

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



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UN Economic & Social Commission for Western Asia (ESCWA)

Intergovernmental mandates calling for & supporting RICCAR & Climate Change Assessment in the Arab Region since 2007



Environment

Foreign Affairs

Water

Met

Agriculture

Planning

RICCAR

Objective: To assess the impact of climate change on freshwater resources in the Arab Region through a consultative and integrated regional initiative that seeks to identify the socio-economic and environmental vulnerability caused by climate change impacts on water resources based on regional specificities.

Purpose: To provide a common platform for assessing, addressing and informing response to climate change impacts on freshwater resources in the Arab region by serving as the basis for dialogue, priority setting and policy formulation on climate change at the regional level.

Assessment

Adaptation

Mitigation

Negotiations



RICCAR Partnerships



Shared Prosperity Dignified Life



ACSAD



LAS

SMHI



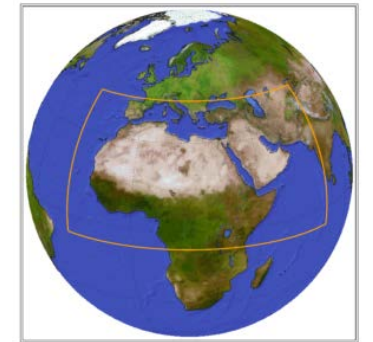
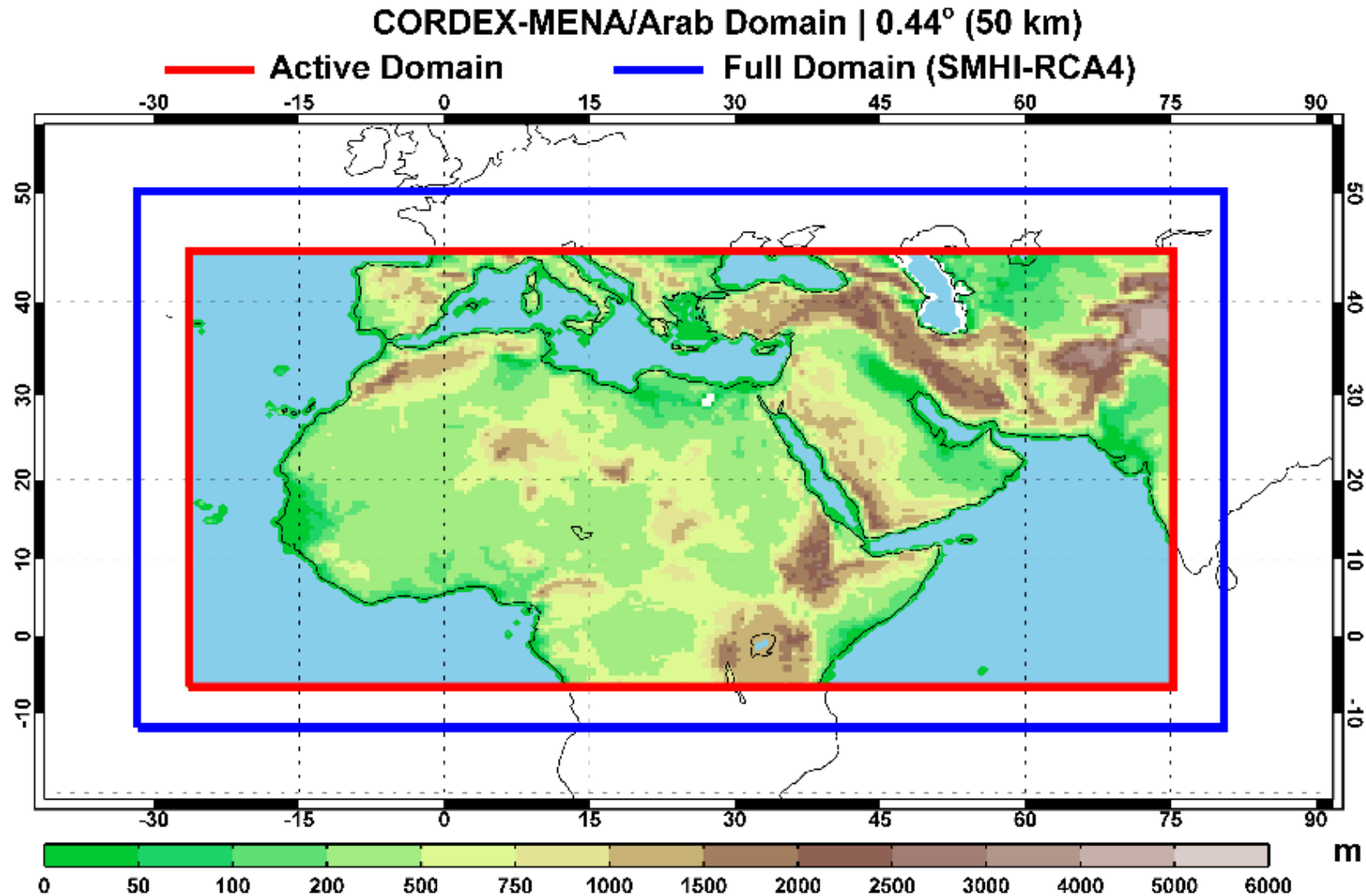
SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY



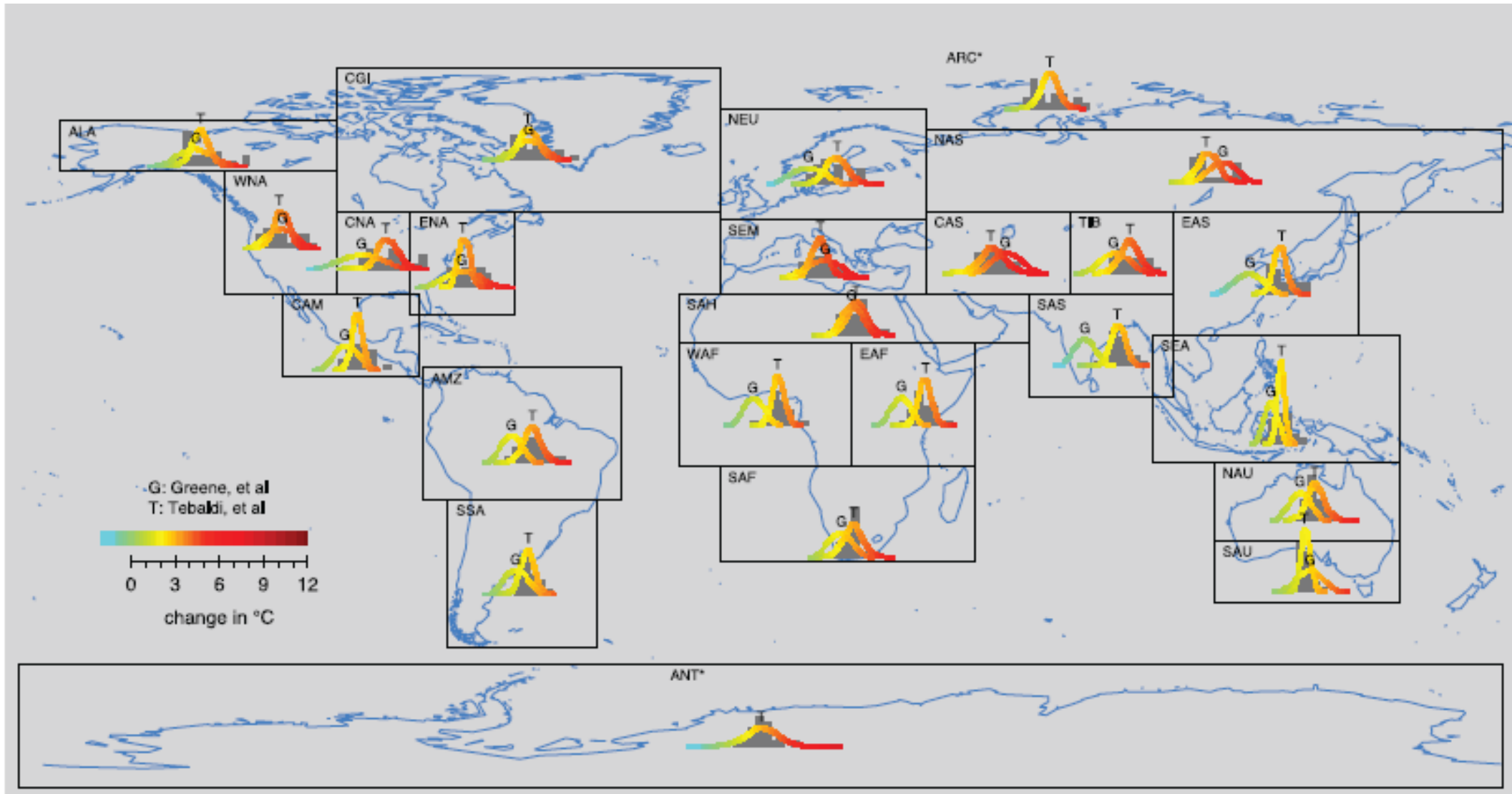
CORDEX-MENA Domain hosted by The Cyprus Institute



