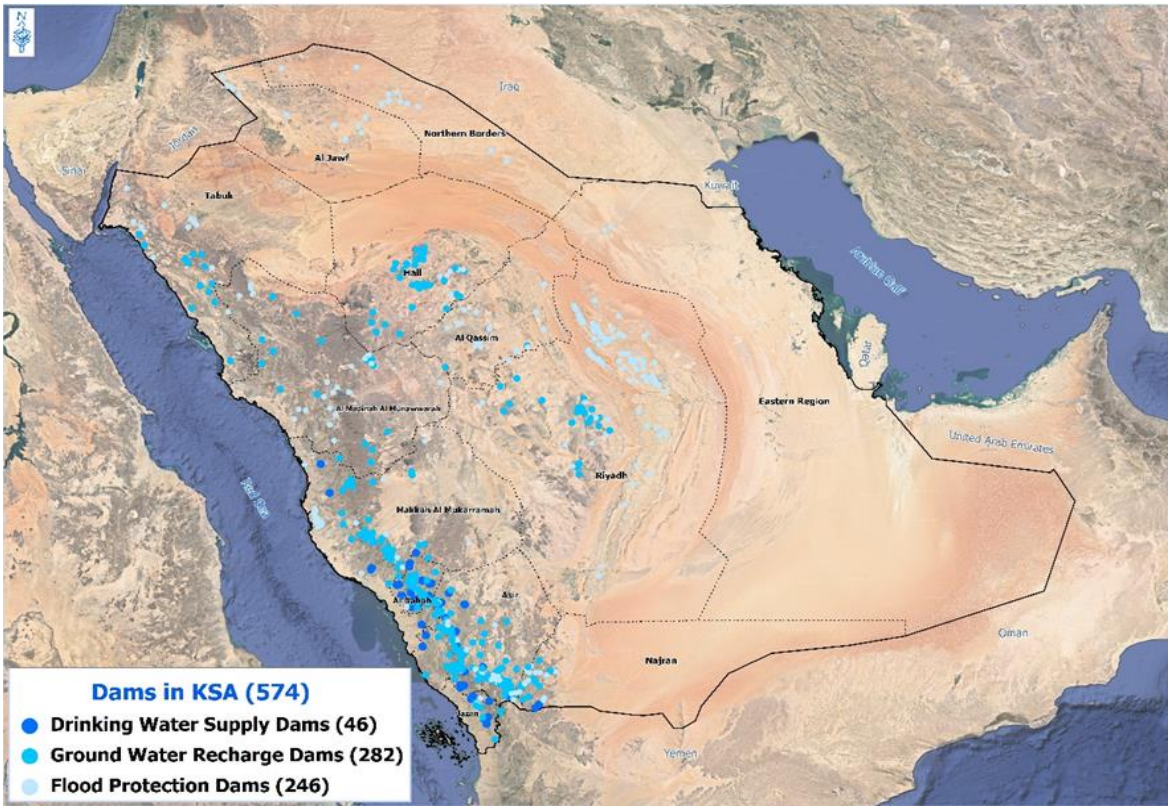
Phase 3: Techno-economic evaluation of dams' utilization options

Phase 4: Preparation of the privatization initiative file as privatization projects and the execution program.

Originally, dams' data were provided by the Ministry of Environment, Water and Agriculture (MEWA) on 574 existing dams, shown in Figure 52, as potential candidates for private investment. After that, the list was augmented by 30 greenfield dams. The essence of Phase 1 was to rank these 604 dams according to their potential attractiveness for private investment, Figure 53, shows selected dams based on their notable ranks.

