Vulnerability of Water Available for Crops

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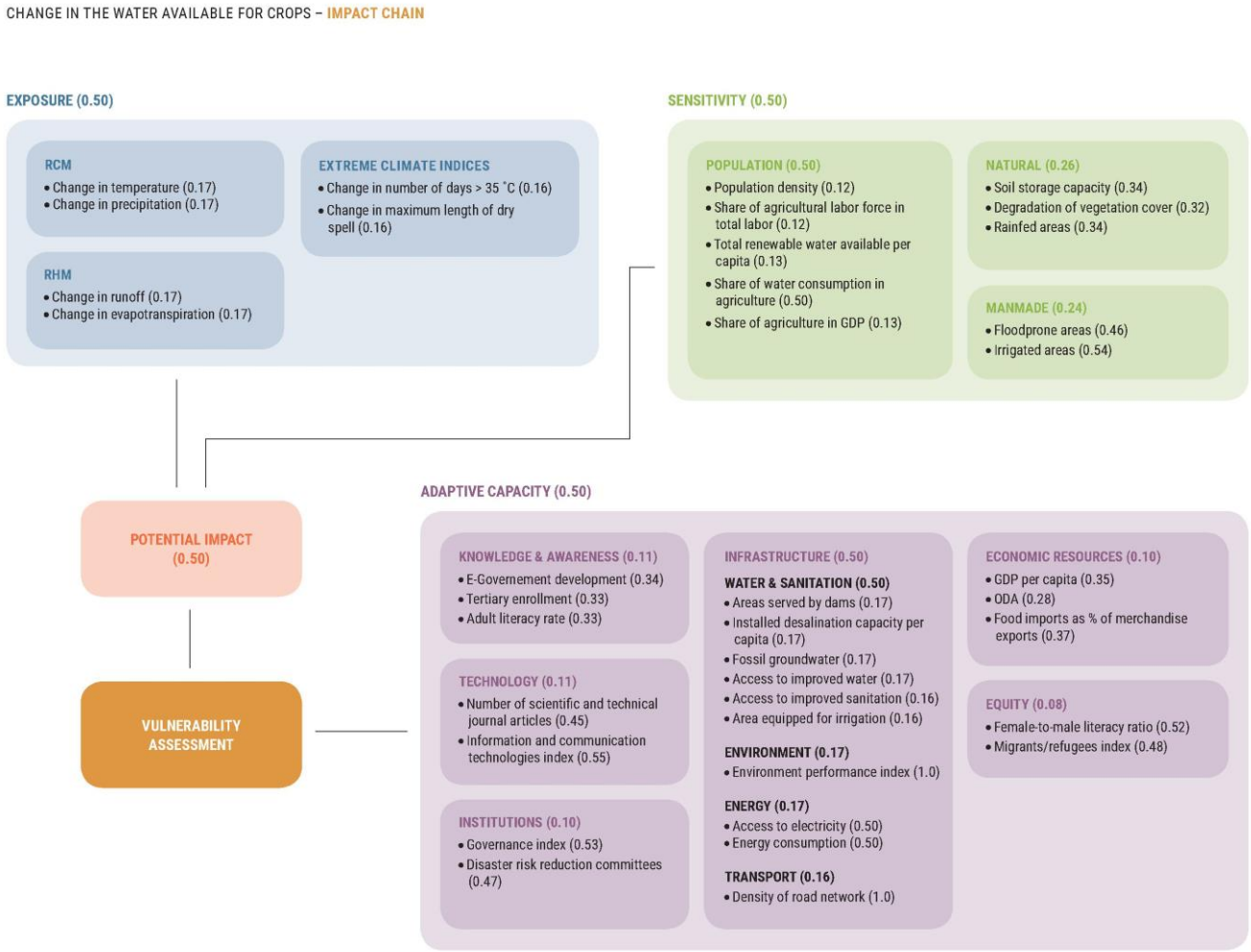
Study area

- The water availability study area represents 22% of the Arab Region and is defined by:
- rainfed cropland Area ,and
- irrigated cropland areas