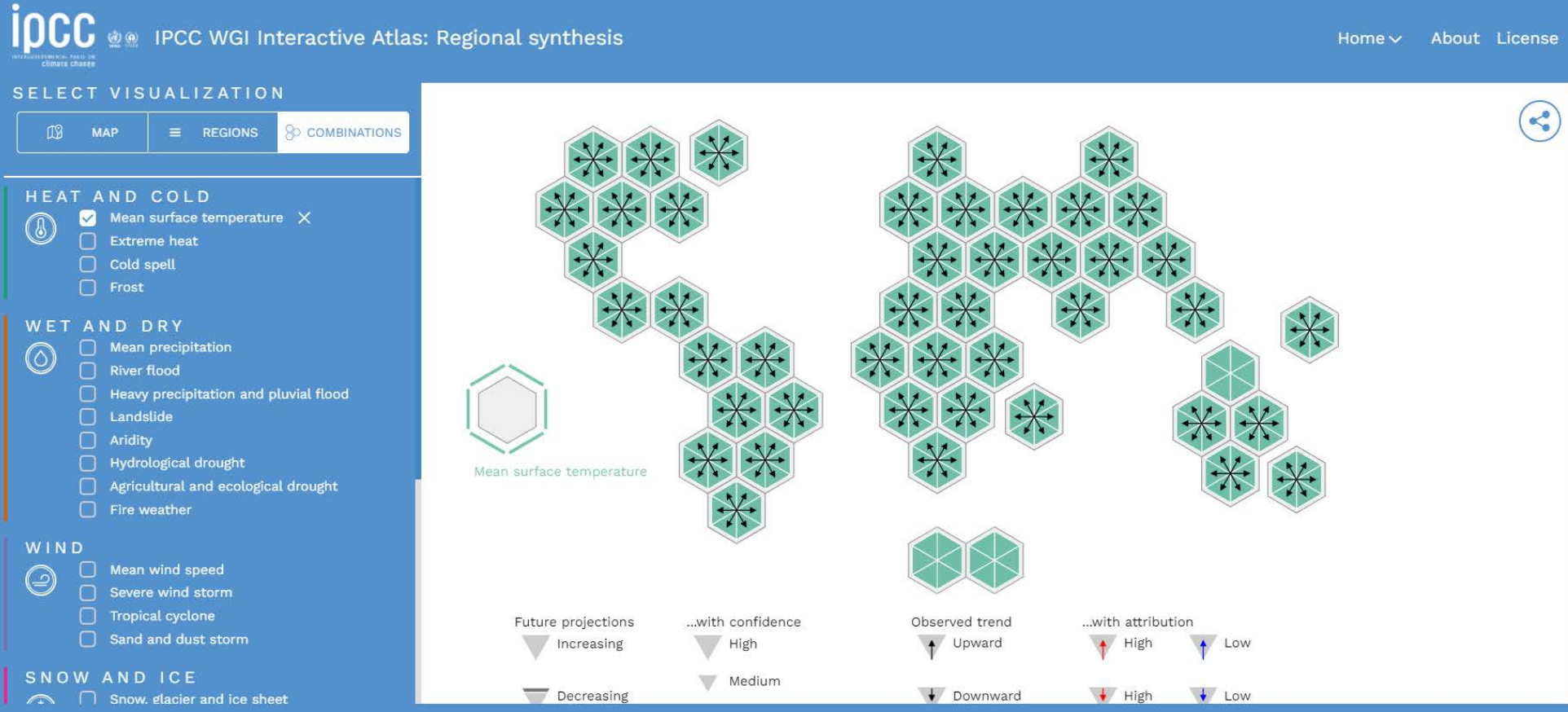
CORDEX MENA/Arab Domain



IPCC regional domains



IPCC regional synthesis



AFRICA

- North Africa
- Sahara (SAH)
- Western Africa (WAF)
- Central Africa (CAF)
- North Eastern Africa (NEAF)
- South Eastern Africa (SEAF)
- West Southern Africa (WSAF)
- East Southern Africa (ESAF)
- Madagascar (MDG)

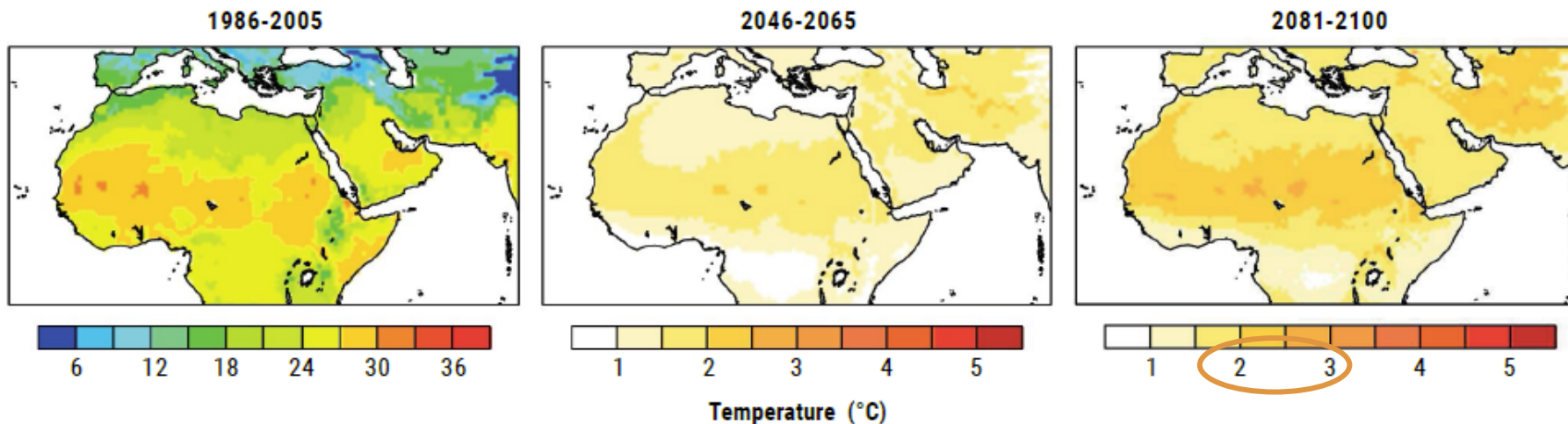
ASIA

- Arabian Peninsula (ARP)
- West Central Asia (WCA)
- West Siberia (WSB)
- East Siberia (ESB)
- Russian Far East (RFE)
- East Asia (EAS)
- East Central Asia (ECA)
- Tibetan Plateau (TIB)
- South Asia (SAS)
- South East Asia (SEA)

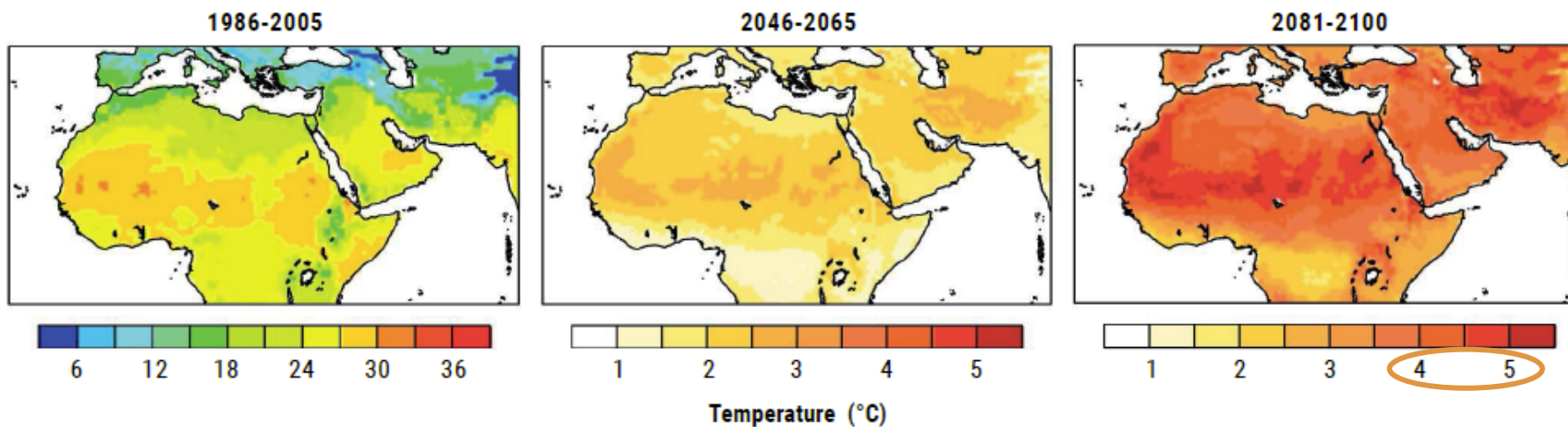
<https://interactive-atlas.ipcc.ch/regional-synthesis>

Temperature in the Arab region is increasing and is expected to continue to increase until the end of the century.

RCP 4.5



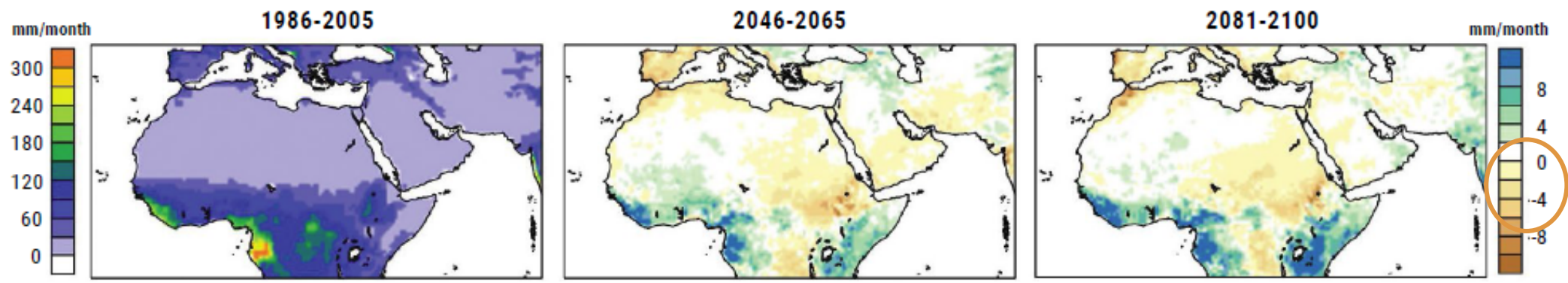
RCP 8.5



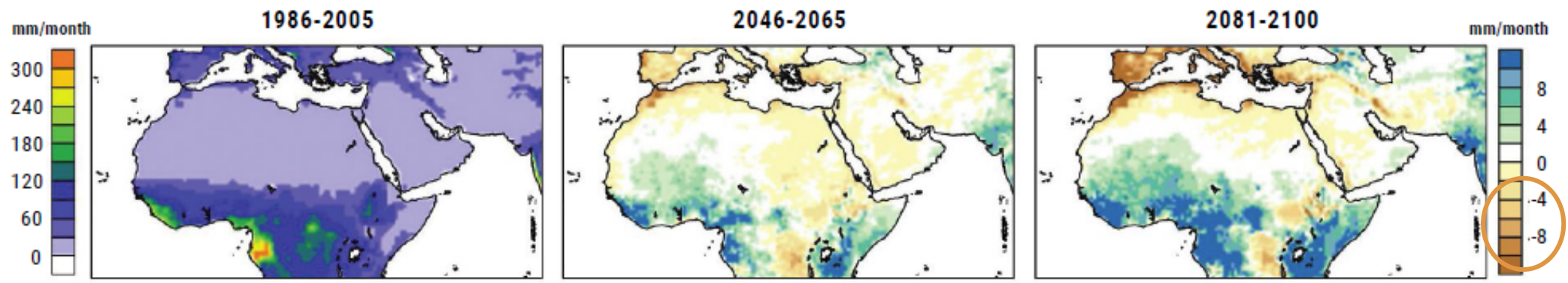
Two ensembles of regional climate projections for Arab Domain

Precipitation trends are largely decreasing across the Arab region until the end of the century, though limited areas expected to exhibit an increase in the intensity & volume of precipitation.