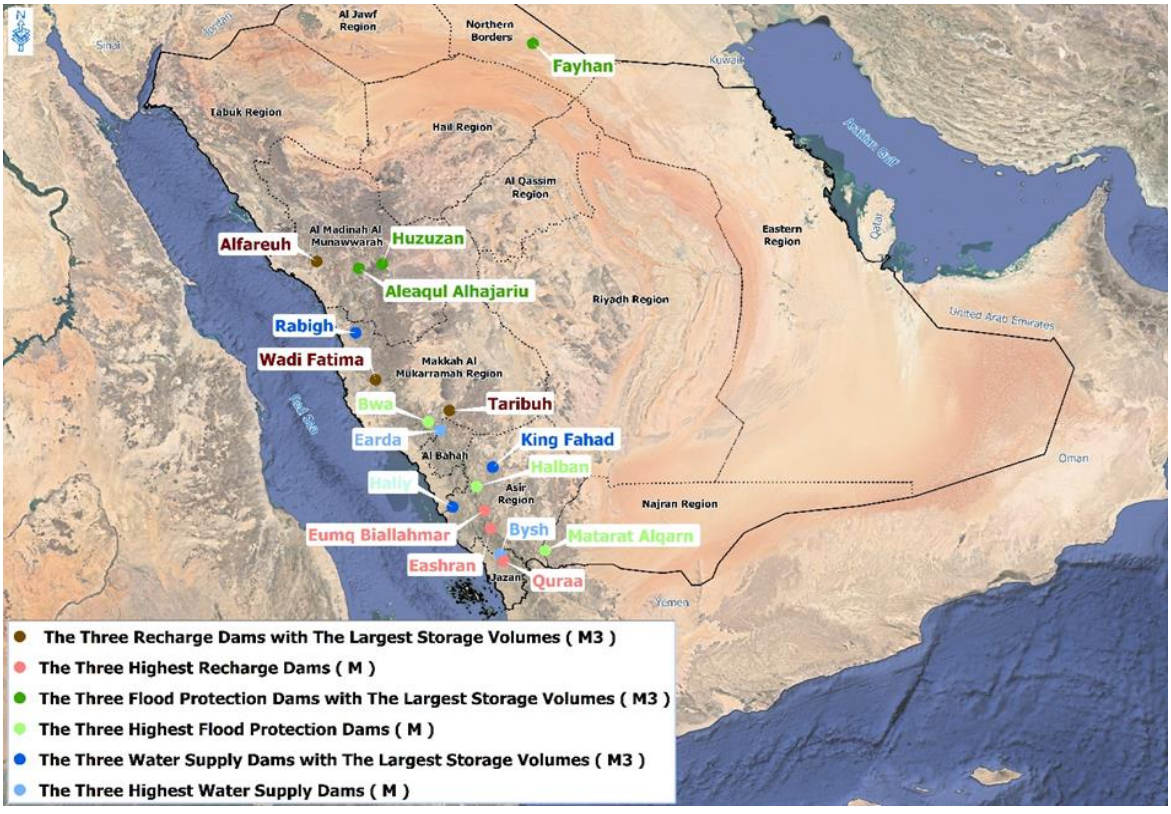
To this end, eight categories (four technical and four touristic) were defined, and one or more quantifiable criterion / criteria were defined within each category. The dams were then rated according to their relative merit based on each criterion. Ratings from individual criteria in a category were then combined to obtain an overall rating in each category. Finally, a weight was assigned to each category to reflect its relative importance compared to the other categories and the overall weighted rating was calculated for each dam. The dams were then ranked according to their overall weighted ratings.

Figure 52: Overview of Existed Dams In KSA



Source: MEWA

Figure 53: KSA Notable Dams Based on Their Usage



Source: MEWA

2. Overview of the Candidate Dams in KSA

It is useful at the outset to provide an overview of the candidate dam types regarding potential expansion of their purpose to include multiple uses of water retained by them as explained below.

i. Groundwater Recharge Dams

Ground water recharging is a consumptive use of water whereby the surface water infiltrates into the ground directly from the pond created Up stream the dam. 282 of the 574 dams in KSA are ground water recharge dams, the three notable Groundwater dams are listed in Table 51 and Table 52.

