

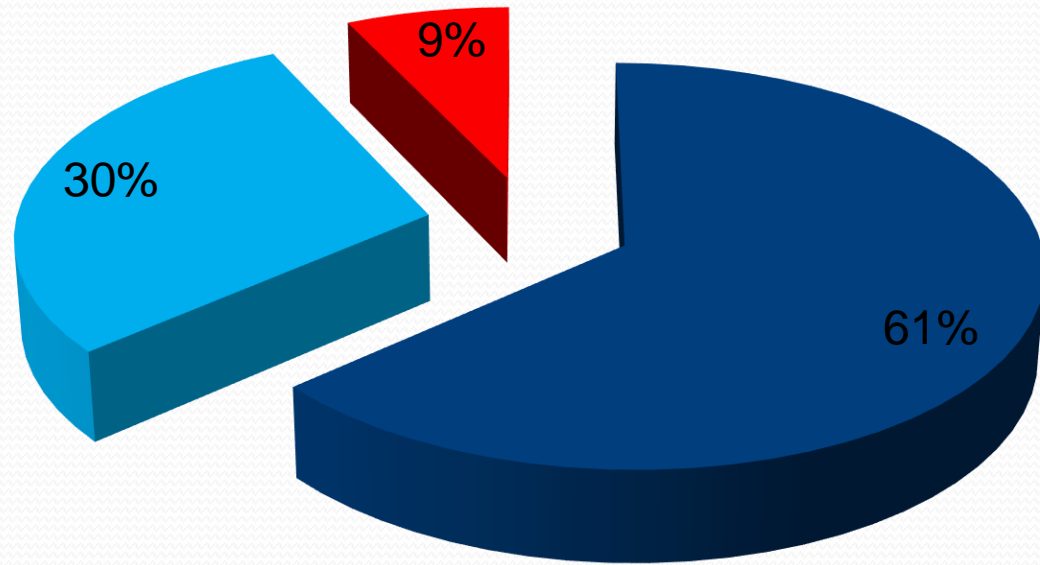


Using Electricity Consumption as a Tool for Groundwater Abstraction in Abu Dhabi Emirate Farms-UAE

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Environment Agency – Abu Dhabi