RCP 4.5



RCP 8.5



Extreme events indices

Extreme temperature indices		Extreme precipitation indices	
Index	Full name	Index	Full name
SU	Number of summer days	CDD	Maximum length of dry spell
SU35	Number of hot days	CWD	Maximum length of wet spell
SU40	Number of very hot days	R10	Annual count of 10 mm precipitation days
TR	Number of tropical nights	R20	Annual count of 20 mm precipitation days
		SDII	Simple precipitation intensity index



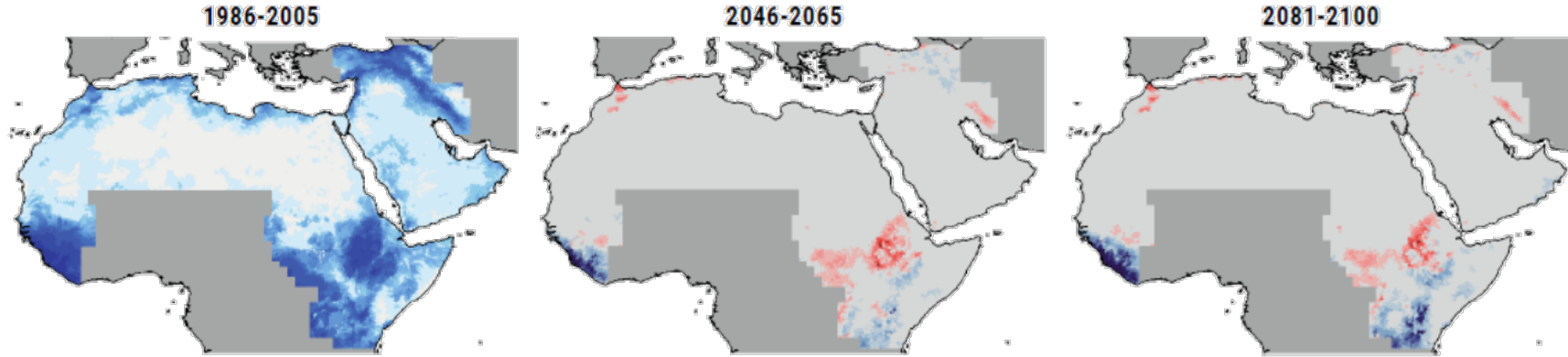
Region
Specific

Mean change in annual runoff

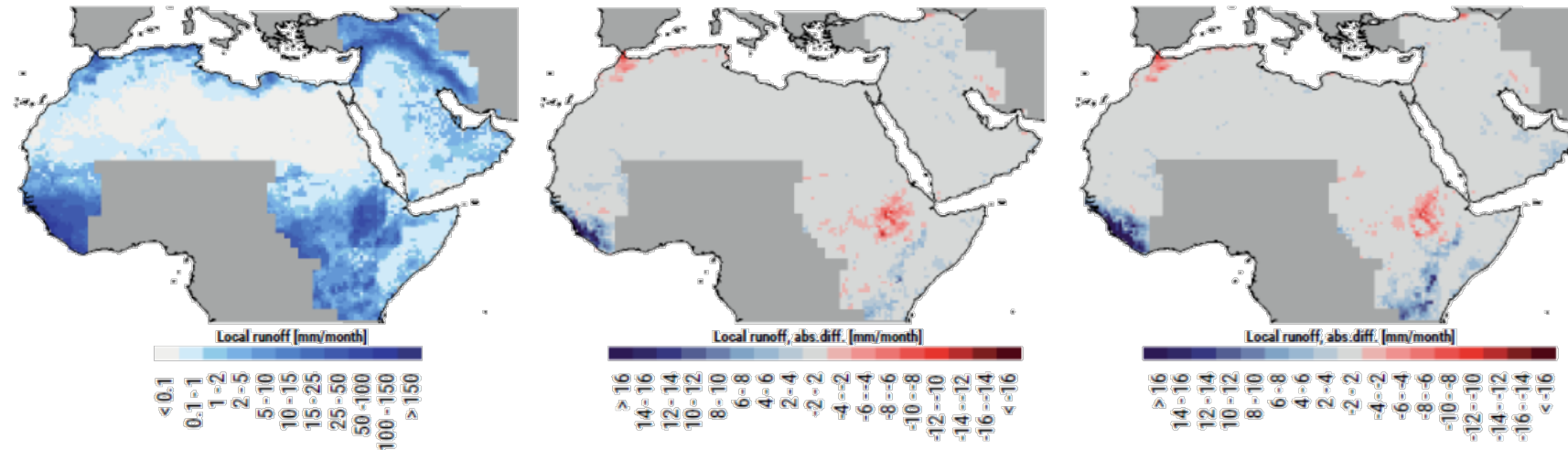
2 Models; 2 RCPs

RCP 4.5

HYPE MODEL



VIC MODEL



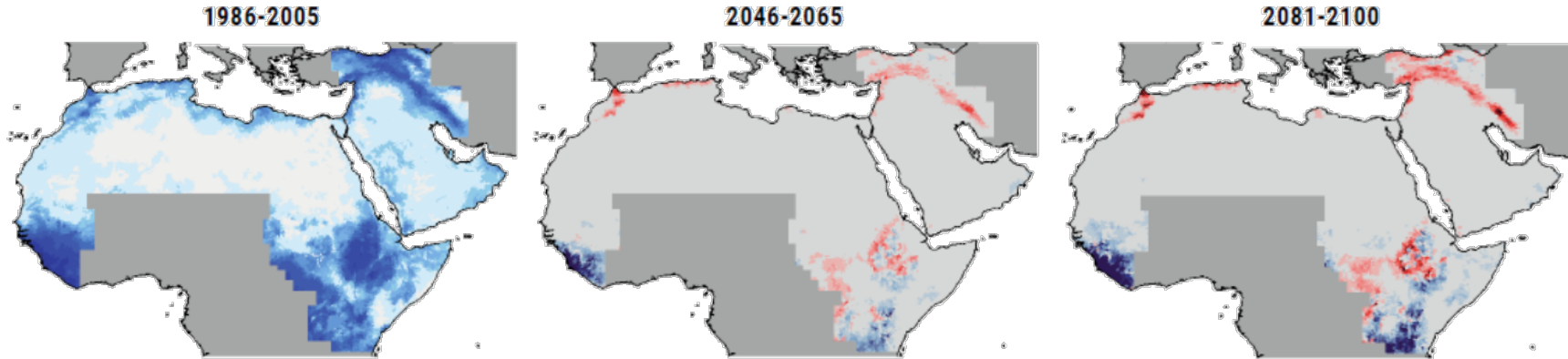
Comparison between 2 hydrological models based on SMHI modeling outputs:
Hydrological Predictions for the Environment (HYPE) and Variable Infiltration Capacity (VIC)

