Vulnerability to inland flooding

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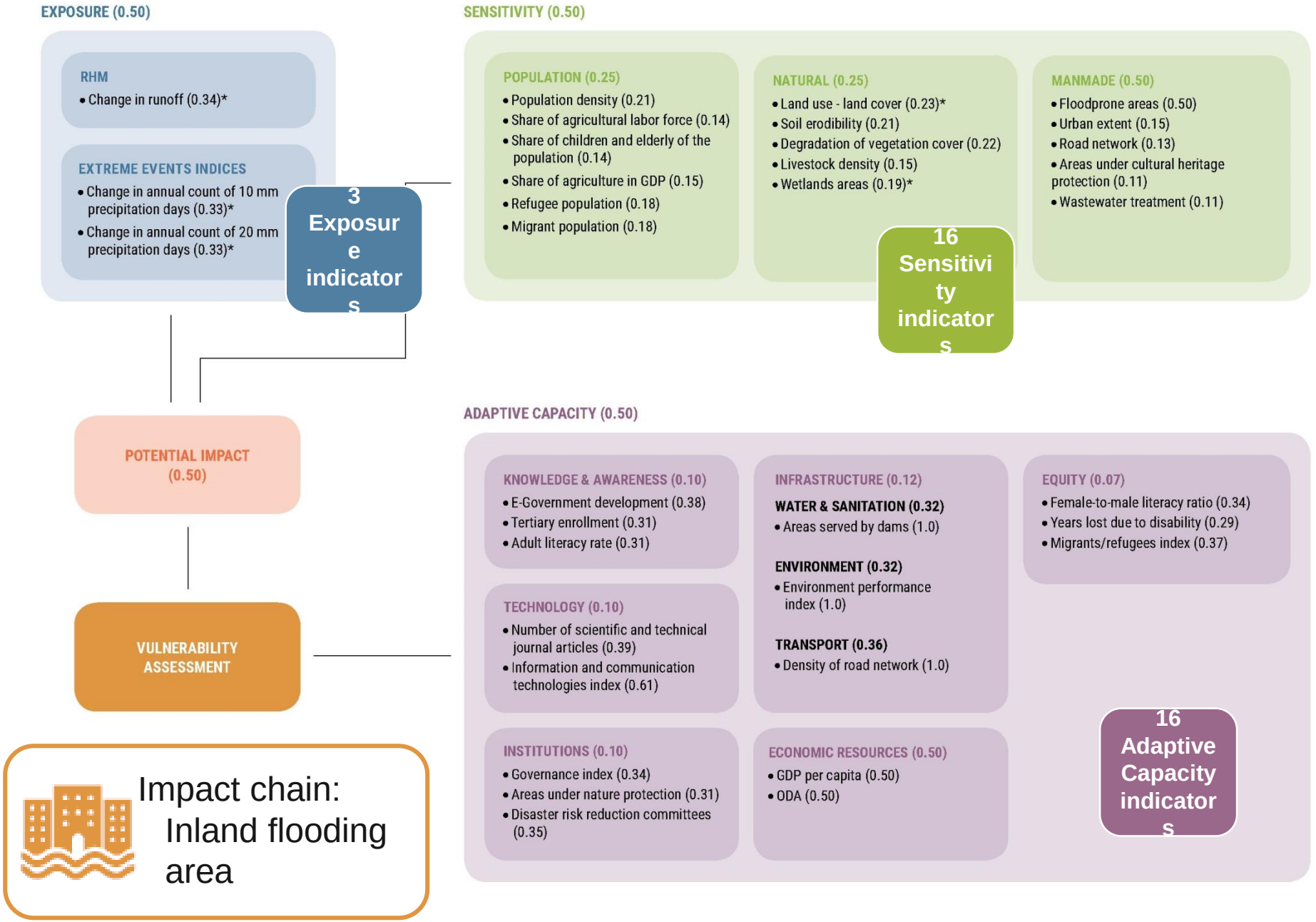
Inland flooding areas:
Study area