Three Resources



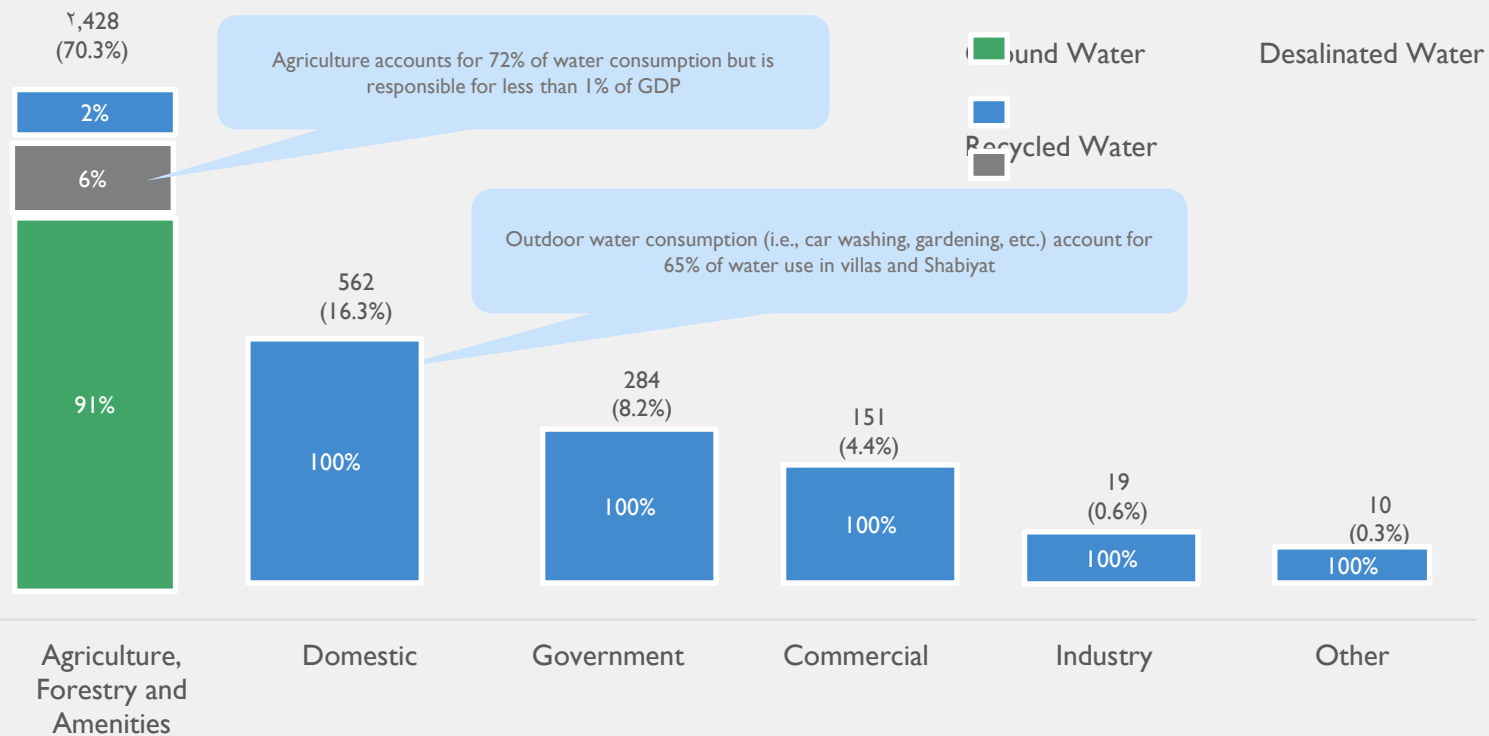
■ Groundwater ■ Desalination ■ Treated Wastewater