Impact chain of Water Available for Crops



6 Exposure indicators

10 Sensitivity indicators

20 Adaptive Capacity indicators

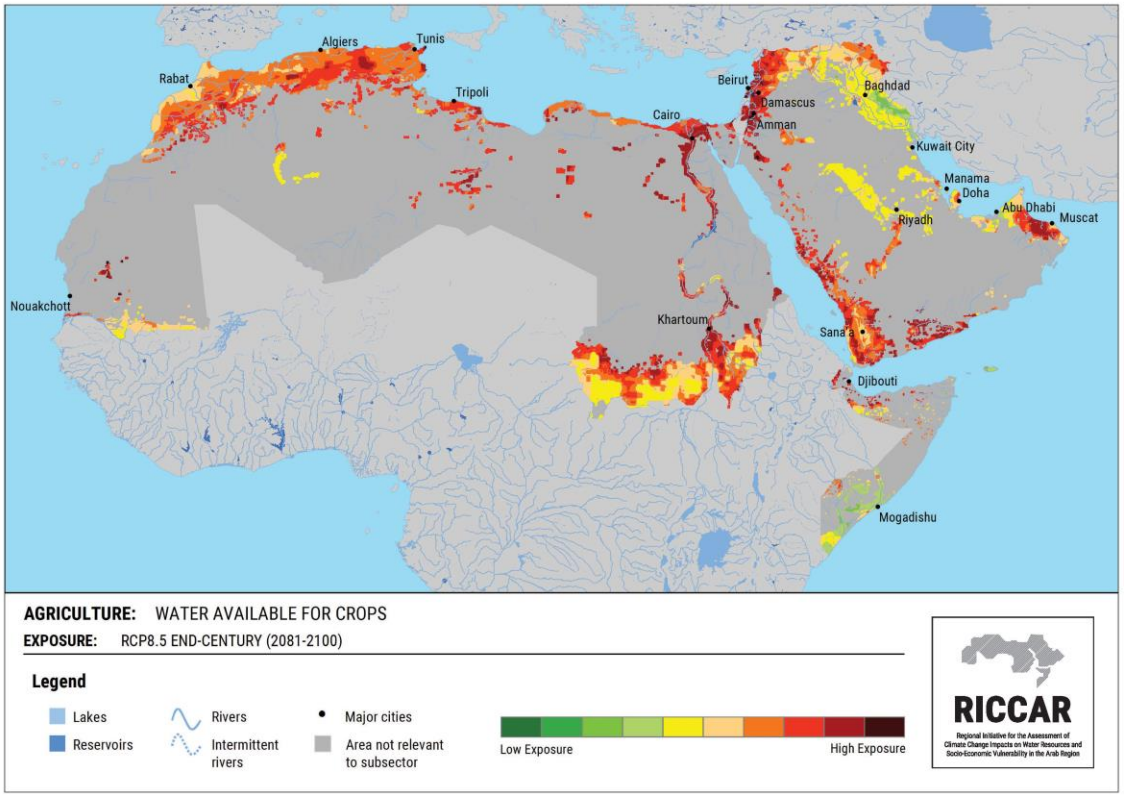
Exposure

EXPOSURE (0.50)

RCM
- Change in temperature (0.17)
- Change in precipitation (0.17)

EXTREME CLIMATE INDICES
- Change in number of days > 35 °C (0.16)
- Change in maximum length of dry spell (0.16)

RHM
- Change in runoff (0.17)
- Change in evapotranspiration (0.17)



Scenario	Percentage of study area		
	Low EX	Moderate EX	High EX
RCP 4.5 Mid-century	7%	86%	7%
RCP 8.5 Mid-century	1%	67%	32%
RCP 4.5 End-century	6%	68%	26%
RCP 8.5 End-century	1%	35%	64%