Infrastructure and Human Settlements

Inland flooding area

Study area based on areas with low flood potential or greater


EXPOSURE (0.50)
RHM
• Change in runoff (0.34)*
EXTREME EVENTS INDICES
• Change in annual count of 10 mm precipitation days (0.33)*
• Change in annual count of 20 mm precipitation days (0.33)*
3 Exposure indicators
SENSITIVITY (0.50)
POPULATION (0.25)
• Population density (0.21)
• Share of agricultural labor force (0.14)
• Share of children and elderly of the population (0.14)
• Share of agriculture in GDP (0.15)
• Refugee population (0.18)
• Migrant population (0.18)
NATURAL (0.25)
• Land use - land cover (0.23)*
• Soil erodibility (0.21)
• Degradation of vegetation cover (0.22)
• Livestock density (0.15)
• Wetlands areas (0.19)*
MANMADE (0.50)
• Floodprone areas (0.50)
• Urban extent (0.15)
• Road network (0.13)
• Areas under cultural heritage protection (0.11)
• Wastewater treatment (0.11)
16 Sensitivity indicators
POTENTIAL IMPACT (0.50)
VULNERABILITY ASSESSMENT
ADAPTIVE CAPACITY (0.50)
KNOWLEDGE & AWARENESS (0.10)
• E-Government development (0.38)
• Tertiary enrollment (0.31)
• Adult literacy rate (0.31)
TECHNOLOGY (0.10)
• Number of scientific and technical journal articles (0.39)
• Information and communication technologies index (0.61)
INSTITUTIONS (0.10)
• Governance index (0.34)
• Areas under nature protection (0.31)
• Disaster risk reduction committees (0.35)
INFRASTRUCTURE (0.12)
WATER & SANITATION (0.32)
• Areas served by dams (1.0)
ENVIRONMENT (0.32)
• Environment performance index (1.0)
TRANSPORT (0.36)
• Density of road network (1.0)
ECONOMIC RESOURCES (0.50)
• GDP per capita (0.50)
• ODA (0.50)
EQUITY (0.07)
• Female-to-male literacy ratio (0.34)
• Years lost due to disability (0.29)
• Migrants/refugees index (0.37)
16 Adaptive Capacity indicators
Impact chain:
Inland flooding
area

EXPOSURE (0.50)

RHM

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EXTREME EVENTS INDICES

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Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region

16 indicators

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Exposure

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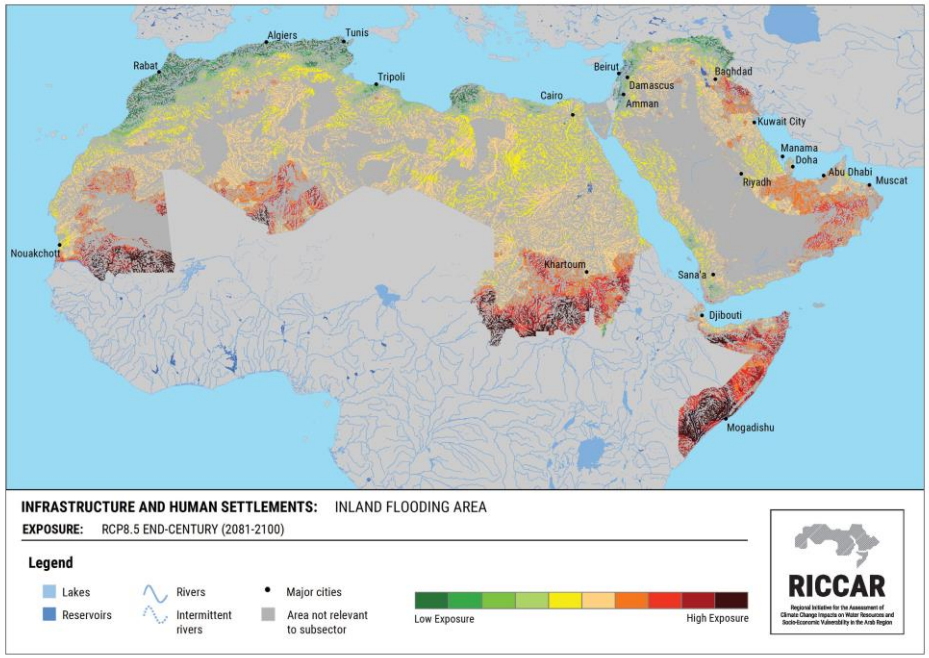