Total Water Supply = 3,454 Mm³/Year



Water Demand in Abu Dhabi emirate

Total Water Consumption = 3,454 Mm³/Year



Challenges and Threats

Aridity and Scarcity

Institutional and Legal
Fragmentations

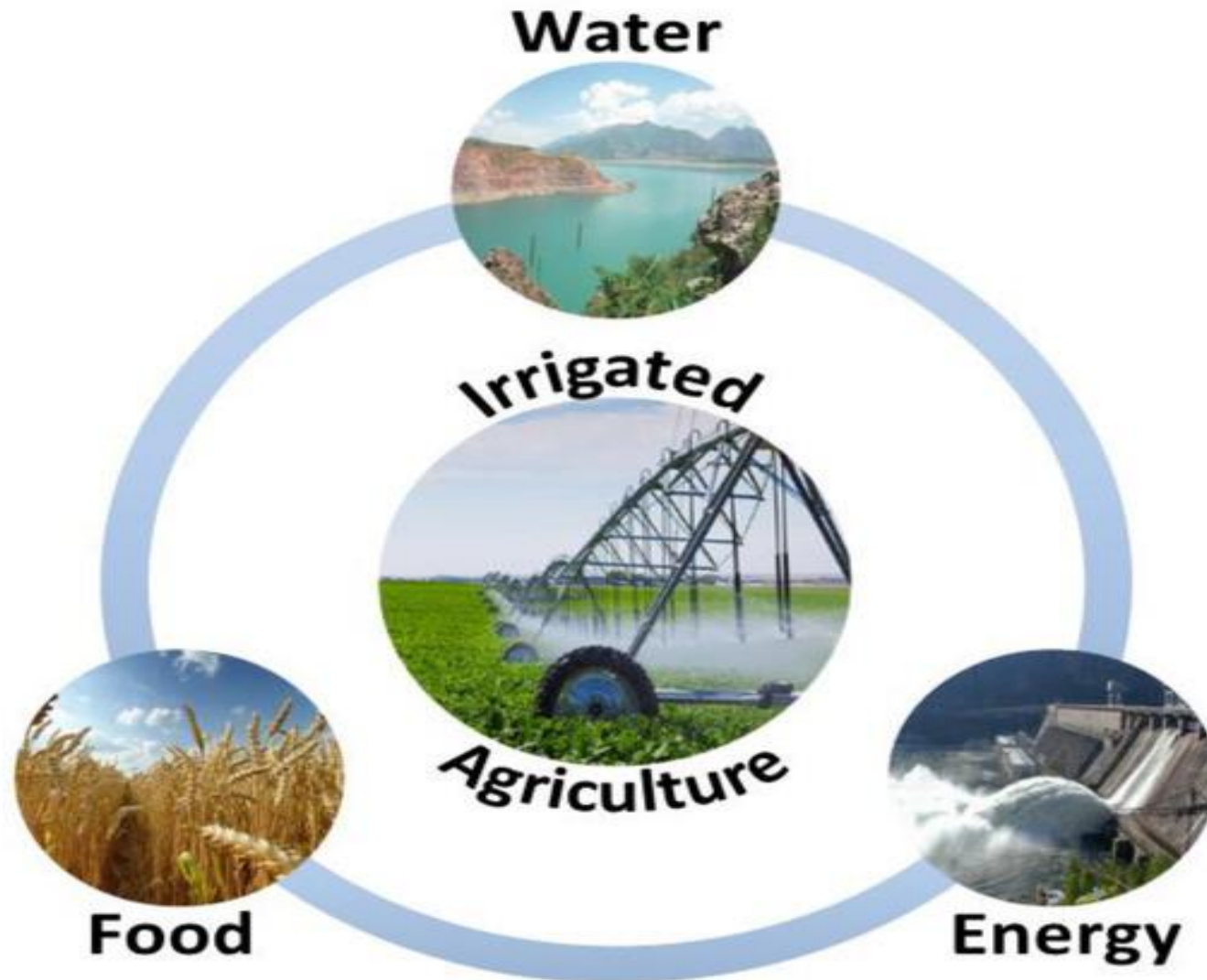
External Threats

Internal Threats