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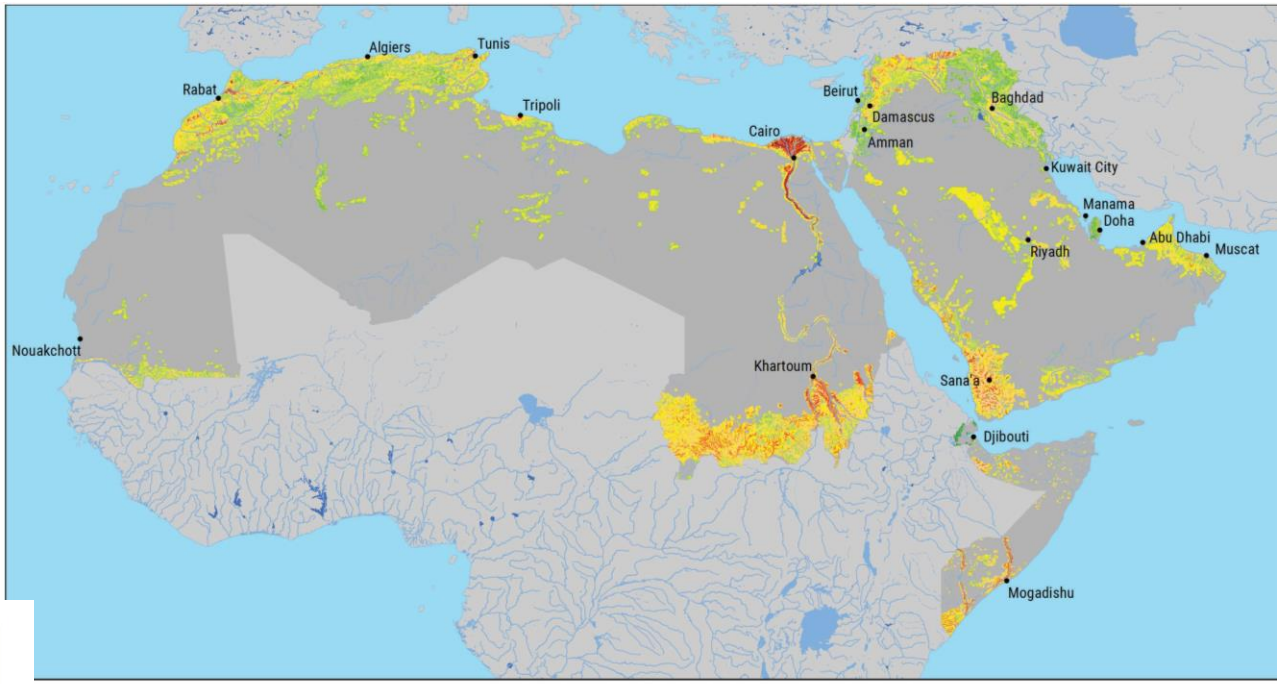
sensitivity



POPULATION (0.50)
- Population density (0.12)
- Share of agricultural labor force in total labor (0.12)
- Total renewable water available per capita (0.13)
- Share of water consumption in agriculture (0.50)
- Share of agriculture in GDP (0.13)

NATURAL (0.26)
- Soil storage capacity (0.34)
- Degradation of vegetation cover (0.32)
- Rainfed areas (0.34)

MANMADE (0.24)
- Floodprone areas (0.46)
- Irrigated areas (0.54)

AGRICULTURE: WATER AVAILABLE FOR CROPS
SENSITIVITY

Legend

Lakes
Reservoirs
Rivers
Intermittent rivers
Major cities
Area not relevant to subsector