Scenario	Percentage of study area		
	Low EX	Moderate EX	High EX
RCP 4.5 Mid-century	5%	79%	16%
RCP 8.5 Mid-century	5%	75%	20%
RCP 4.5 End-century	4%	71%	25%
RCP 8.5 End-century	7%	60%	34%

sensitivity

SENSITIVITY (0.50)

POPULATION (0.25)
- Population density (0.21)
- Share of agricultural labor force (0.14)
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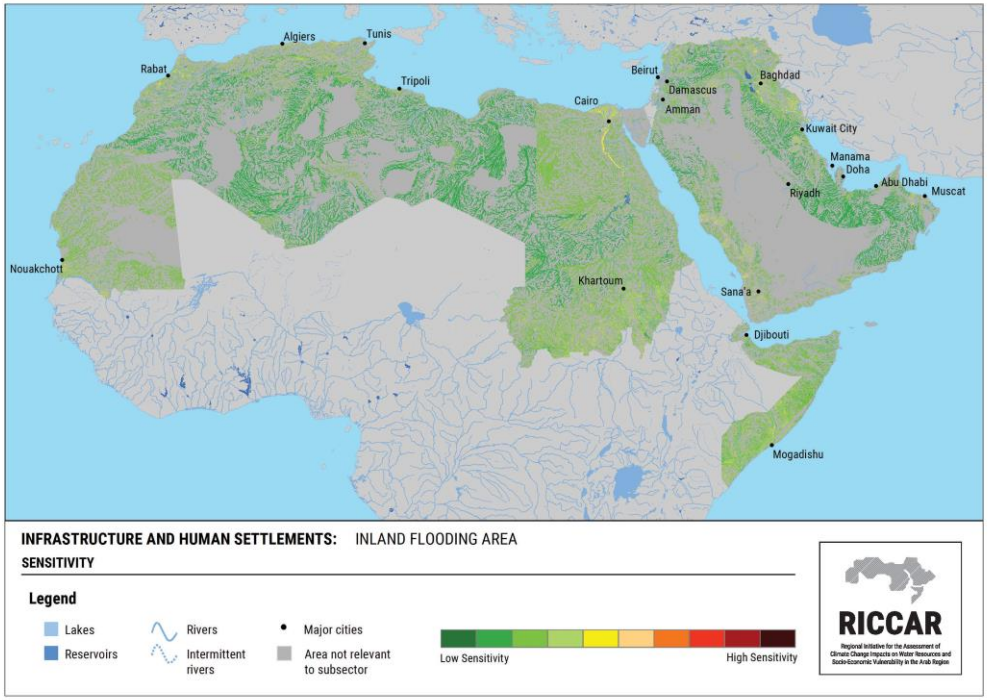
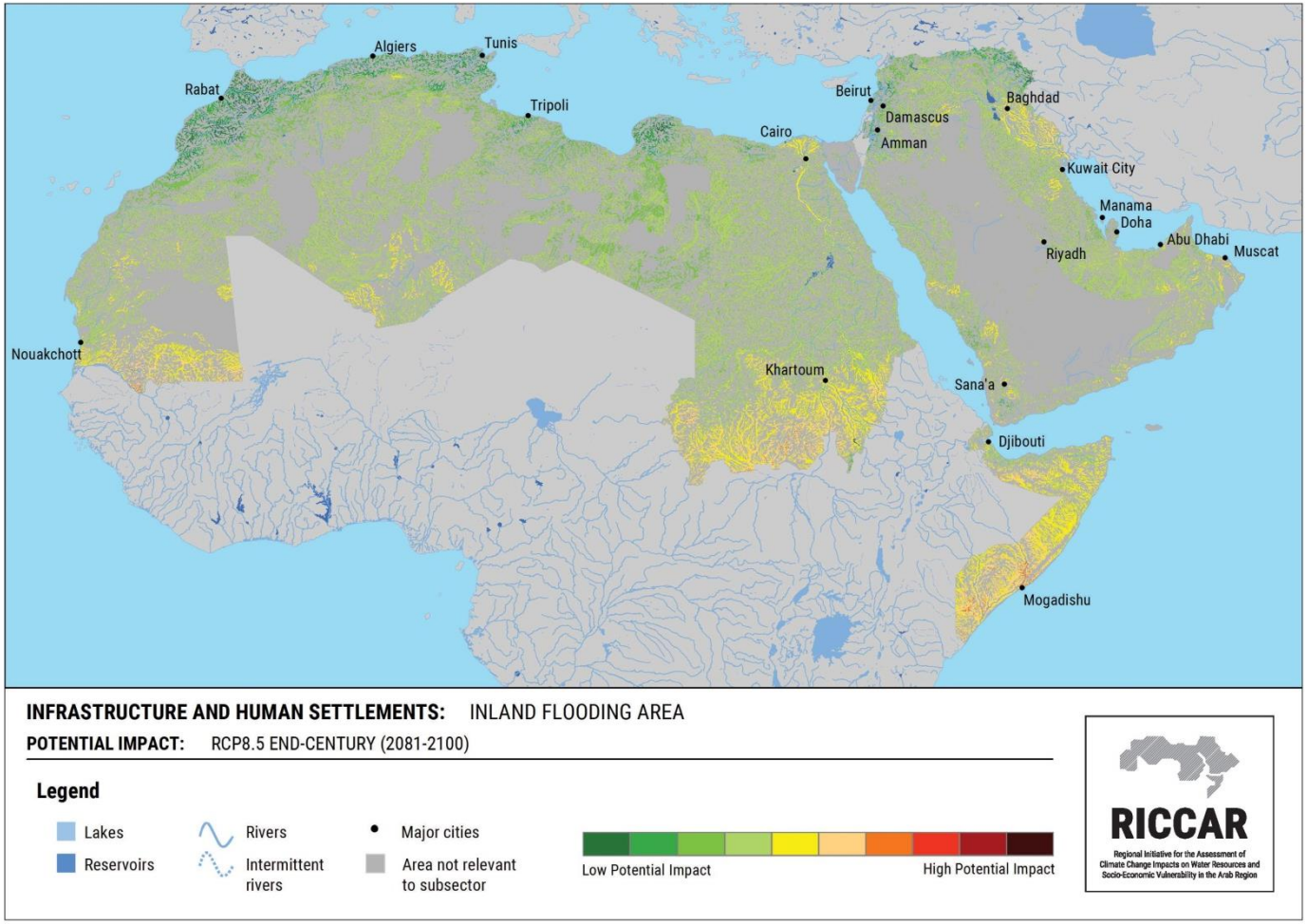