Mean change in annual runoff

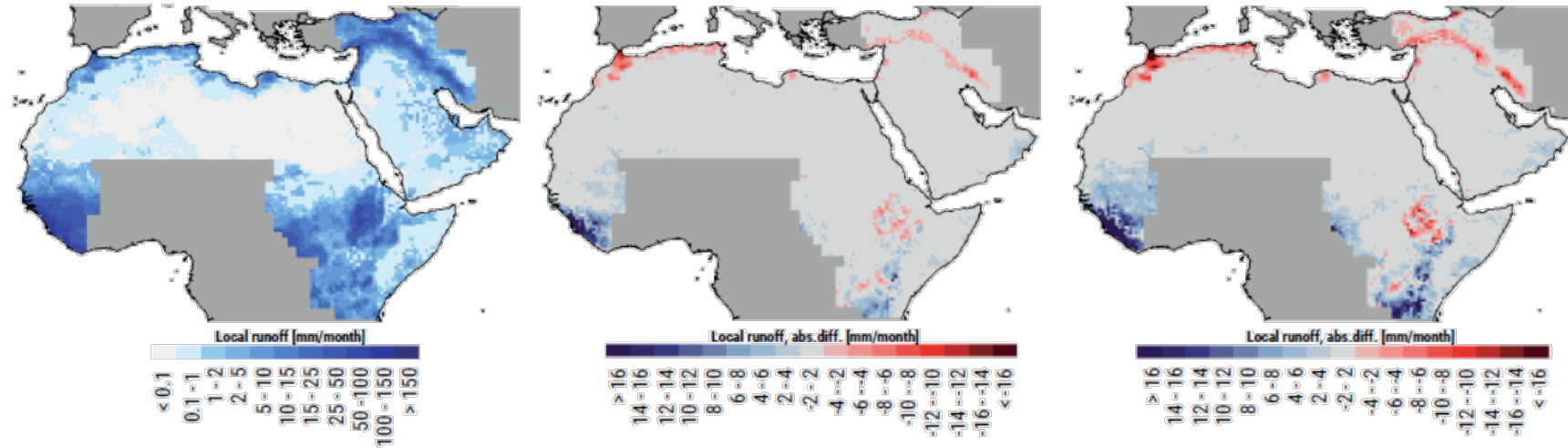
2 Models; 2 RCPs

RCP 8.5

HYPE MODEL

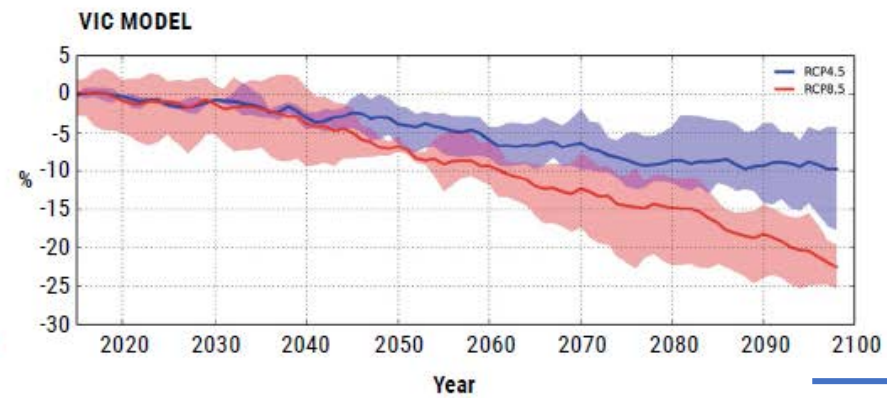
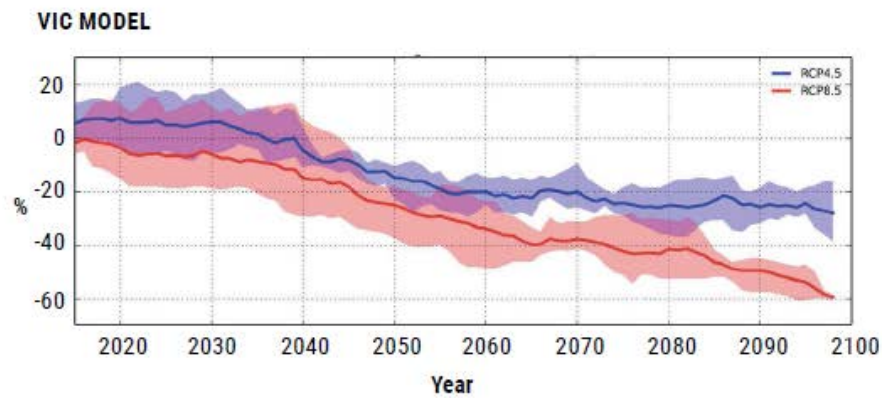
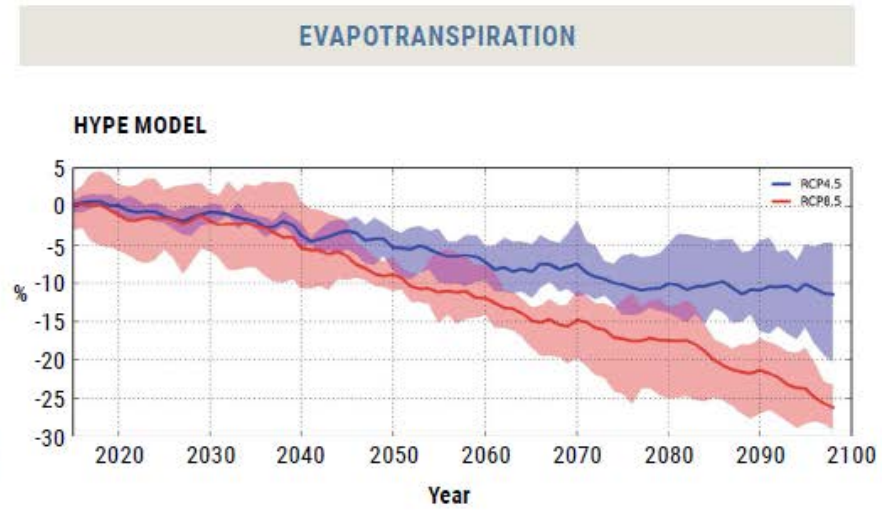
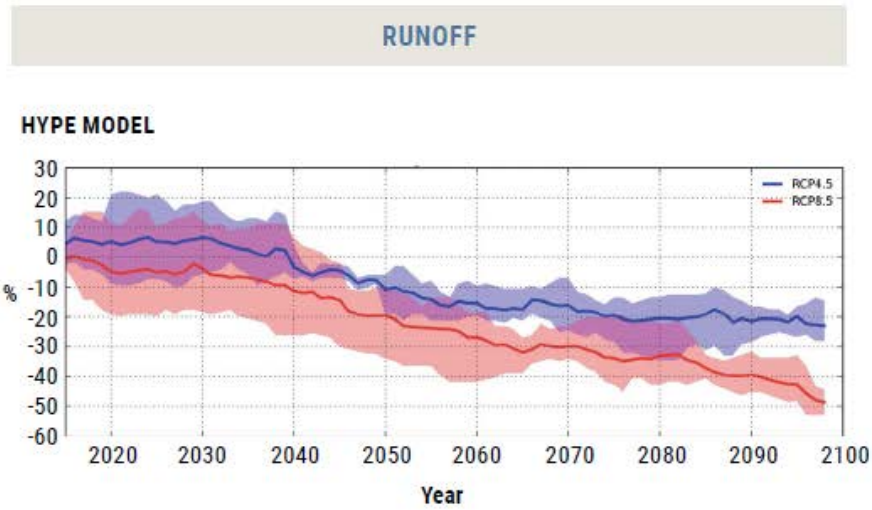


VIC MODEL



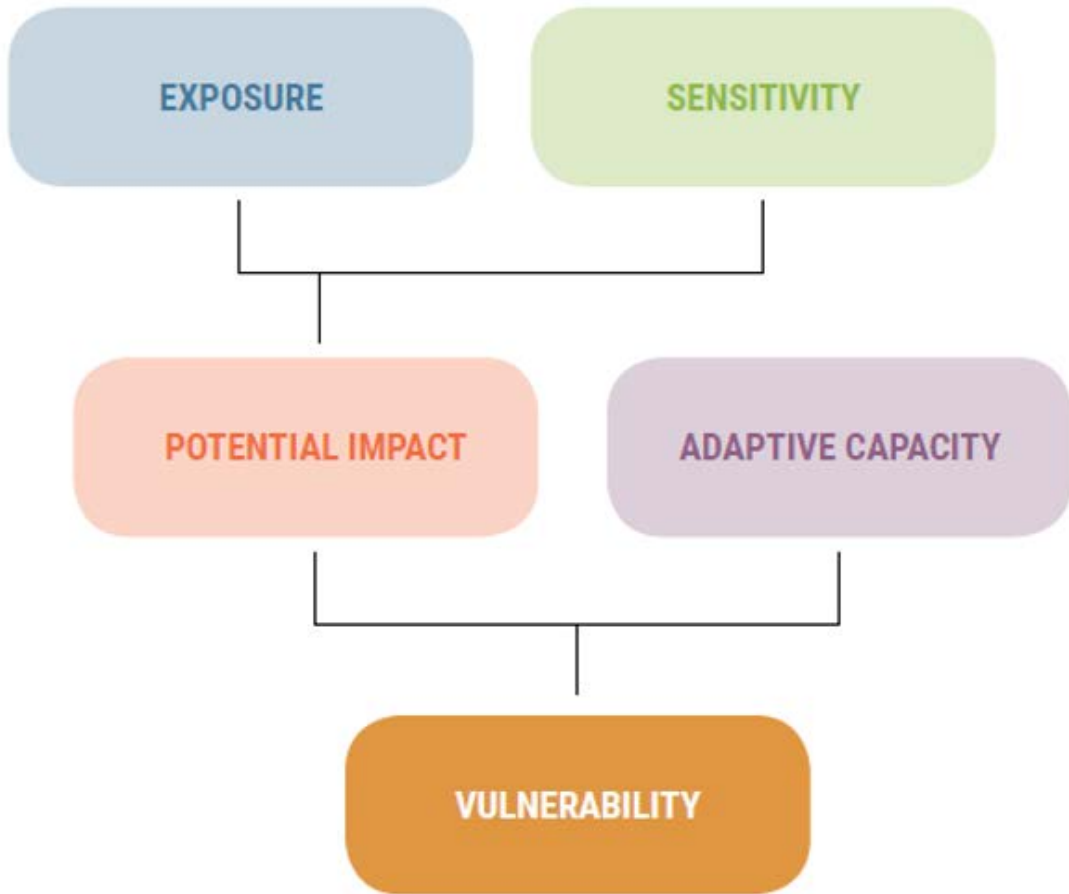
Mean change in runoff and evapotranspiration






Moroccan Highlands

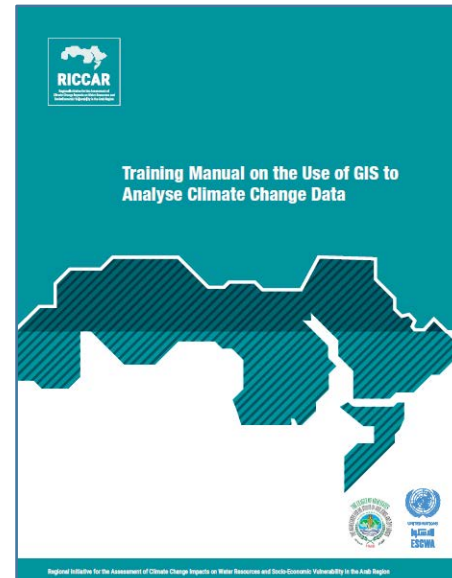
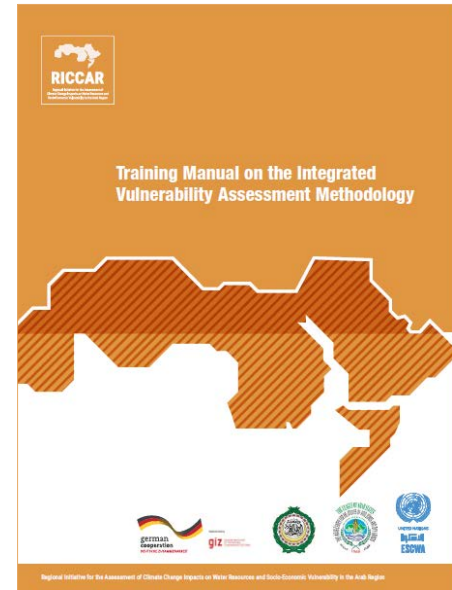


— RCP4.5
— RCP8.5

Integrated Vulnerability Assessment



SECTORS	SUBSECTORS
 Water	Water availability
 Biodiversity and Ecosystems	Area covered by forests Area covered by wetlands
 Agriculture	Water available for crops Water available for livestock
 Infrastructure and Human Settlements	Inland flooding area
 People	Water available for drinking Health conditions due to heat stress Employment rate for the agricultural sector