Table 51: The Three Recharge Dams with The Largest Storage Volumes

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of storage	Dam height (m)
Alfareuh (Medina)	Concrete	20,000,000	18th	18.5
Wadi Fatima (Mecca)	Concrete	20,000,000	18th	18.0
Taribuh (Mecca)	Concrete	20,000,000	18th	20.0

Source: MEWA

Table 52: The Three Highest Recharge Dams

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of Height	Dam height (m)
Eashran (Aseer)	Concrete	1,500,000	16th	38.0
Eumq Biallahmar (Aseer)	Concrete	1,062,000	21st	30.0
Quraa (Jazan)	Concrete	985,954	30th	26.0

Source: MEWA

ii. Flood Protection Dams

Flood protection is a non-consumptive use of water whereby surface runoff is retained or diverted away from critical infrastructure. 246 of the 574 dams in the SWPC database are flood protection dams, the three notable Flood Protection dams are listed in Table 53 and Table 54.

Table 53: The Three Flood Protection Dams with The Largest Storage Volumes

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of Height	Dam height (m)
Huzuzan (Medina)	Earthfill	40,000,000	14th	7.0
Fayhan (Northern Borders Province)	Concrete	38,099,959	15th	3.5
Aleaqul Alhajariu (Medina)	Rockfill	17,000,000	22nd	4.5

Source: MEWA

Table 54: The Three Highest Flood Protection Dams

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of storage	Dam height (m)
Halban (Aseer)	Concrete	972,976	17th	35.0
Matarat Alqarn (Najran)	Concrete	2,054,425	23rd	29.0
Bwa (Mecca)	Concrete	6,052,785	24th	28.5

Source: MEWA

iii. Drinking Water Supply Dams

Supply of drinking water and irrigation are consumptive uses of water whereby surface runoff is retained and then released for these purposes. 46 of the 574 dams in the SWPC database are drinking water supply dams, the three notable Water Supply dams are listed in Table 55 and Table 56.

Table 55: The Three Water Supply Dams with The Largest Storage Volumes

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of storage	Dam height (m)
King Fahad (Aseer)	Concrete	325,000,000	1st	68.0
Haliy (Mecca)	Concrete	254,000,000	2nd	87.0
Rabigh (Mecca)	Concrete	220,350,000	3rd	60.0

Source: MEWA

Table 56: The Three Highest Water Supply Dams

Name (Region)	Type of Dam	Storage Capacity (m^3)	Overall ranking in terms of Height	Dam height (m)
Haliy (Mecca)	Concrete	254,000,000	1st	87.0
Bysh (Jazan)	Concrete	193,644,000	2nd	73.0
Earda (Al Baha)	Concrete	68,000,000	3rd	70.0