Low Sensitivity — High Sensitivity

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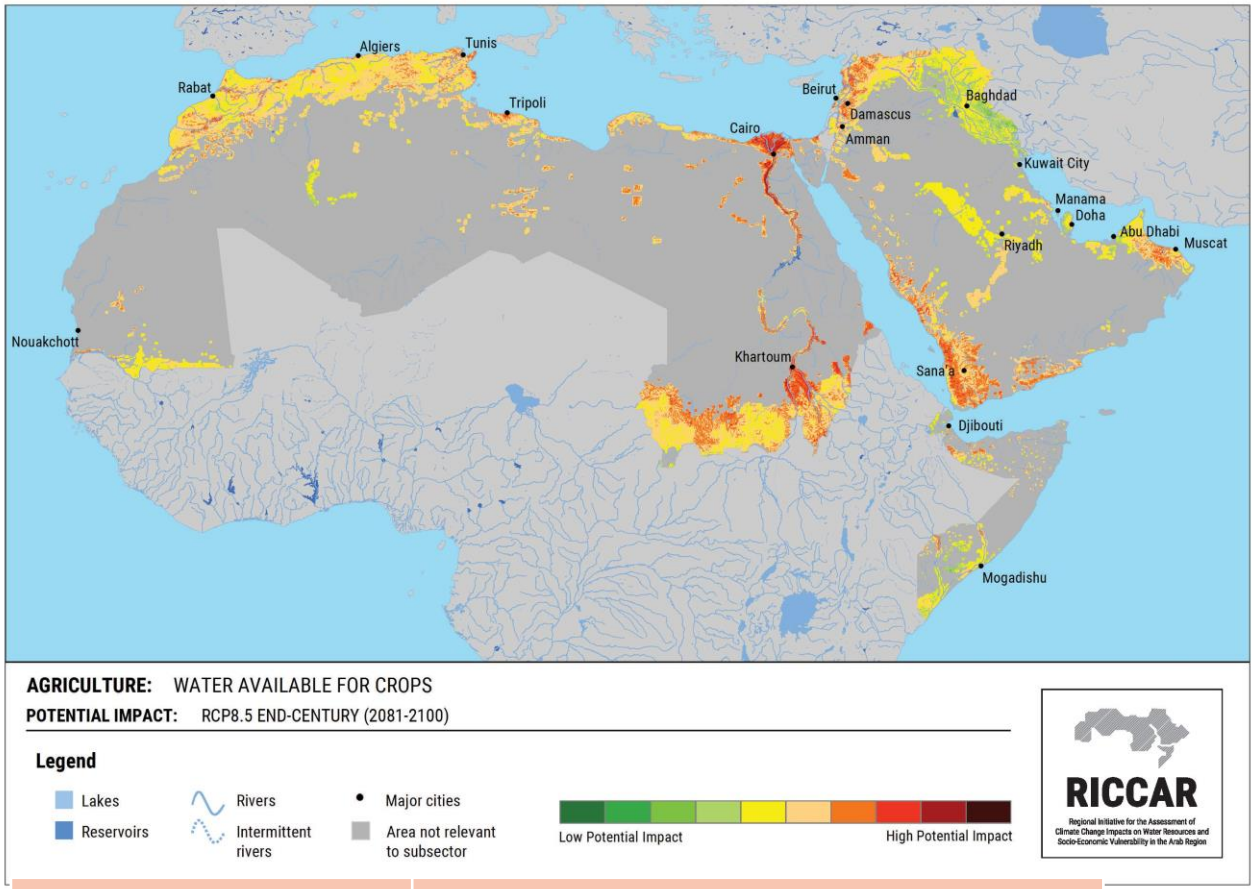
Scenario	Percentage of study area		
	Low SE	Moderate SE	High SE
All climate scenarios	28%	66%	7%

potential impact



Scenario	Percentage of study area		
	Low PI	Moderate PI	High PI
RCP 4.5 Mid-century	3%	94%	4%
RCP 8.5 Mid-century	0%	90%	10%
RCP 4.5 End-century	2%	89%	9%
RCP 8.5 End-century	0%	79%	21%