Climate Change



Water, Food and Energy nexus



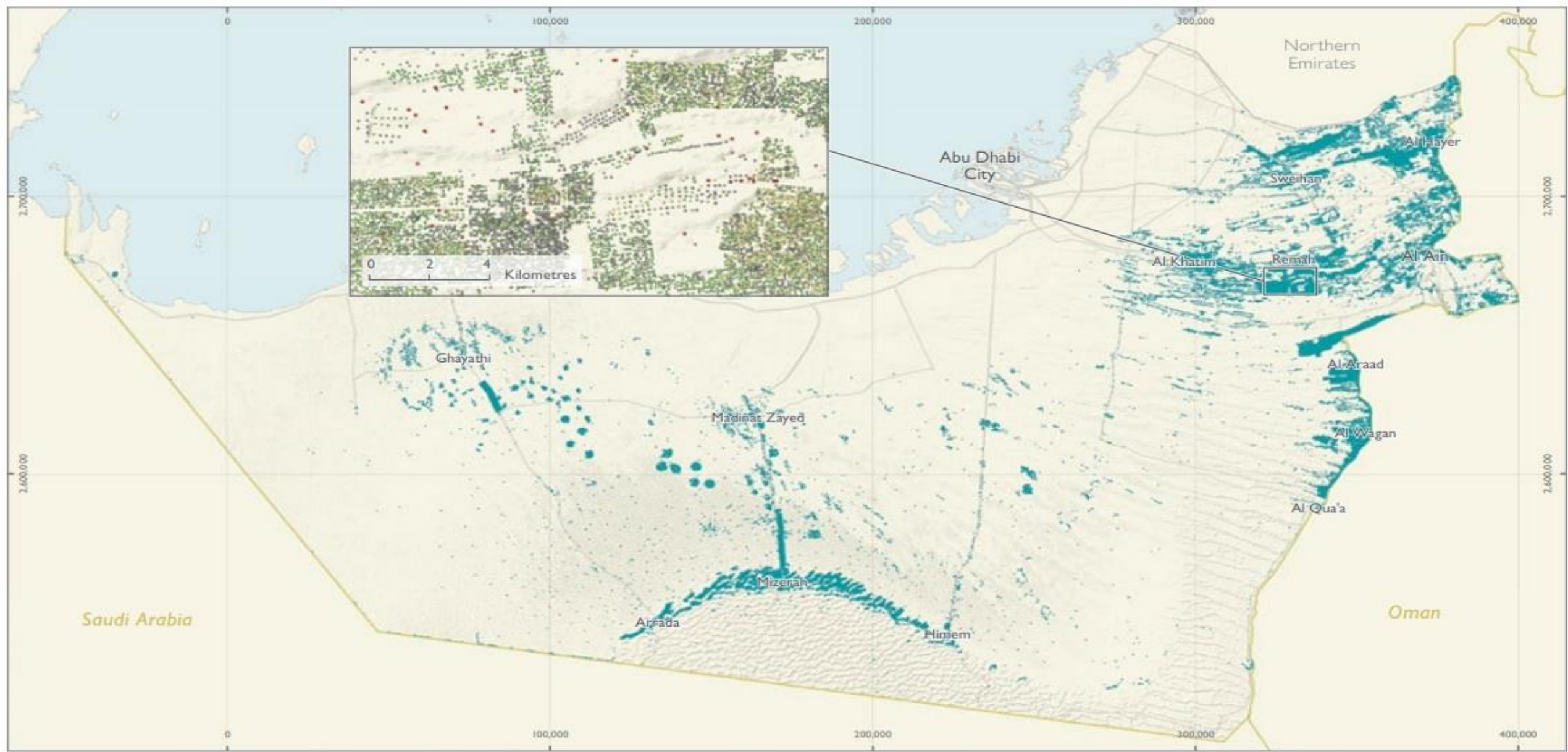
24,018 Farms Irrigated with 54,000 Groundwater Wells



17,967 Farms irrigated with GW
2,214 Farms irrigated with Desal
3,694 Farms irrigated with Desal+GW
143 Farms irrigated with TSE