Source: MEWA

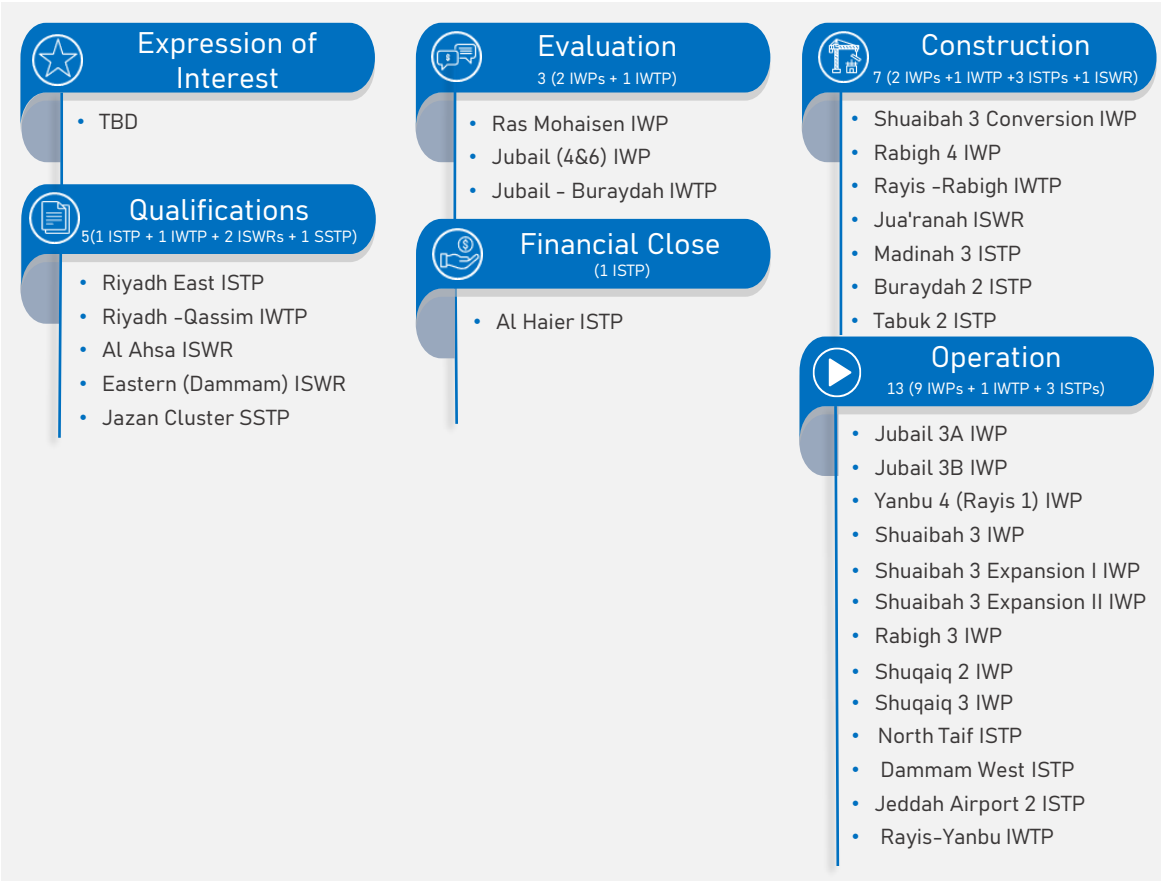
X. SWPC Procurement Plan

This section summarizes SWPC's procurement plan over the planning period 2024 to 2030, inclusive, with particular emphasis on 2024 and 2025, as it covers the procurement for water desalination plants, sewage treatment plants and strategic Reservoirs. Today, SWPC has nine existed desalination projects (IWPs) located in the Eastern Province, Makkah and Jazan regions providing 4.16M m^3/d of desalinated water, and three existed ISTP projects located in the Western and Eastern regions conveying 600,000 m^3/d (up to 1,12M m^3/d after future expansions) of the wastewater, in addition to Rayis-Yanbu IWTP which will be able to deliver 600,000 m^3/d.

Other three IWPs on the construction stage; Shuaibah 3 Conversion (replacing Shuaibah 3) with 600,000 m^3/d and to be online in 2025, Rabigh 4 with 400,000 m^3/d in 2026 and Ras Mohaisen (first stage) scheduled to be operated with 100,000 m^3/d in 2028. Rayis - Rabigh IWTP being in construction and expected to be online in 2026 with 500,000 m^3/d. In addition, construction of Buraydah 2 ISTP, Madinah 3 ISTP and Tabuk 2 ISTP collectively will provide about 440,000 m^3/d starting by 2024 (up to 615,000 m^3/d after expansions).

SWPC has progressed well in the tendering and development of other projects as illustrated in Figure 54.

Figure 54: Progress on SWPC's Procurement Activities



More than 50 projects managed and tendered by SWPC, less than half of them are in planning phase, as shown in Table 57, with the dates of COD/procurements stages foreach project, in addition to 123 SSTPs scattered across the country. Procurement timelines for each of these plants and/or strategic reservoir are based on the following construction timelines:

- 12 to 14 months for tendering any plant.
- For constructing a water desalination plant:
  - 36 months for a large desalination plant (e.g.: 600,000 m^3 per day)
  - 32 months for a medium desalination plant (e.g.; 300,000 m^3 per day)
- For constructing a sewage treatment plant:
  - 33 months for large and medium sewage treatment plant (e.g.: 150,000 m^3 per day)
  - 24 months for a small sewage treatment plant (e.g.: 25,000 m^3 per day).
- 24 months for constructing a strategic reservoir.
- 36 to 48 months for constructing water transmission lines.