Vulnerability Analysis using Regional Climate Modeling & Geospatial Analysis

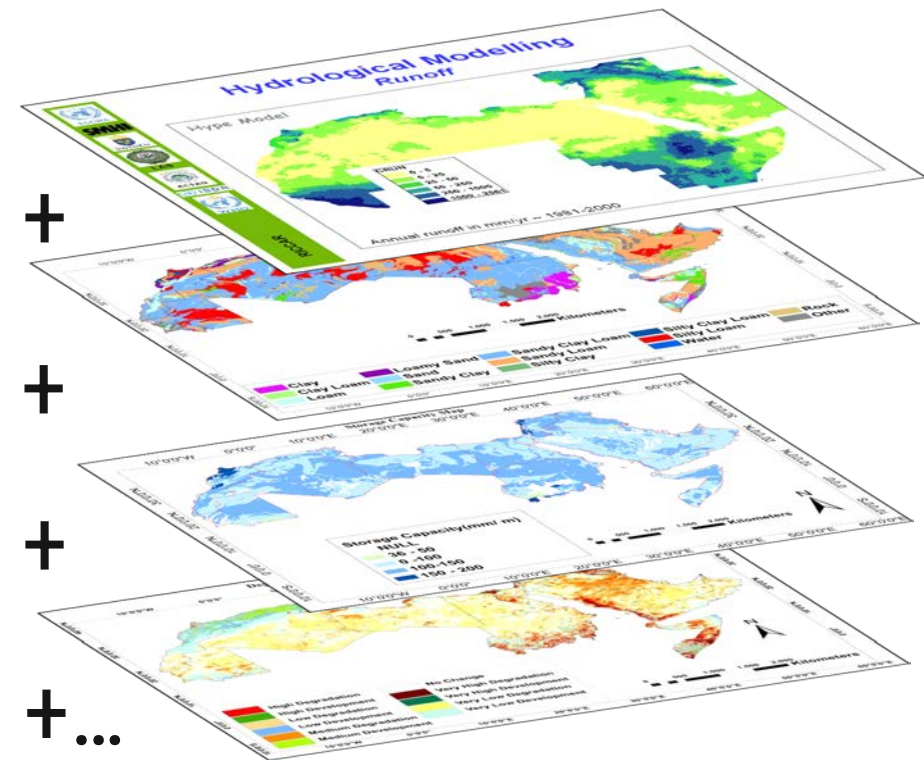
Preparation of an Integrated Vulnerability Index:

➤ Layers for Sector Analysis

- Contains all indicators identified to assess a given sectors
- Attribution of weights for each indicator dependent on impact chains and expert judgment
- As sector level, aggregated by component: Exposure, Sensitivity, Adaptive Capacity

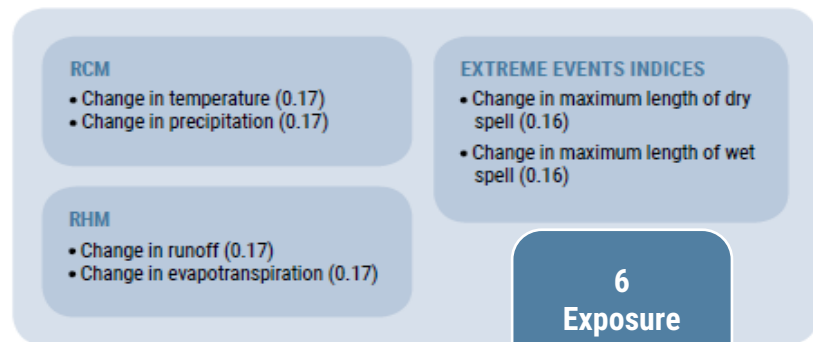
➤ Sector Vulnerability & Hotspots

- Aggregates vulnerability of each sector
- Supports identification of VA Hotspots

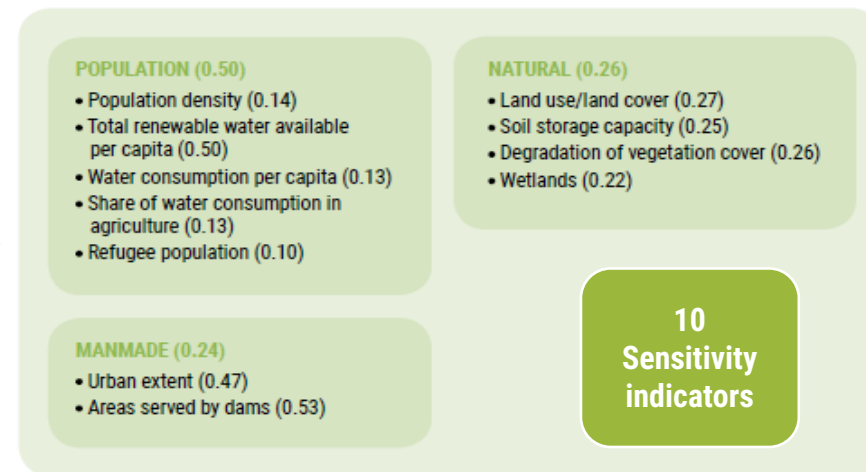


Vulnerability Impact chain of water availability

EXPOSURE (0.50)



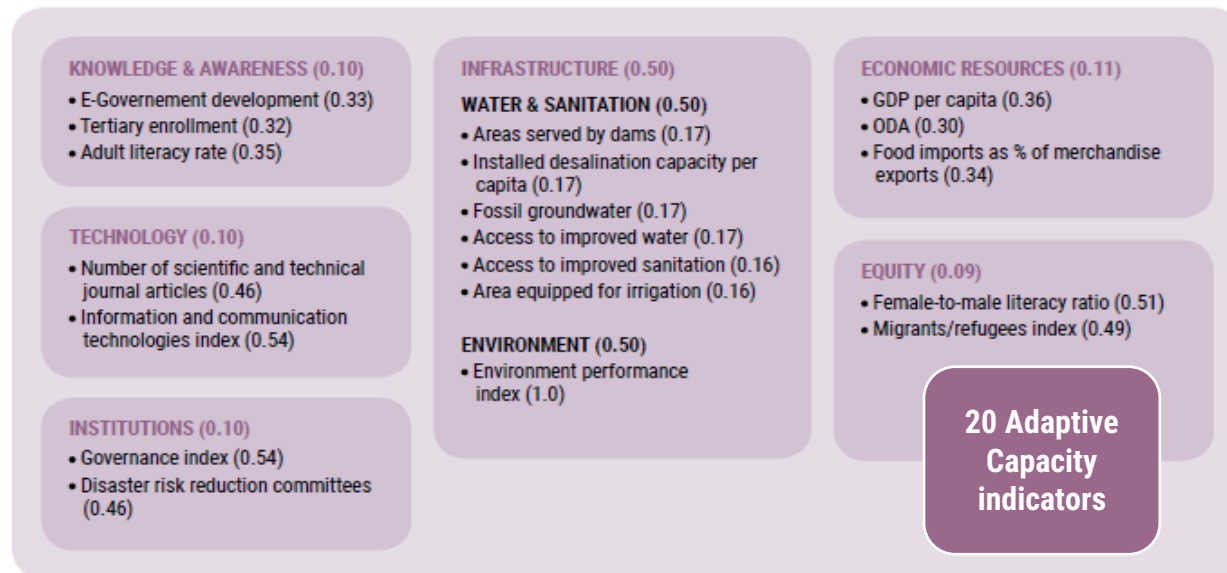
SENSITIVITY (0.50)



POTENTIAL IMPACT (0.50)

VULNERABILITY ASSESSMENT

ADAPTIVE CAPACITY (0.50)



Water Availability - Exposure

RCM

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

RHM

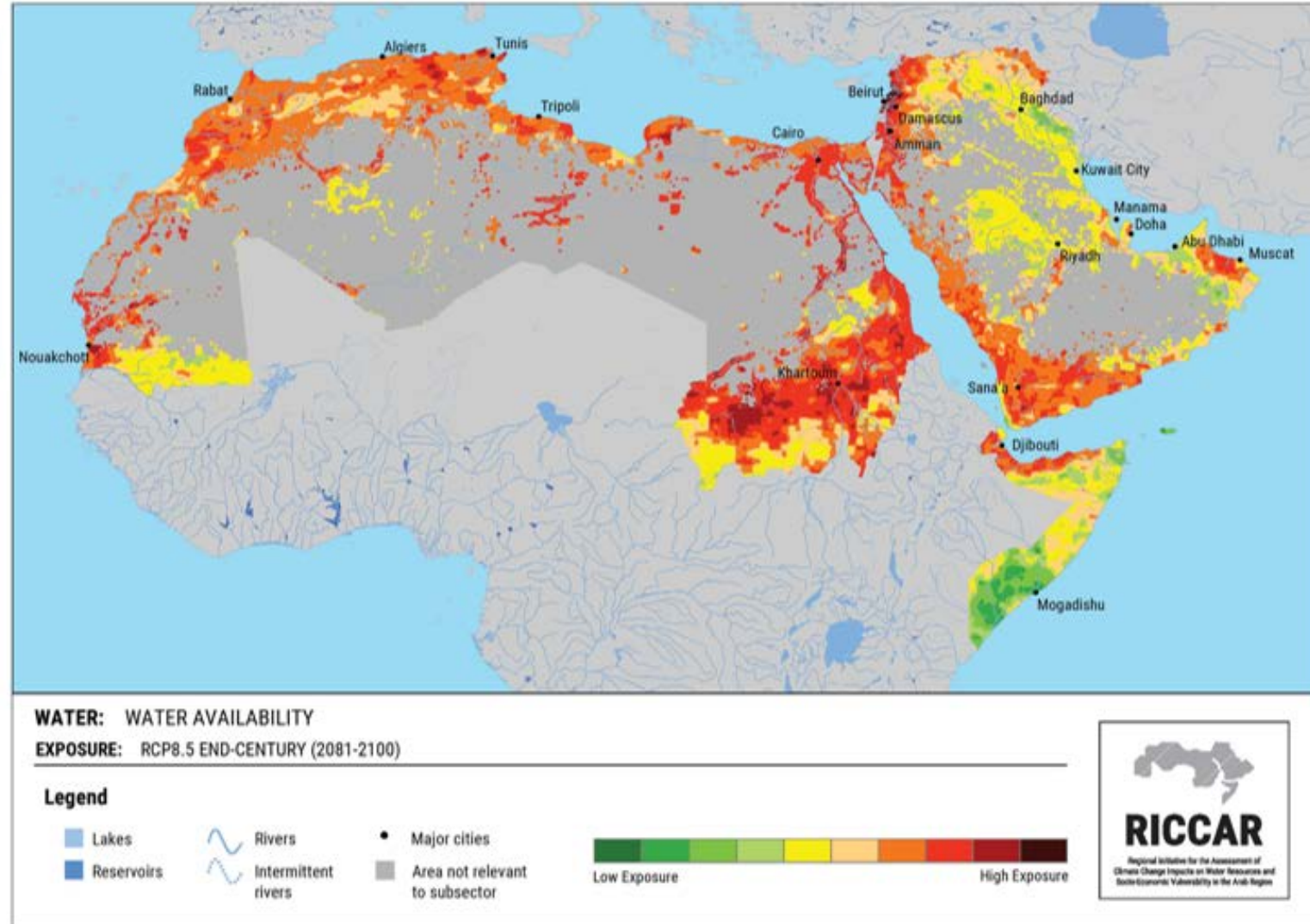
- Change in runoff (0.17)
- Change in evapotranspiration (0.17)