118,000 Wells
54,000 Operating Wells
31,000 Highly production wells



Main Map - Well Locations

● Groundwater Well

Data Sources: ADM/ADNOC/AACM/WRM 2015/16/17, EAD-WSI 2017

Inset Map - Well Status

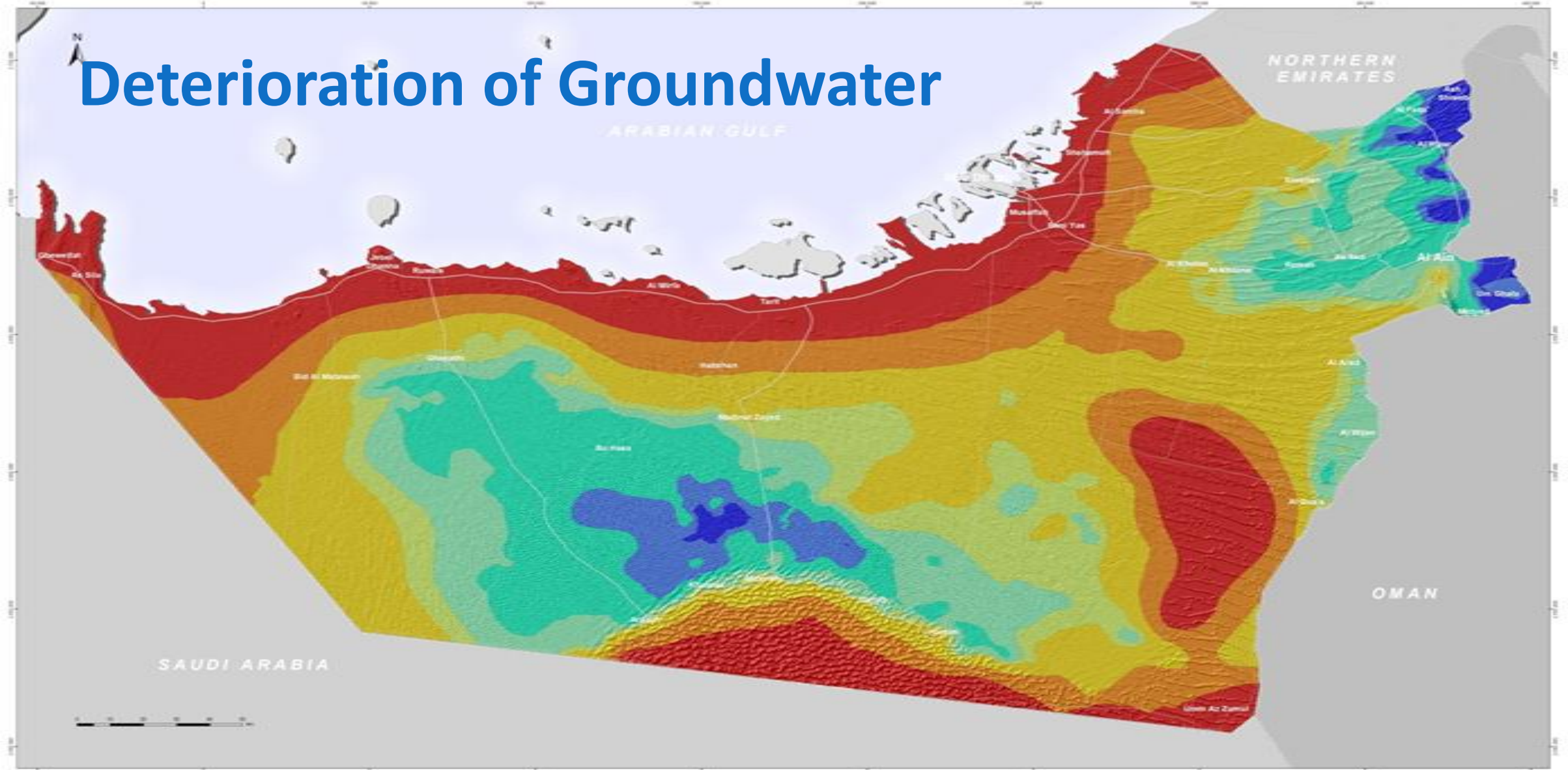
■ Exploration / Observation

● Operation

● Backfilled

● Disused

Deterioration of Groundwater



Salinity of Shallow Aquifer

Filled Contours of TDS [ppm]