These timelines are indicative only and may vary depending on the size, location, and unique features of the plant involved. Changes in government policies and direction may also alter these timelines.

The required water desalination, sewage treatment, and strategic reservoirs for the planning period were identified earlier in this statement. It shows their CODs, capacities, and the expected timeline for issuing tenders to the market. Considering the above timelines, SWPC plans to issue the following tenders. Please note that these timelines are subject to change.

Table 57: SWPC Projects' Procurement Plan

Sr	Type	Current Projects	Status			COD [1]
			Tendering Phase	Construction Phase	In-Operation	
01	IWP	Shuaibah 3 Expansion I	✓	✓	✓	2009
02	IWP	Shuaibah 3	✓	✓	✓	2010
03	IWP	Shuqaiq 2	✓	✓	✓	2011
04	IWP	Shuaibah 3 Expansion II	✓	✓	✓	2019
05	IWP	Rabigh RO3	✓	✓	✓	2021
06	IWP	Shuqaiq 3	✓	✓	✓	2021
07	IWP	Jubail 3A	✓	✓	✓	2023
08	IWP	Jubail 3B	✓	✓	✓	2024
09	IWP	Yanbu 4 (Rayis 1)	✓	✓	✓	2024
10	IWTP	Rayis-Yanbu	✓	✓	✓	2024
11	ISTP	North Taif	✓	✓	✓	2023
12	ISTP	Dammam West	✓	✓	✓	2023
13	ISTP	Jeddah Airport 2	✓	✓	✓	2023
14	IWP	Shuaibah 3 Conversion	✓	✓	Q2 2025	2025
15	IWP	Rabigh 4	✓	Q4 2023	Q1 2026	2026
16	IWTP	Rayis–Rabigh	✓	Q1 2024	Q2 2026	2026
17	ISTP	Buraydah 2	✓	✓	Q4 2024	2024
18	ISTP	Madinah 3	✓	✓	Q4 2024	2024
19	ISTP	Tabuk 2	✓	✓	Q4 2024	2024
20	ISWR	Jua'ranah	✓	Q2 2024	Q3 2027	2027

Sr	Type	Under Tendering Projects (Final Phases)	Tendering Status			COD
			Qualification	Proposal Evaluation	Financial Close	
21	ISTP	Al Haier	✓	✓	Q4 2024	2026
22	IWP	Ras Mohaisen I (COD of ph. II in 2030)	✓	✓	Q1 2025	2028
23	SSTP	Jazan cluster	✓	Q4 2024	Q2 2025	2028
24	IWP	Jubail (4&6)	✓	Q4 2024	Q1 2025	2028
25	IWTP	Jubail – Buraydah	✓	Q4 2024	Q1 2025	2029

Sr	Type	Under Tendering Projects (Initial Phases) / Future Projects	Tendering Status				COD [1]
			Appoint Advisors	EOI	RFQ	RFP	
26	IWP	Ras Al Khair (2) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
27	IWP	Ras Al Khair (3) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
28	IWP	Tabuk (1) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
29	IWP	Jazan (1) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
30	IWP	Shuqaiq (4) [2]	Q4 2024	Q1 2025	Q2 2025	Q4 2025	2028
31	IWP	Rabigh (5)	Q4 2025	Q3 2025	Q4 2025	Q1 2026	2030
32	IWP	Rayis (2)	Q4 2025	Q1 2027	Q2 2027	Q3 2027	2032
33	ISTP	Aranah [2]	✓	Q3 2024	Q4 2024	Q1 2025	2027
34	ISTP	Hadda [2]	✓	Q3 2024	Q4 2024	Q1 2025	2027
35	ISTP	Riyadh East [2]	✓	✓	✓	Q4 2024	2027
36	ISTP	Abu Arish [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
37	ISTP	Al Kharj [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
38	ISTP	Hafar Al Batin [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2027
39	ISTP	South Najran [2]	Q3 2024	Q1 2025	Q2 2025	Q4 2025	2029
40	ISTP	Riyadh North	Q1 2025	Q1 2025	Q2 2025	Q3 2025	2029
41	ISTP	Khamees Msheat	Q3 2025	Q1 2026	Q2 2026	Q4 2026	2029
42	ISTP	Arar	TBD				