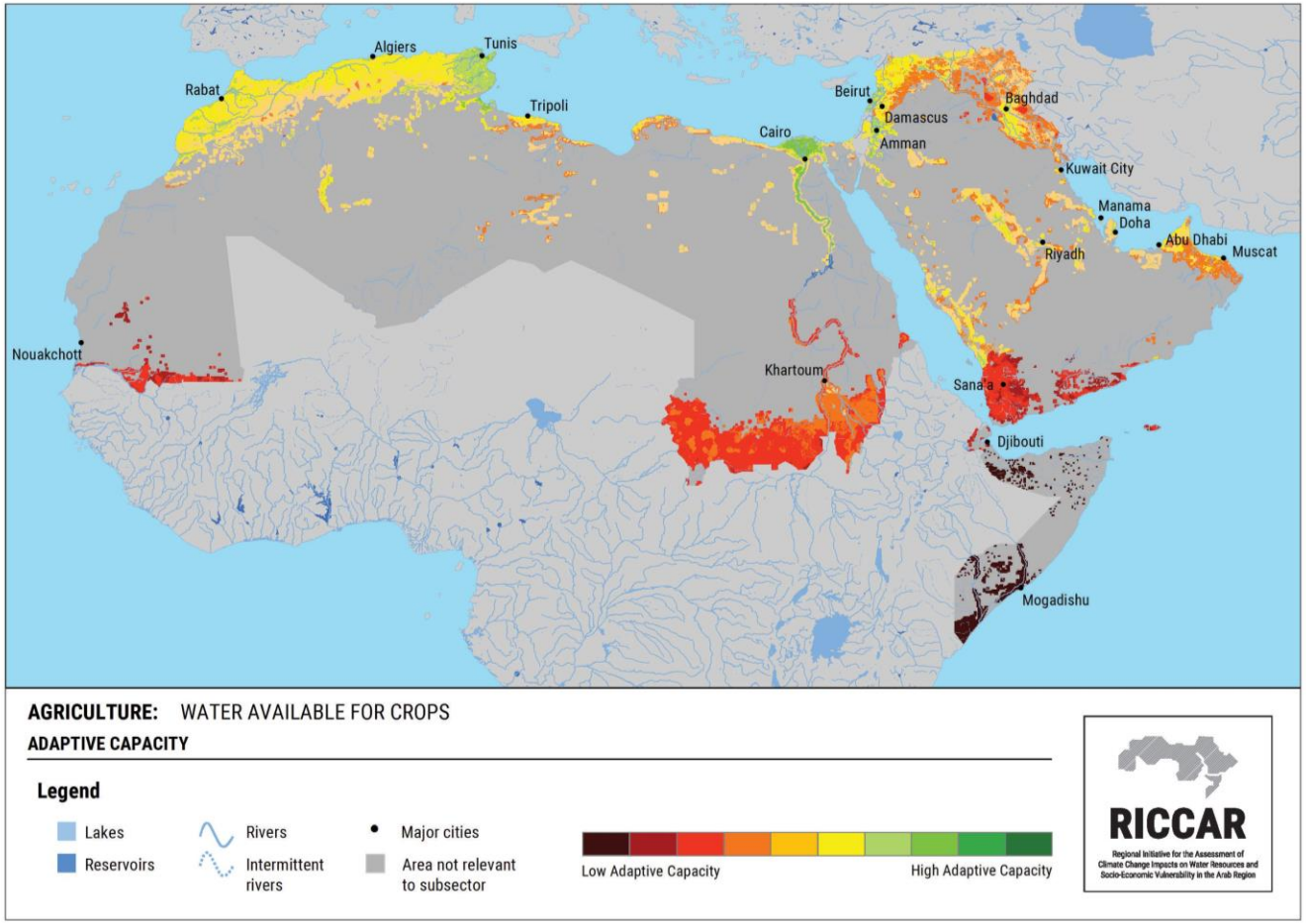
Areas with highest potential impact:

- The lower Nile River valley
- The eastern ME cost

Areas with lowest potential impact

- Tigris-Euphrates Basin

Adaptive capacity

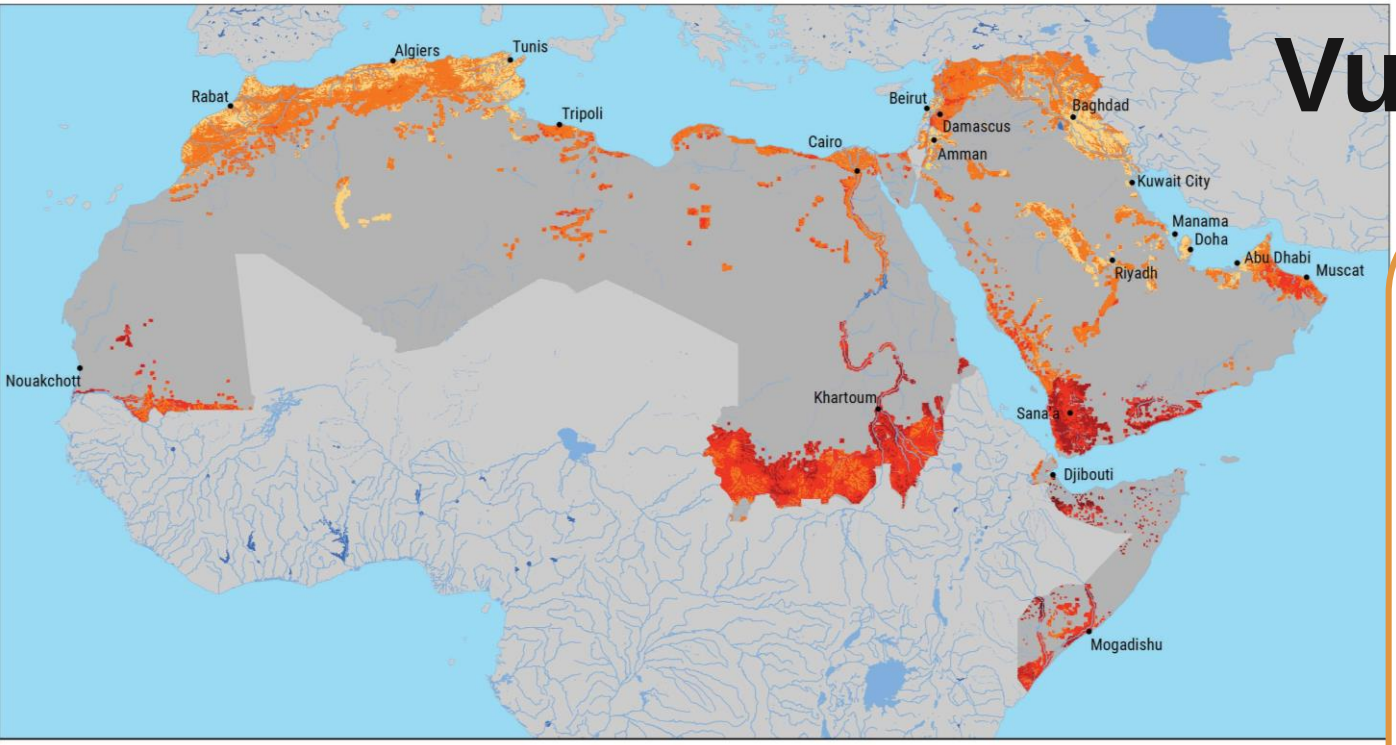


Areas with lowest adaptive capacity:

- the Horn of Africa
- The southern of Sudan,
- The southern of Mauretania and
- the southwestern Arabian Peninsula.

Scenario	Percentage of study area		
	Low AC	Moderate AC	High AC
All climate scenarios	28%	66%	7%