Scenario	Percentage of study area		
	Low SE	Moderate SE	High SE
All climate scenarios	89%	11%	0%



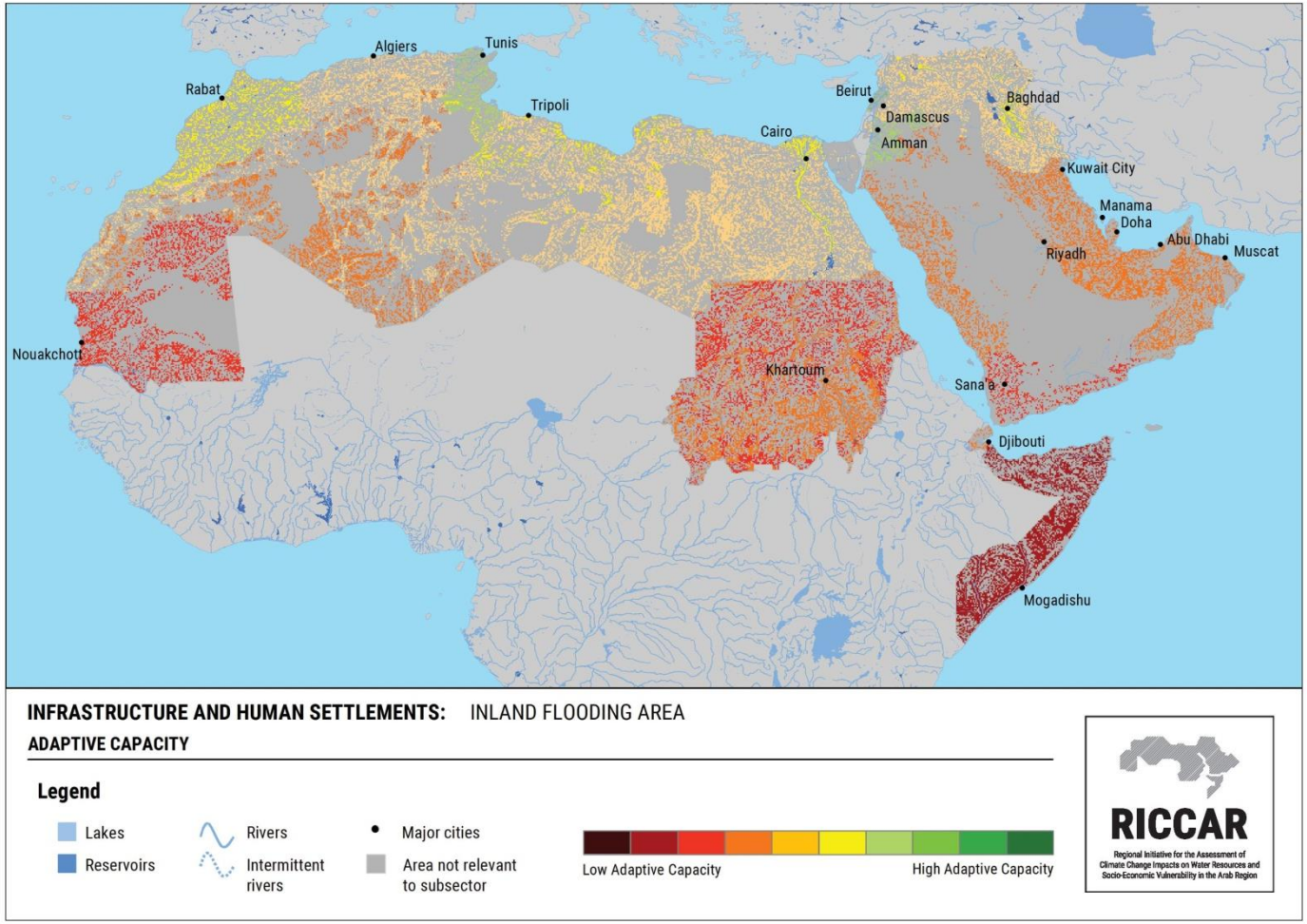
Scenario	Percentage of study area		
	Low PI	Moderate PI	High PI
RCP 4.5 Mid-century	17%	83%	0%
RCP 8.5 Mid-century	27%	73%	0%
RCP 4.5 End-century	21%	79%	0%
RCP 8.5 End-century	23%	76%	0%

Areas with highest potential impact:

- Middle valley of the Senegal River
- Jubba–Shabelle river floodplains
- Bahr el Arab floodplain (eastern Sahel)

Areas with lowest potential impact:

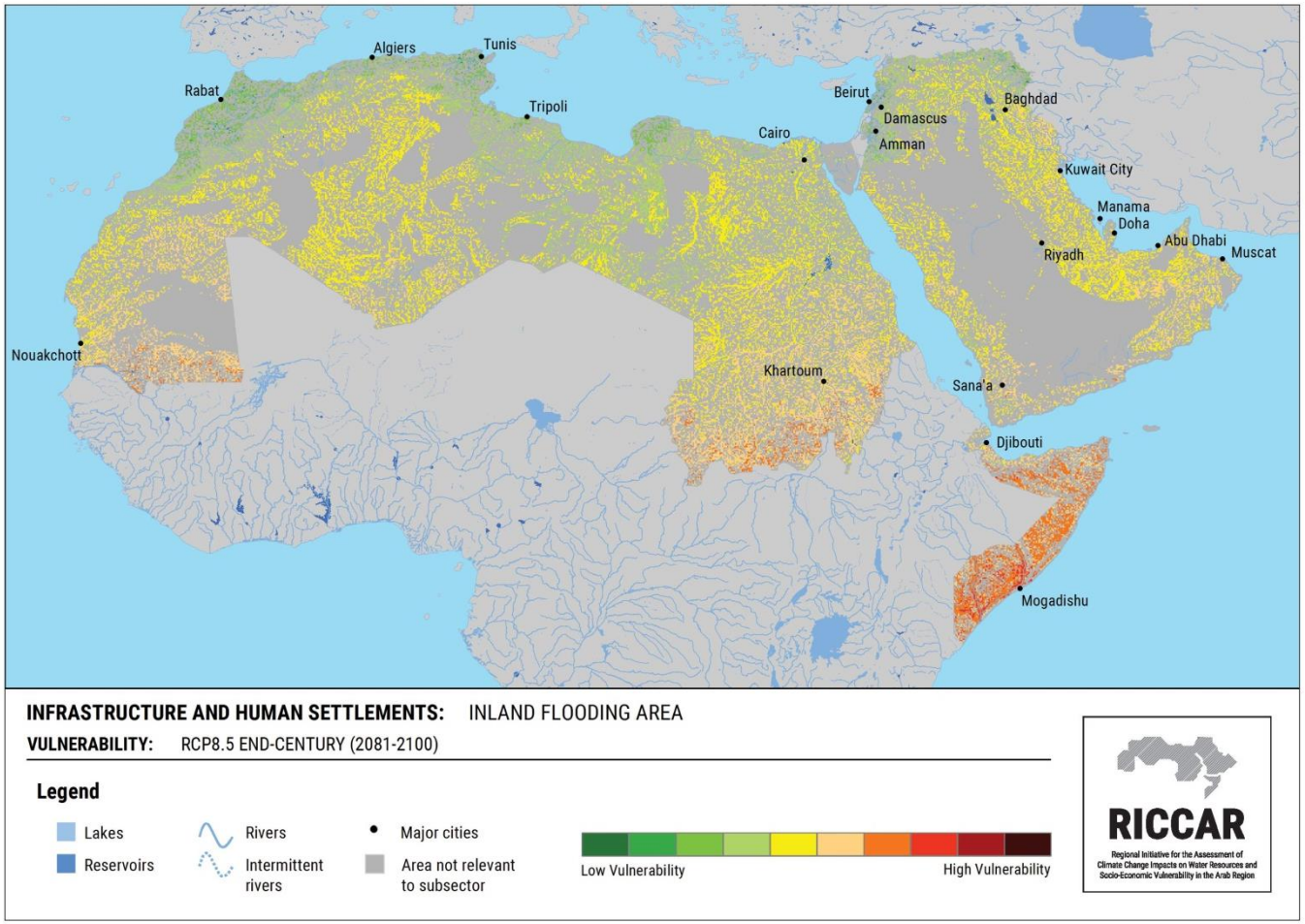
- Atlas Mountains and coastal plain
- Jafara Plain
- Green Mountains
- Coastal Levant
- Zagros Mountains



Areas with lowest adaptive capacity:

- Wadis and streams in sub-Saharan Africa
- Wadis and streams in south-western Arabian Peninsula

Scenario	Percentage of study area		
	Low AC	Moderate AC	High AC
All climate scenarios	25%	73%	2%