43	IWTP	Riyadh –Qassim	✓	✓	✓	Q3 2024	2029
44	ISWR	A Ahsa	✓	✓	✓	Q3 2024	2028
45	ISWR	Eastern (Dammam)	✓	✓	✓	Q3 2024	2028
46	SSTP	Western Cluster	✓	Q4 2024	Q1 2025	Q3 2025	2028
47	SSTP	Eastern Cluster	✓	Q2 2025	Q3 2025	Q1 2026	2028
48	SSTP	Northern Cluster	✓	Q2 2025	Q3 2025	Q1 2026	2029
49	SSTP	Northwestern Cluster	✓	Q3 2026	Q4 2026	Q1 2027	2029
50	SSTP	Central Cluster	✓	Q4 2024	Q1 2025	Q3 2025	2030
51	SSTP	Southern Cluster	✓	Q3 2026	Q4 2026	Q1 2027	2031
✓	Completed						

Source: SWPC

1 All dates are subjected to change.

2 Developers pre-qualification program have been initiated in relation to these projects as an accelerating process.

XI. Environmental Performance

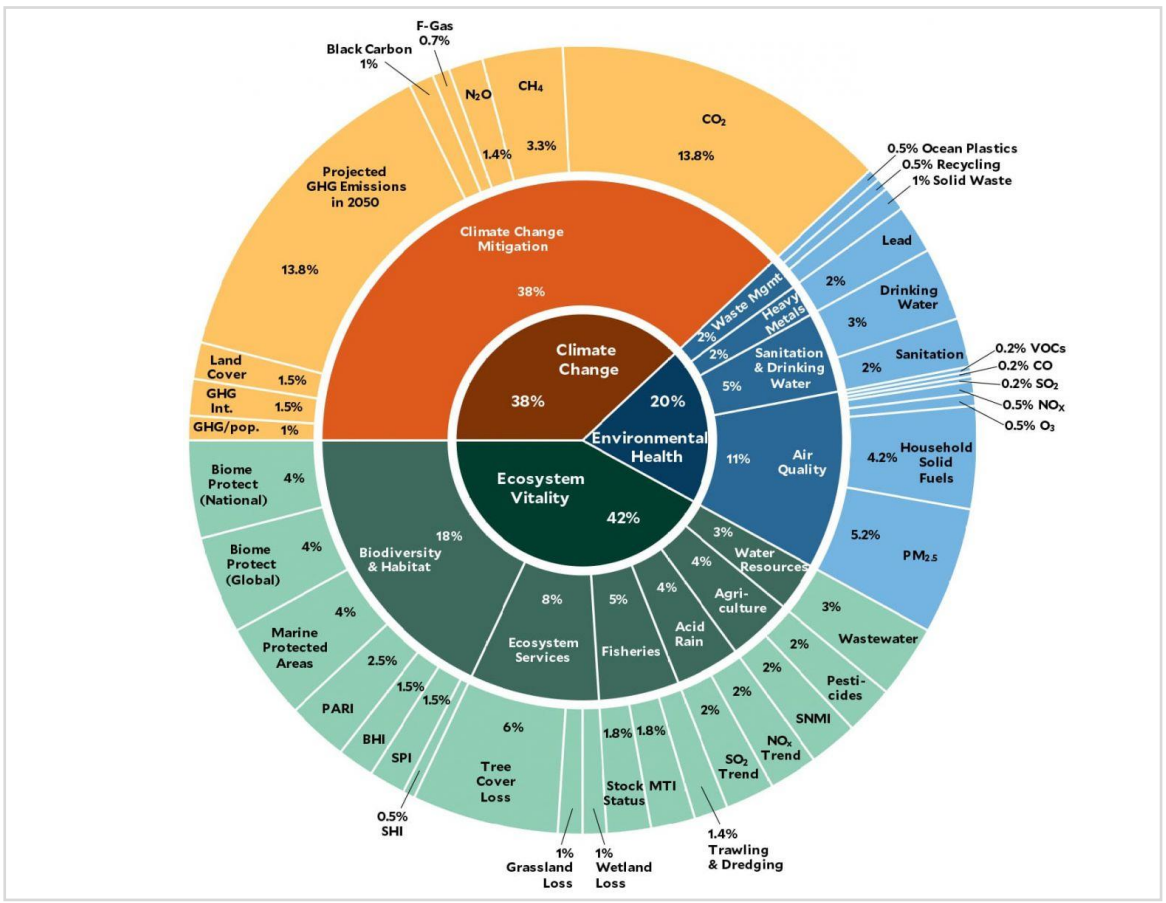
1. Introduction

This section presents the results of the latest Environmental Performance Index (EPI) 2022 for Saudi Arabia and compares with the World, G20 countries and the middle east region. EPI (developed jointly by Yale University and Columbia University) is a method of quantifying and numerically marking the environmental performance of a state's policies towards meeting their environmental targets set forth in the United Nations Millennium Development Goals (now Sustainable Development Goals (SDGs)).

The Environmental Performance Index is a composite index based on three policy objectives (climate change performance, environmental health, and ecosystem vitality) covering 11 broad issue categories, 40 sustainability indicators, and ultimately a single overall EPI score for each country. The index offers a scorecard that highlights leaders and laggards in environmental performance and provides practical guidance for countries that aspire to move toward a sustainable future. As seen in Figure 55.

Overall EPI rankings indicate which countries are best in addressing the environmental challenges that every nation faces.