EXTREME CLIMATE INDICES

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

Scenario	Percentage of study area		
	Low Exposure	Moderate Exposure	High Exposure
RCP 4.5 Mid-century	5%	88%	7%
RCP 8.5 Mid-century	2%	64%	33%
RCP 4.5 End-century	5%	68%	27%
RCP 8.5 End-century	3%	39%	58%

** Scale is based on comparison across 21 Arab States*

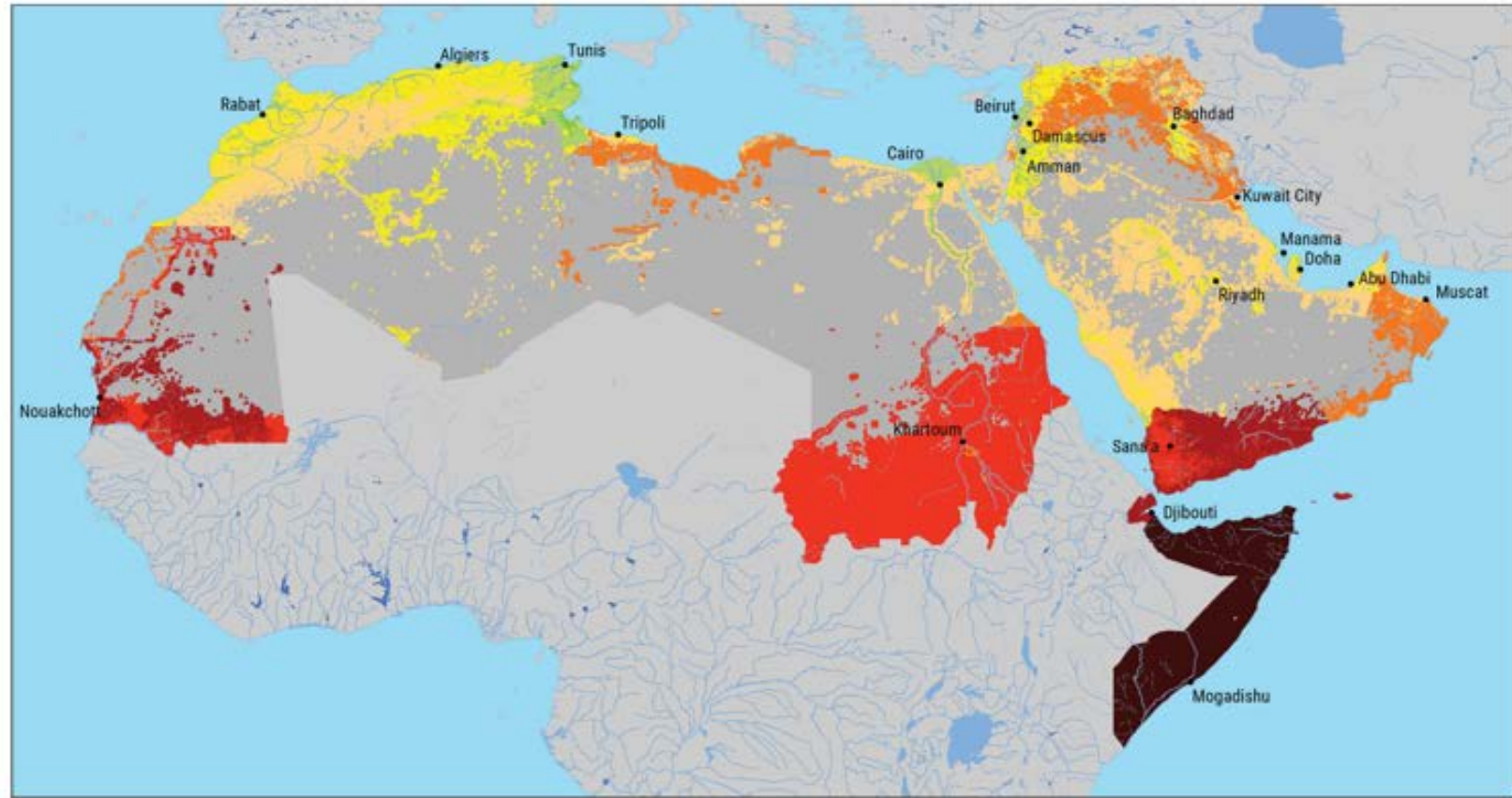


Water Availability - Adaptive Capacity

Demonstrates the socio-economic dimensions affecting the ability to respond to climate change impacts

Least Developing Countries particularly need strengthened Adaptive Capacity
(supports SDG13 call for targeted support for LDCs)

** Scale is based on comparison across 21 Arab States*



WATER: WATER AVAILABILITY
ADAPTIVE CAPACITY

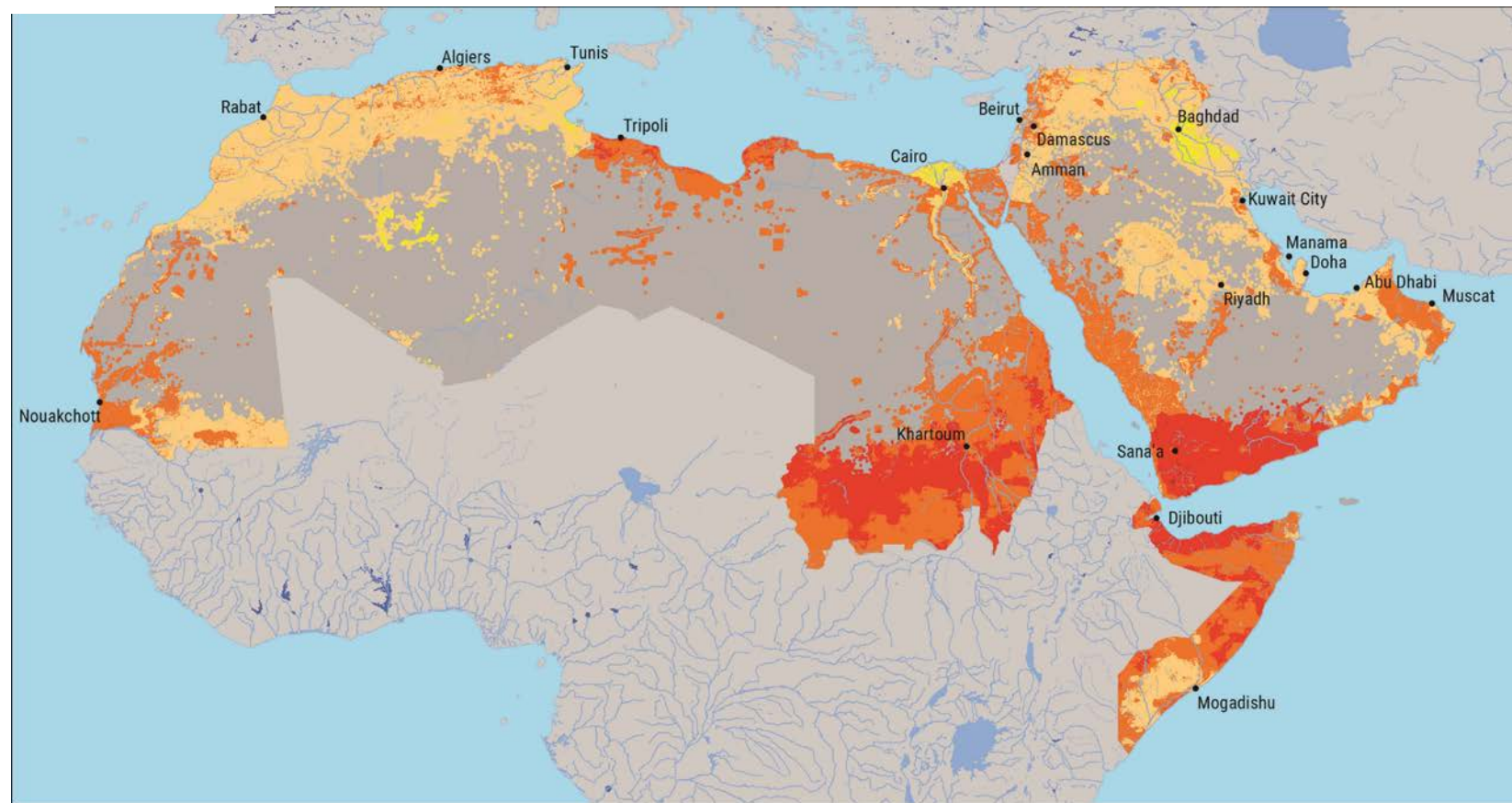
Legend

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



Adaptive Capacity can be lost in hazard-based analysis & is important to consider to link CC to DRR analysis

Water Availability Vulnerability



WATER: WATER AVAILABILITY

VULNERABILITY: RCP8.5 END-CENTURY (2081-2100)

Legend



No Areas with Low Vulnerability

Areas with highest relative vulnerability:

- Upper Nile Valley
- Southwestern Arabian Peninsula
- Northern Horn of Africa

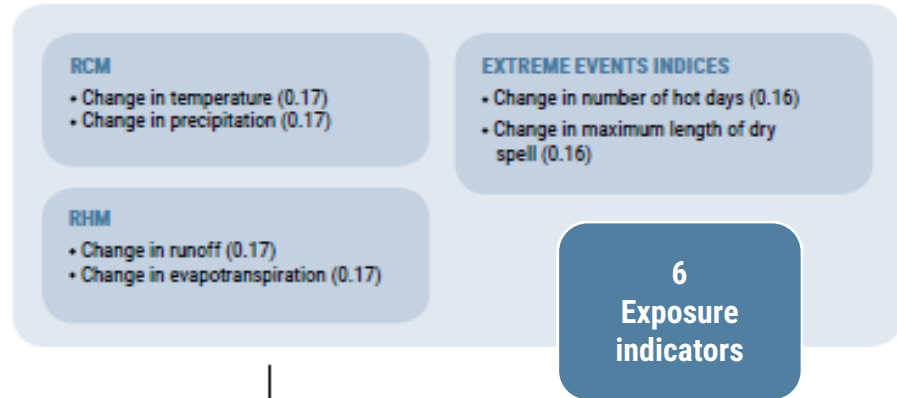
Areas with lowest relative vulnerability:

