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# Present and Future Water Supply and Demand in Saudi Arabia

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# Introduction

- **Effort to Increase Supply**
- **Problem of Increase of Demand**
- **Objectives**



# Available Water Resources

- **Surface Water**
- **Ground Water**
- **Desalinized Water**
- **Treated Waste Water**



## Water Demand in Different Sectors (MCM).

	1985	1990	1995	2000	2005
Urban	900	1300	1400	1750	2100
Industrial	300	350	400	450	640
Agricultural	7430	14580	16400	18540	17530
Total Demand	8600	16230	18200	20740	20270

# Estimating Future Water Resources

- **Surface Water**
- **Renewable Groundwater**
- **Non-Renewable Groundwater**
- **Desalination Water**
- **Treated Wastewater**



# Estimating Future Water Needs

- **Agricultural Sector**
- **Scenarios**
- **Agricultural Strategy**





## Agricultural Water Requirements (MCM)

<b>Year</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Water Requirement</b>	<b>17373</b>	<b>16099</b>	<b>14823</b>	<b>13546</b>	<b>13546</b>



# Urban and Industrial Water Needs

- **Estimating Population**
- **A1**
- **A2**
- **Industrial Sector Requirement  
(Annual Increase 5%)**



# Future Population Estimates

<b>Year</b>	<b>Population (Millions)</b>
<b>2005</b>	<b>22.67</b>
<b>2010</b>	<b>25.65</b>
<b>2015</b>	<b>29.02</b>
<b>2020</b>	<b>32.84</b>
<b>2025</b>	<b>37.15</b>

# Urban Water Requirements (MCM)

<b>Year</b>	<b>(A1)</b>	<b>(A2)</b>
<b>2005</b>	<b>2190</b>	<b>2190</b>
<b>2010</b>	<b>2479</b>	<b>2307</b>
<b>2015</b>	<b>2805</b>	<b>2425</b>
<b>2020</b>	<b>3174</b>	<b>2534</b>
<b>2025</b>	<b>3591</b>	<b>2630</b>

# Total Future Water Requirements (MCM)

	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Agriculture</b>	<b>17373</b>	<b>16099</b>	<b>14823</b>	<b>13546</b>	<b>13546</b>
<b>Urban</b>	<b>2191</b>	<b>2307</b>	<b>2425</b>	<b>2534</b>	<b>2630</b>
<b>Industrial</b>	<b>640</b>	<b>800</b>	<b>960</b>	<b>1120</b>	<b>1280</b>
<b>Total</b>	<b>20204</b>	<b>19206</b>	<b>18208</b>	<b>17200</b>	<b>17456</b>

# Discussion

- **How each sector gets its water**
- **Best combination of alternatives.**



# Major Problems

- **Demands in Agricultural Sector.**
- **Meeting Future Needs for Urban Areas and Industry.**
- **Limited Use of Treated Wastewater.**
- **Development of Renewable Water Resources**



# Suggested Solutions

- Reduction of Irrigation to a Safe Level.
- Conservation of Water.
- Priority for More Wastewater Collection, Treatment and Reuse.





- **Extend Area where Pumping of Groundwater is Prohibited.**
- **More Projects to Increase Supply of Desalinized Sea Water (with Reduction of Costs).**
- **Develop Areas with Renewable Water Resources.**



THANK

YOU