Contour Map: Salinity of Shallow Aquifer

Last Data Update: February 2008

Release Date: May 2008

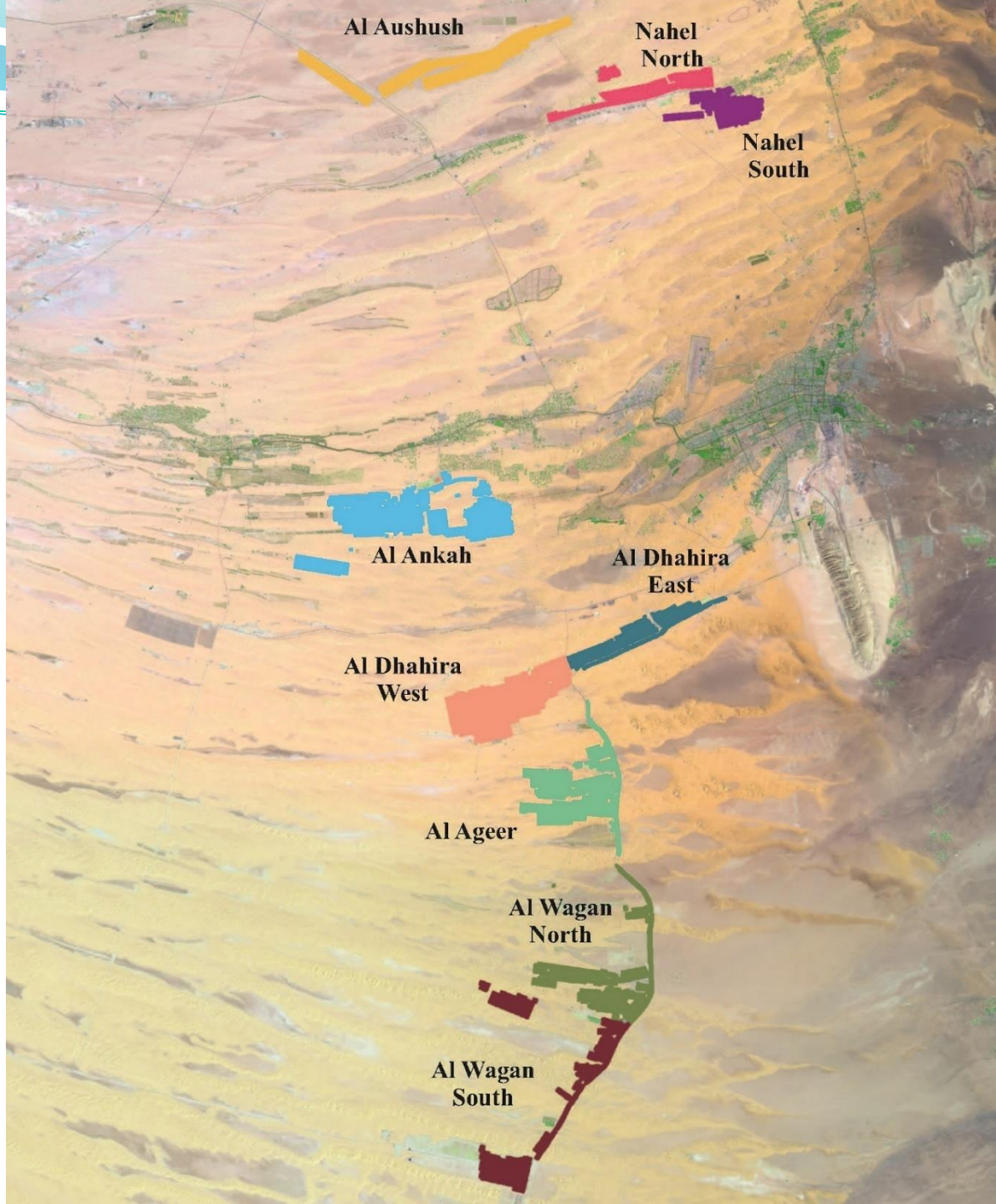
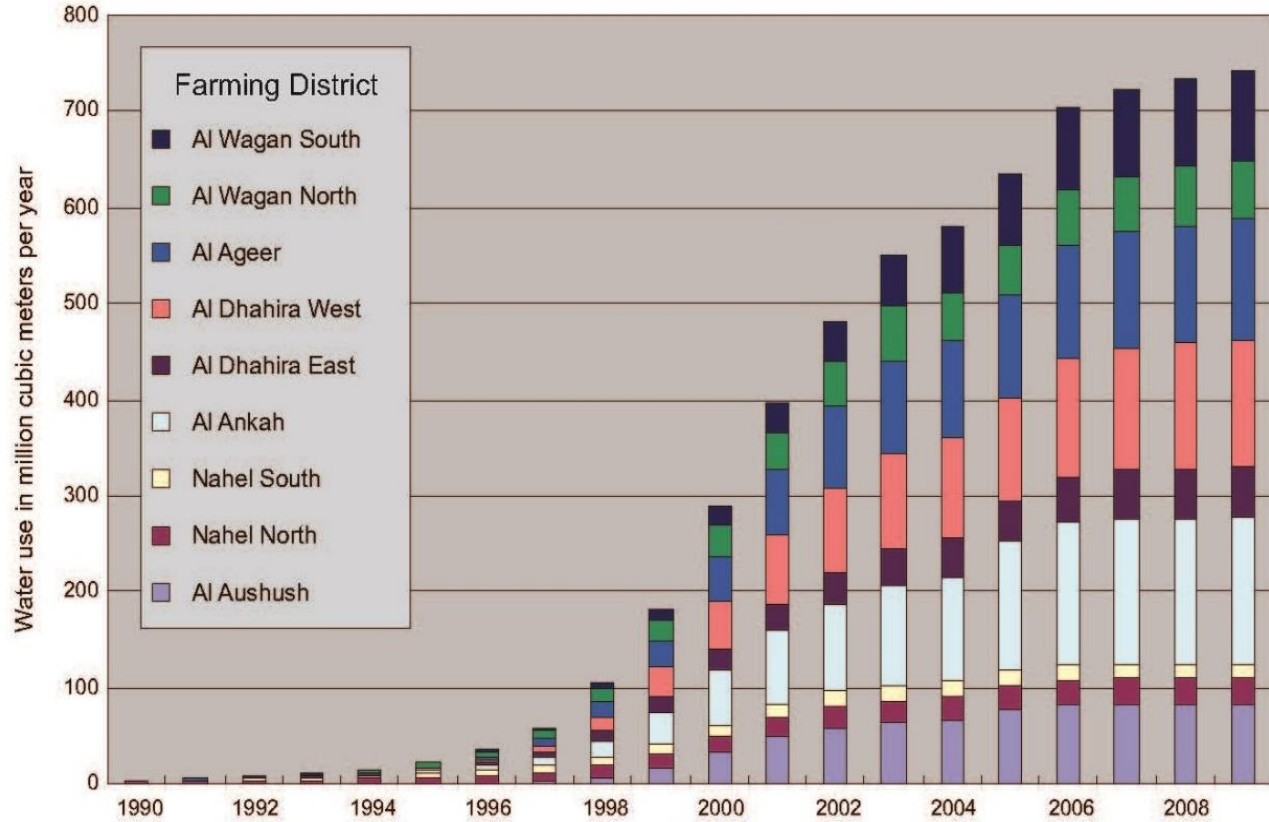
Projection: UTM Zone 48
Datum: Nahyan UAE