- Tigris-Euphrates Basin
- Lower Nile Valley, incl Nile Delta

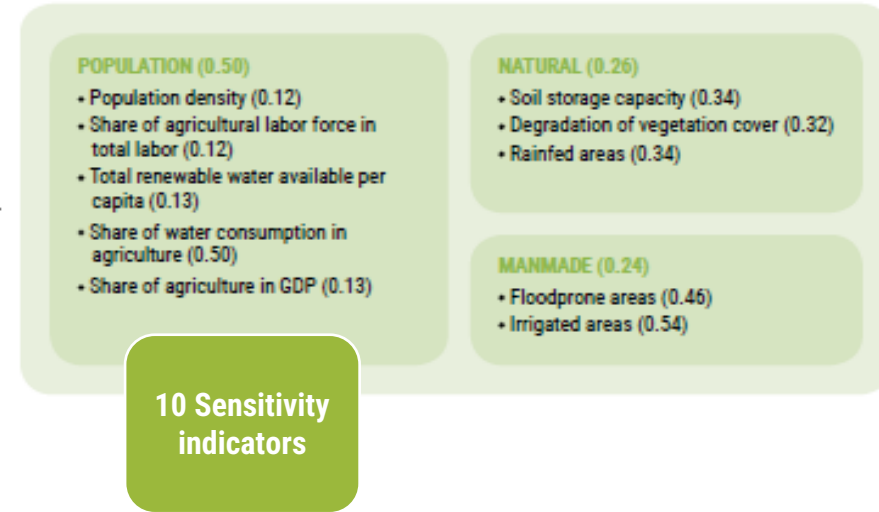
Scenario	Percentage of study area		
	Low Vulnerability	Moderate Vulnerability	High Vulnerability
RCP 4.5 Mid-century	0%	57%	43%
RCP 8.5 Mid-century	0%	48%	52%
RCP 4.5 End-century	0%	52%	48%
RCP 8.5 End-century	0%	43%	57%

Impact chain of Water Available for Crops

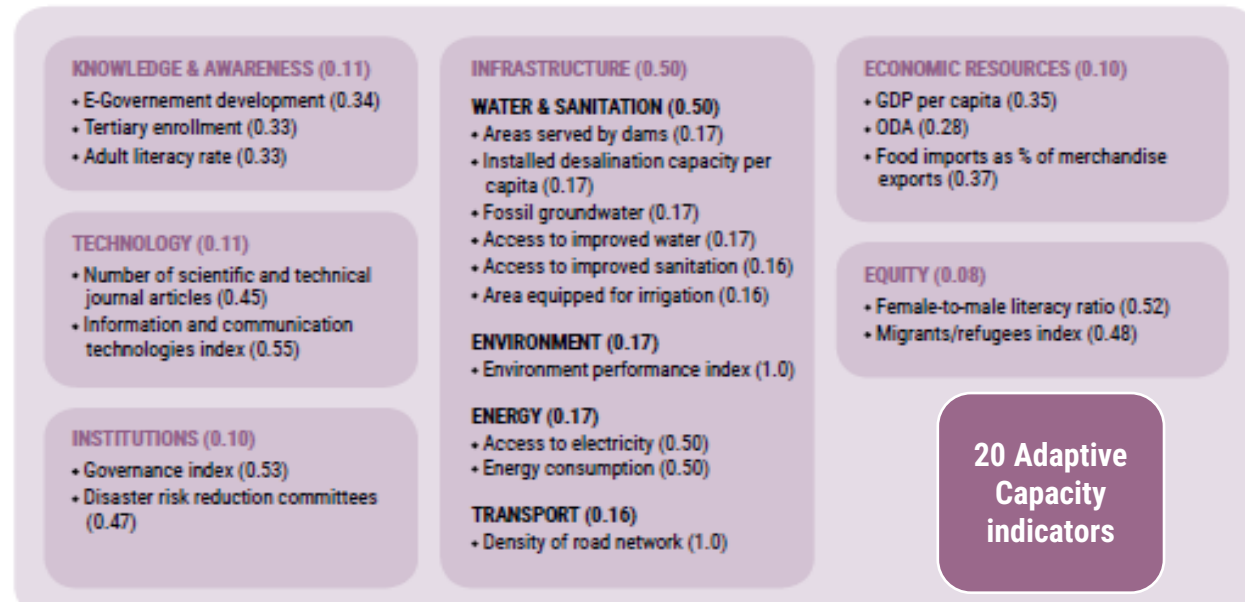
EXPOSURE (0.50)



SENSITIVITY (0.50)



ADAPTIVE CAPACITY (0.50)



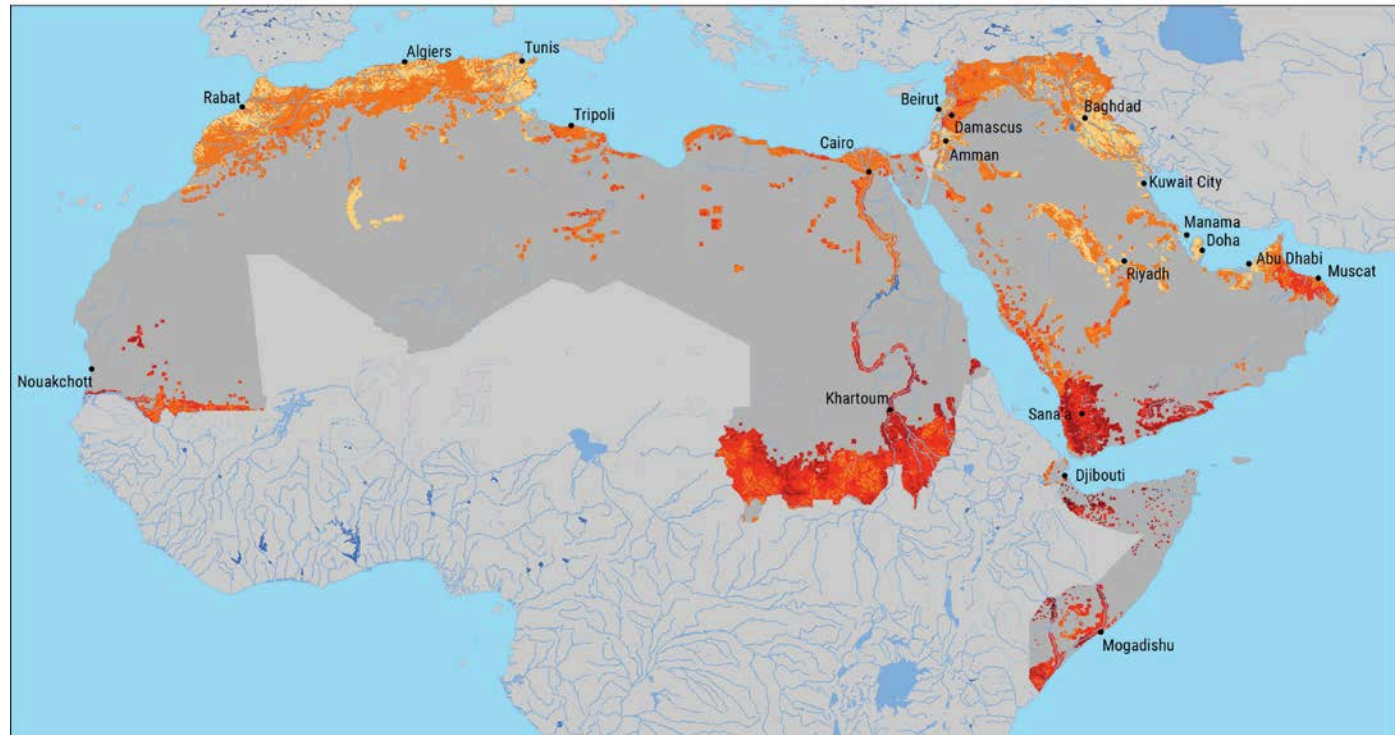
POTENTIAL IMPACT (0.50)

VULNERABILITY ASSESSMENT



WATER AVAILABLE FOR CROPS – 13.1.1. IMPACT CHAIN

Agriculture – Crop Vulnerability



AGRICULTURE: WATER AVAILABLE FOR CROPS
VULNERABILITY: RCP8.5 END-CENTURY (2081-2100)

Legend

- Lakes (Blue square)
- Reservoirs (Blue square)
- Rivers (Blue wavy line)
- Intermittent rivers (Blue dashed wavy line)
- Major cities (Black dot)
- Area not relevant to subsector (Grey square)

Color scale: Low Vulnerability (Green) to High Vulnerability (Dark Red)

- Areas with highest vulnerability:**
- Upper Nile Valley
 - Southwestern Arabian Peninsula
- Areas with lowest vulnerability:**
- Mediterranean coast of the Maghreb,
 - Parts of the Levant,
 - Parts of the Tigris-Euphrates Basin
 - Parts of central-eastern Arabian Desert

Scenario	Percentage of study area		
	Low Vulnerability	Moderate Vulnerability	High Vulnerability
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%



Impact chain of Water Available for Livestock

EXPOSURE (0.50)

RCM

- Change in temperature (0.20)

EXTREME EVENTS INDICES

- Change in number of very hot days (0.20)
- Change in maximum length of dry spell (0.20)

RHM

- Change in runoff (0.20)
- Change in evapotranspiration (0.20)

5
Exposure
indicators

SENSITIVITY (0.50)

POPULATION (0.26)

- Population density (0.23)
- Share of agricultural labor force in total labor (0.24)
- Total renewable water available per capita (0.27)
- Share of water consumption in agriculture (0.27)

NATURAL (0.50)

- Land use - land cover (0.17)*
- Soil storage capacity (0.16)
- Degradation of vegetation cover (0.17)
- Livestock density (0.50)

MANMADE (0.24)

- Irrigated areas (0.52)*
- Urban extent (0.48)

10 Sensitivity
indicators

POTENTIAL IMPACT
(0.50)

VULNERABILITY ASSESSMENT

ADAPTIVE CAPACITY (0.50)

KNOWLEDGE & AWARENESS (0.11)

- Tertiary enrollment (0.48)
- Adult literacy rate (0.52)

INFRASTRUCTURE (0.50)

WATER & SANITATION (0.50)

- Areas served by dams (0.17)
- Installed desalination capacity per capita (0.17)
- Fossil groundwater (0.17)
- Access to improved water (0.17)
- Access to improved sanitation (0.16)
- Area equipped for irrigation (0.16)

ENVIRONMENT (0.18)

- Environment performance index (1.0)

ENERGY (0.17)

- Access to electricity (0.50)
- Energy consumption (0.50)

TRANSPORT (0.15)

- Density of road network (1.0)

ECONOMIC RESOURCES (0.10)

- GDP per capita (0.36)
- ODA (0.28)
- Food imports as % of merchandise exports (0.36)

EQUITY (0.09)

- Female-to-male literacy ratio (0.51)
- Migrants/refugees index (0.49)