Figure 55: Environmental Performance Index 2022 Framework

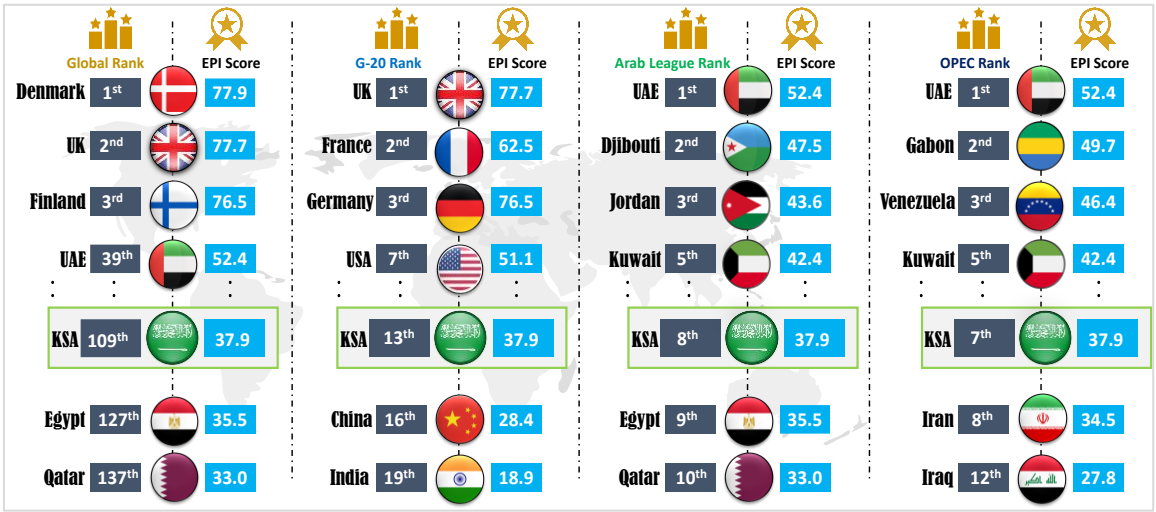


Source: EPI 2022, Yale Center for Environmental Law & Policy

2. EPI Rankings

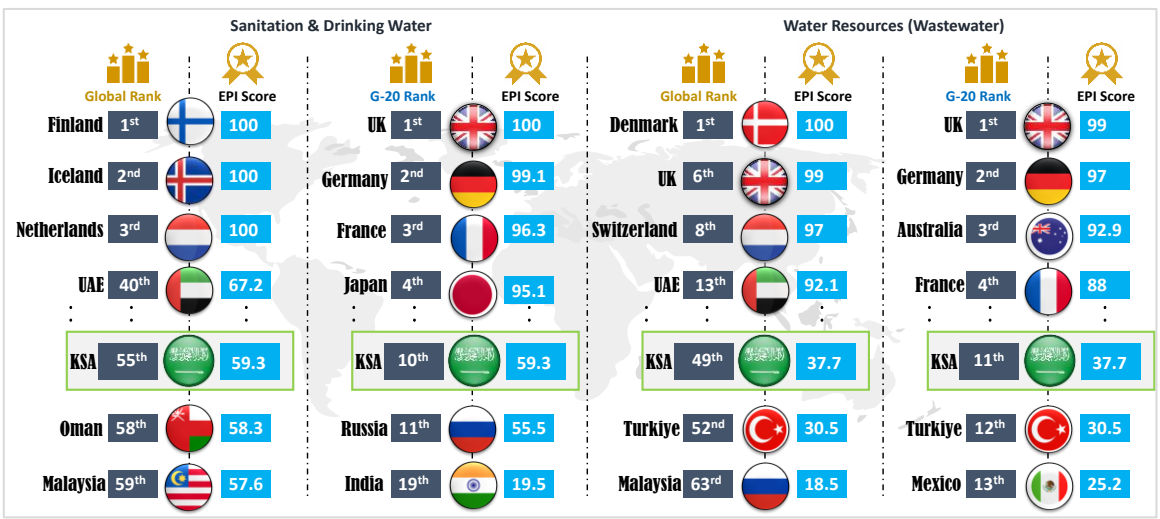
The results for EPI 2022 show that considering all the parameters, at the Global level, Denmark leads the 180 countries with an aggregate score of 77.9 with UK coming second. Saudi Arabia stands at 109th position at the global level but improves the standing at G-20 level with 13th position, Arab League at 8th and OPEC with 7th position. As shown in Figure 56 and Figure 57.

Figure 56: Global and Peer Groups EPI 2022 Rankings - Overall



Source: EPI 2022, Yale Center for Environmental Law & Policy

Figure 57: G-20 and Regional EPI 2022 Rankings – EPI Components



Source: EPI 2022, Yale Center for Environmental Law & Policy

At the EPI components level – especially related with water parameter (sanitation and drinking water), Finland tops the countries while Saudi Arabia shows significant improvement with 55th position at Global level and 10th position at G-20 level. For another water parameter (wastewater), Saudi Arabia performs even better with 49th position at the global level and 11th rank at G-20 level.

XII. Conclusion

This 7-year statement is SWPC's plan for future projects covering the period from 2024 to 2030. It is an ongoing and dynamic forward plan for the company and as such, is subject to change depending on not only general economic conditions but also government policy and direction regarding water sector development in the Kingdom of Saudi Arabia.

This statement will be updated each two years, as this review will take into consideration MEWA direction as well as the future of SWA (previously, SWCC), NWC, and relevant stakeholders. Future updates will continue to focus on a 7-year time horizon, as this period allows sufficient lead time to plan and construct new plants. It also provides ample ahead time for developers, suppliers, manufacturers, contractors and others in the industry both inside and outside the Kingdom, and to plan their future activities to meet the growing demand for desalination water and sewage treatment facilities.

Sustainable Development Goals (SDGs) transform the world, Climate Change drives international community to act against water and environmental challenges, Saudi Arabia Vision 2030 has demonstrated that Public-Private Partnership (PPP) in water business is successful not only on commercial level but also as a promising and realistic solution to water shortage even in most and vast arid countries.

SWPC is keen to collaborate with stakeholders in the water sector and business partners to ensure the viability and sustainability of water solutions. SWPC's long-term plans and mega projects influence water market dynamics, which eventually helps technology providers develop more efficient and competent solutions. In parallel, Independent Water Project developers negotiate better business deals and economic water tariffs. Consequently, SWPC and all its partners work together, integrate, and bring global sustainable solutions to water challenges.

PLANNING DIVISION 2024