Environment Agency - Abu Dhabi



Abu Dhabi, UAE

Location of 9 farming districts for which electric meter readings were analyzed

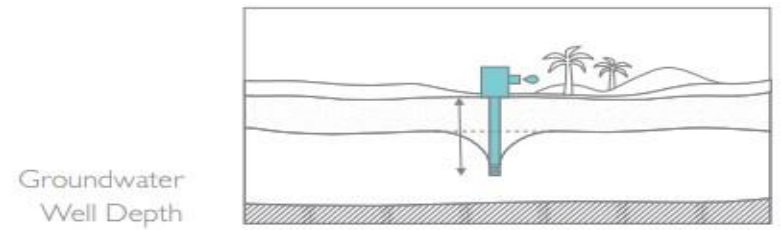


Farms	Year					
	2014	2015	2016	2017	2018	2019
Al Aushush						
Number of farms	810	908	917	921	926	915
Average use (m ³ /day/farm)	225	234	246	247	246	250
Minimum use (m ³ /day/farm)	1	1	10	10	5	2
Maximum use (m ³ /day/farm)	651	620	620	620	622	738
Standard deviation (m ³ /day)	97	87	84	84	88	88
Total daily use (m³)	182,000	213,000	225,000	227,000	228,000	229,000
Total annual use (Mm³)	66.6	77.8	82.4	83	83.2	83.7