Vulnerability

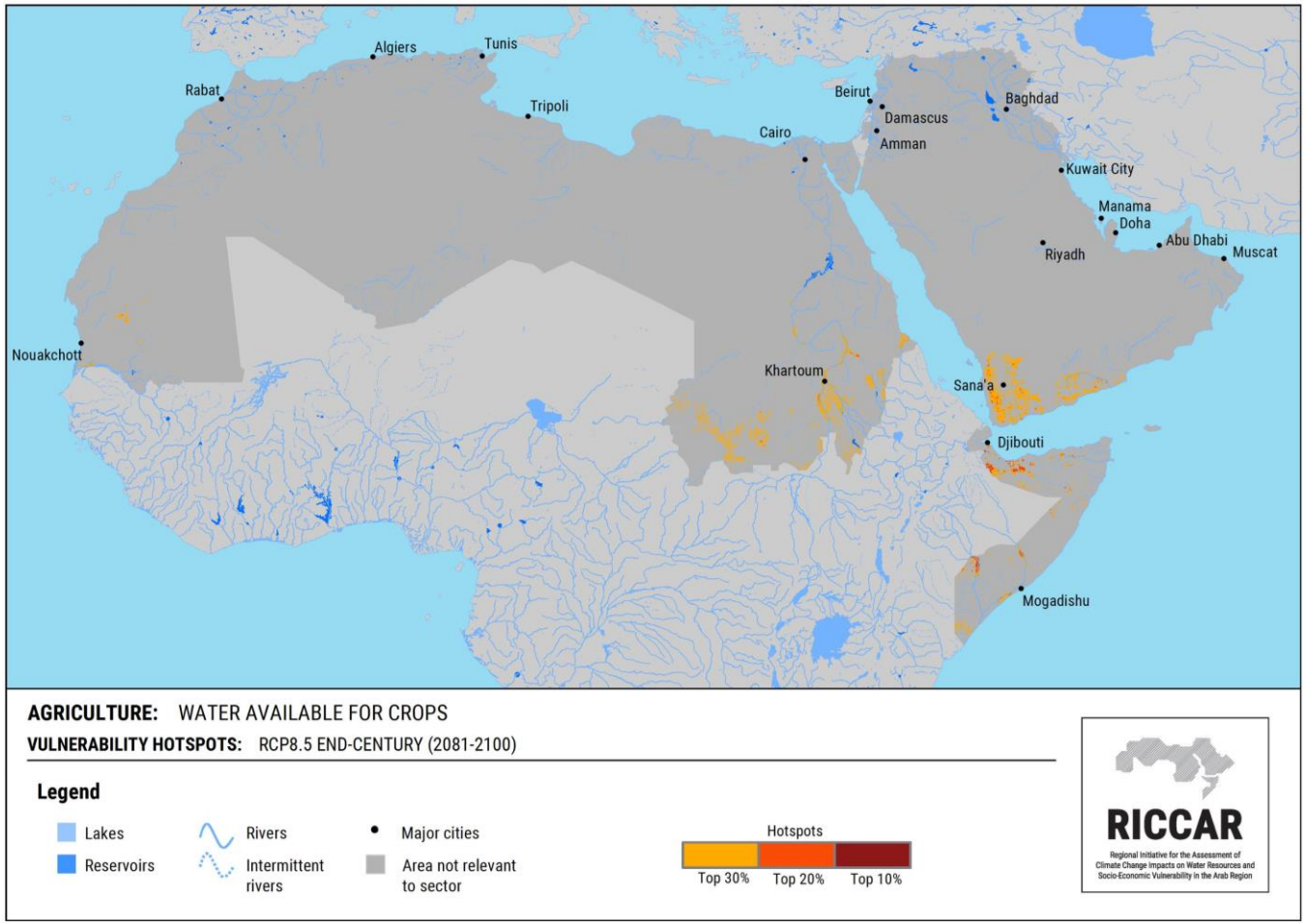


Scenario	Percentage of study area		
	Low Vul	Moderate Vul	High Vul
RCP 4.5 Mid-century	0%	50%	50%
RCP 8.5 Mid-century	0%	33%	67%
RCP 4.5 End-century	0%	43%	57%
RCP 8.5 End-century	0%	16%	84%

Areas with highest vulnerability:

- the upper Nile Valley,
- the southwestern Arabian Peninsula, and
- **Areas with lowest vulnerability**:
- the Mediterranean coast of the Maghreb,,
- parts of the Levant, the Tigris-Euphrates Basin, and the central eastern Arabian Desert.

Vulnerability hotspots:



Hotspots

- sub-Saharan Africa,
- the Horn of Africa, and
- the southwestern Arabian Peninsula

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