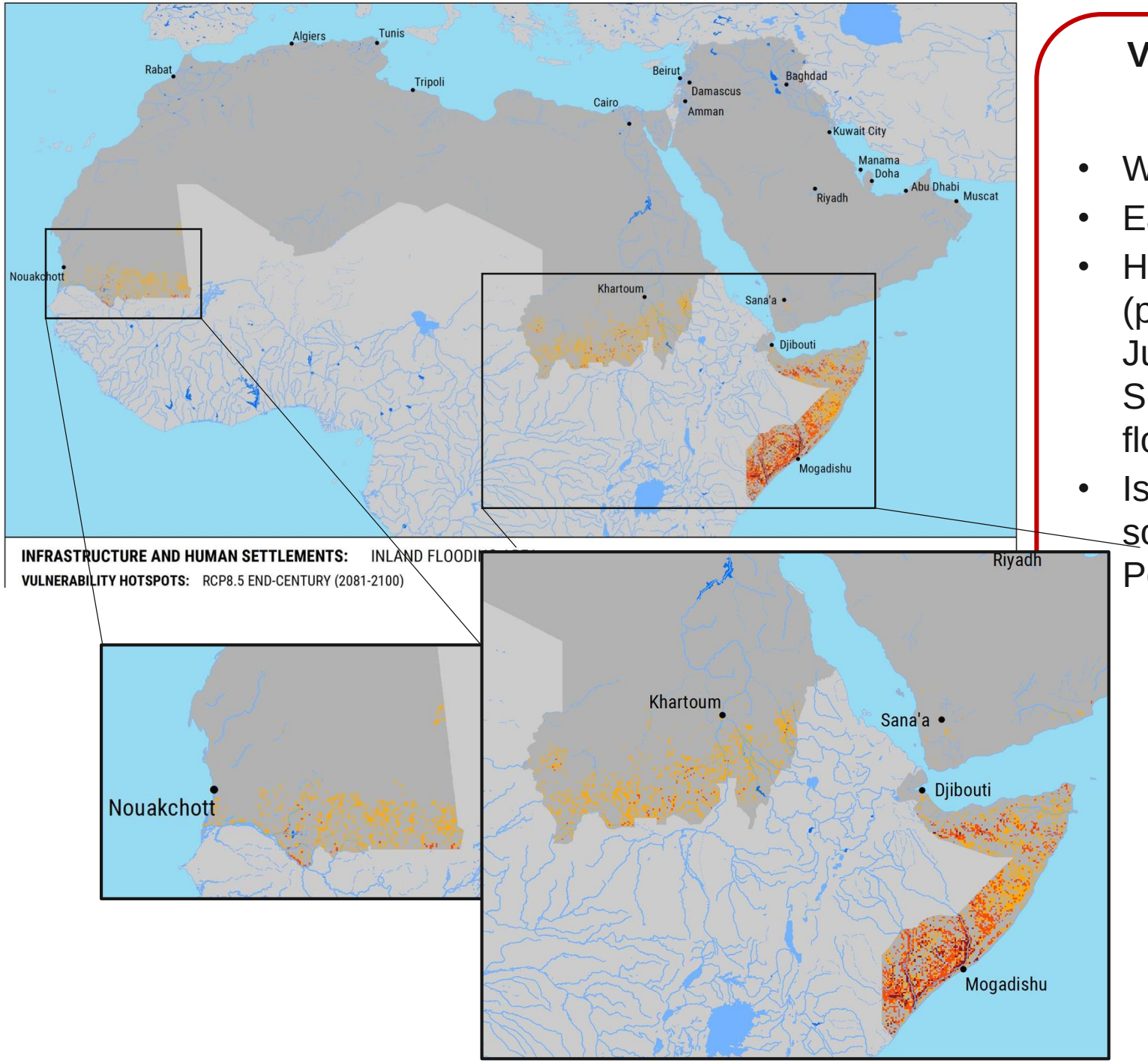
Areas with highest vulnerability:

- Sub-Saharan Africa

Areas with lowest vulnerability:

- North Africa and Levantine coastal areas

Scenario	Percentage of study area		
	Low Vul	Moderate Vul	High Vul
RCP 4.5 Mid-century	2%	94%	4%
RCP 8.5 Mid-century	3%	93%	4%
RCP 4.5 End-century	2%	94%	4%
RCP 8.5 End-century	4%	89%	7%



Vulnerability hotspots:

- Western Sahel
- Eastern Sahel
- Horn of Africa (particularly the Jubba and Shabelle river floodplains)
- Isolated areas- southern Arabian Peninsula

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Thank you

Infrastructure and Human Settlements

Inland flooding area