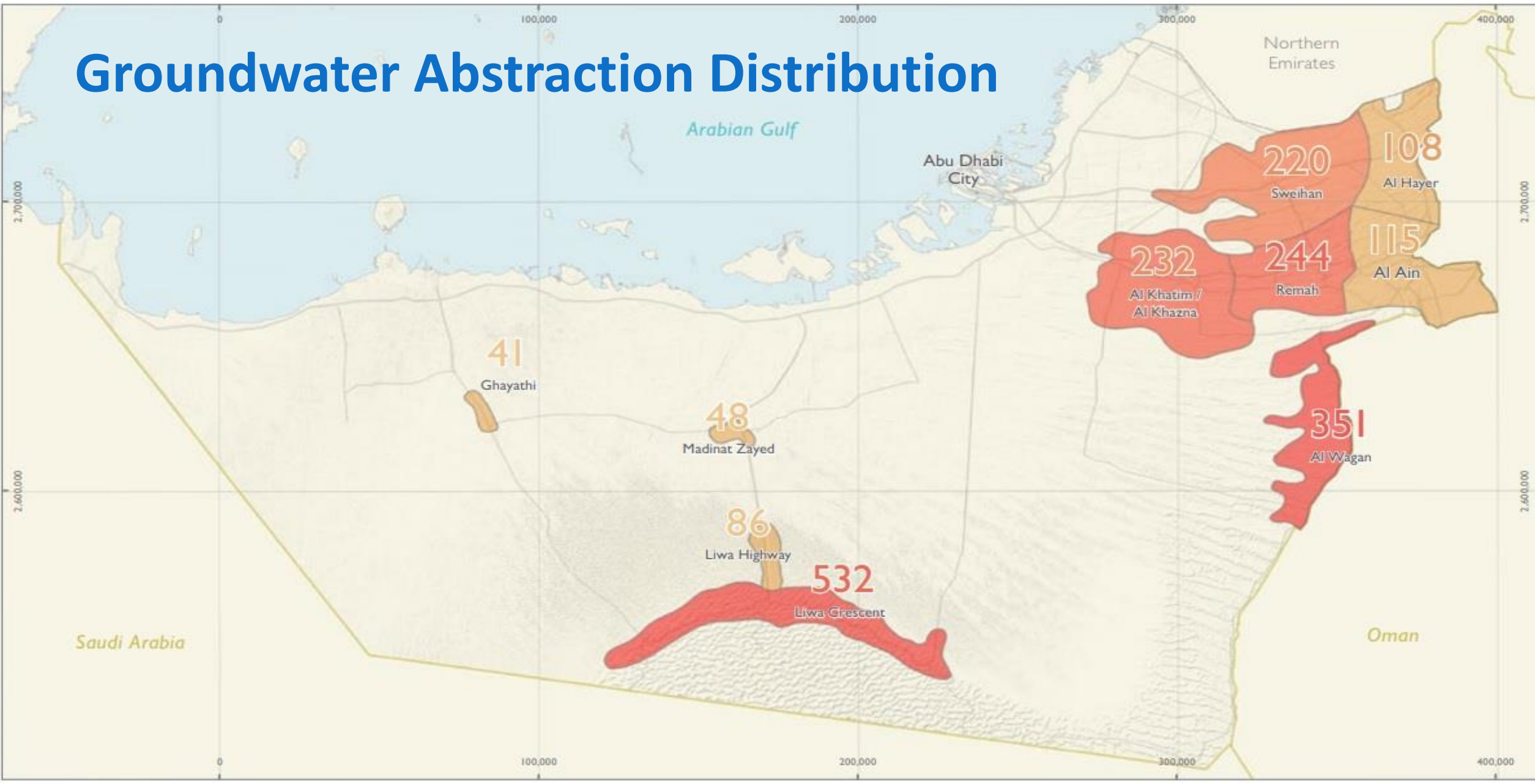
Groundwater Well Use



Depth of Groundwater Wells (m below Ground Level)



Groundwater Abstraction Distribution



Thanks



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