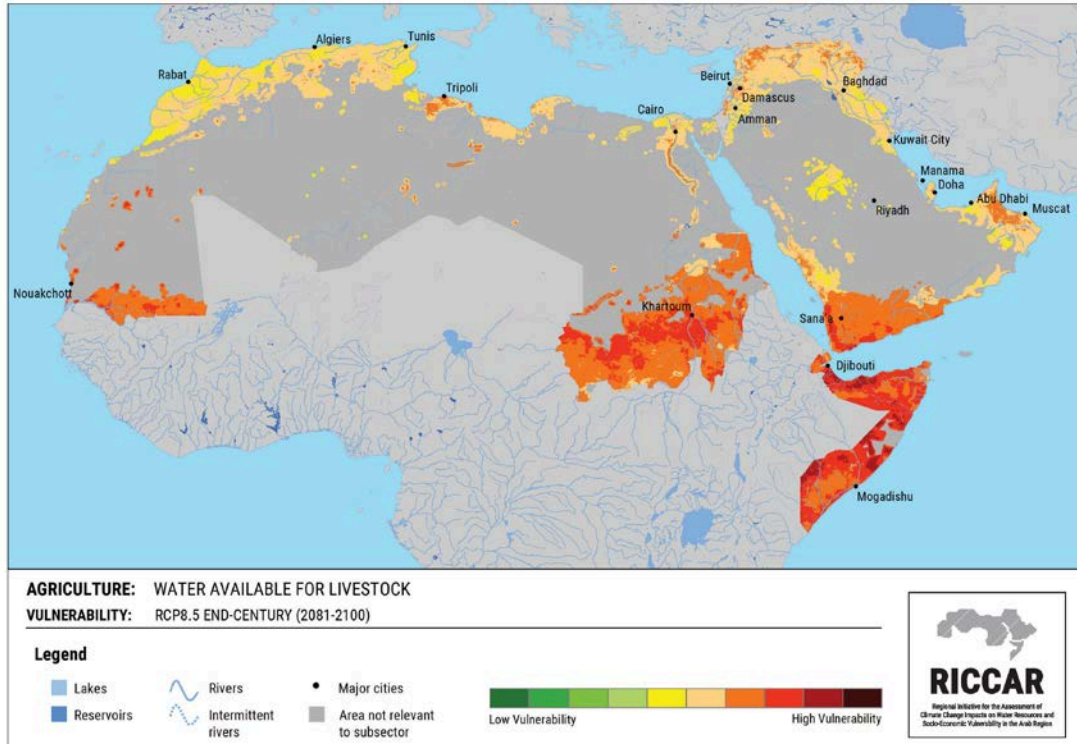
21 Adaptive
Capacity
indicators



WATER AVAILABLE FOR LIVESTOCK - 13.2.1. IMPACT CHAIN

* Subsector specific classification

Livestock Vulnerability – RCP 8.5 End-Century



No Areas with Low Vulnerability

Areas with highest relative vulnerability:

- Sub-Saharan Africa
- Levant
- African Horn

Areas with lowest relative vulnerability:

- Atlas Mountains and Plains
- Central Arabian Desert

Scenario	Percentage of study area		
	Low Vulnerability	Moderate Vulnerability	High Vulnerability
RCP 4.5 Mid-century	0%	67%	33%
RCP 8.5 Mid-century	0%	55%	45%
RCP 4.5 End-century	0%	58%	42%
RCP 8.5 End-century	0%	46%	54%



Impact chain on Employment in Agricultural Sector

EXPOSURE (0.50)

RCM

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

RHM

- Change in evapotranspiration (0.17)

EXTREME EVENTS INDICES

- Change in maximum length of dry spell (0.16)
- Change in annual count of 10 mm precipitation days (0.16)
- Change in annual count of 20 mm precipitation days (0.16)

SENSITIVITY (0.50)

POPULATION (0.50)

- Population density (0.10)*
- Share of agricultural labor force in total labor (0.50)
- Share of water consumption in agriculture (0.12)
- Share of agriculture in GDP (0.11)
- Refugee population (0.09)
- Migrant population (0.09)

NATURAL (0.25)

- Degradation of vegetation cover (0.34)
- Livestock density (0.30)
- Rainfed crop areas (0.36)*

MANMADE (0.25)

- Irrigated crop areas (1.0)*

ADAPTIVE CAPACITY (0.50)

KNOWLEDGE & AWARENESS (0.10)

- E-Government development (0.34)
- Tertiary enrollment (0.32)
- Adult literacy rate (0.34)

TECHNOLOGY (0.10)

- Number of scientific and technical journal articles (0.42)
- Information and communication technologies index (0.58)

INSTITUTIONS (0.10)

- Governance index (0.56)
- Disaster risk reduction committees (0.44)

INFRASTRUCTURE (0.50)

WATER & SANITATION (0.50)

- Areas served by dams (0.17)
- Installed desalination capacity per capita (0.17)
- Fossil groundwater (0.17)
- Access to improved water (0.17)
- Access to improved sanitation (0.16)
- Area equipped for irrigation (0.16)

ENVIRONMENT (0.16)

- Environment performance index (1.0)

ENERGY (0.17)

- Access to electricity (0.50)
- Energy consumption (0.50)

TRANSPORT (0.17)

- Density of road network (1.0)

ECONOMIC RESOURCES (0.11)

- GDP per capita (0.36)
- ODA (0.29)
- Food imports as % of merchandise exports (0.35)*

EQUITY (0.08)

- Female-to-male unemployment rate (0.32)
- Female-to-male literacy ratio (0.31)
- Migrants/refugees index (0.37)

POTENTIAL IMPACT (0.50)

VULNERABILITY ASSESSMENT



* Subsector specific classification

Impact chain on Employment in Agricultural Sector

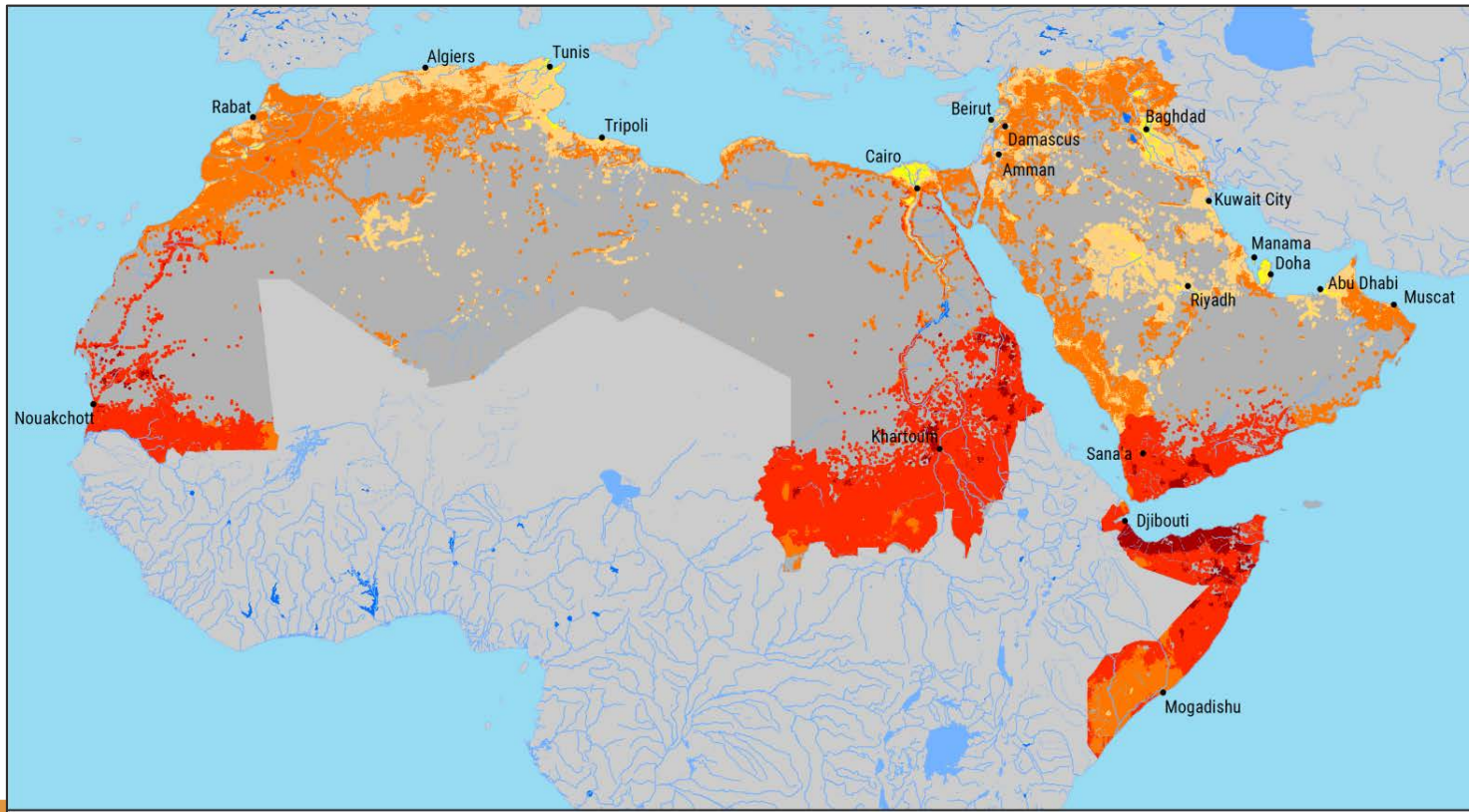


Areas with highest relative vulnerability:

- Selected areas near Gulf of Aden
- Central eastern Red Sea

Areas with lowest relative vulnerability:

- Lower Nile Valley



PEOPLE: EMPLOYMENT RATE FOR THE AGRICULTURAL SECTOR

VULNERABILITY: RCP8.5 END-CENTURY (2081-2100)

Legend

-  Lakes
-  Rivers
-  Major cities
-  Low Vulnerability High Vulnerability
-  Reservoirs
-  Intermittent rivers
-  Area not relevant to subsector

Scenario	Vulnerability (% of study area)		
	Low	Moderate	High
RCP 4.5 Mid-century	0%	39%	61%
RCP 8.5 Mid-century	0%	28%	72%
RCP 4.5 End-century	0%	36%	65%
RCP 8.5 End-century	0%	23%	77%

Lebanese Agricultural Sector Vulnerability Assessment

FIGURE 7: Change in temperature compared to the reference period at mid-century for (a) RCP4.5 and (b) RCP8.5 (0.11° grid resolution)

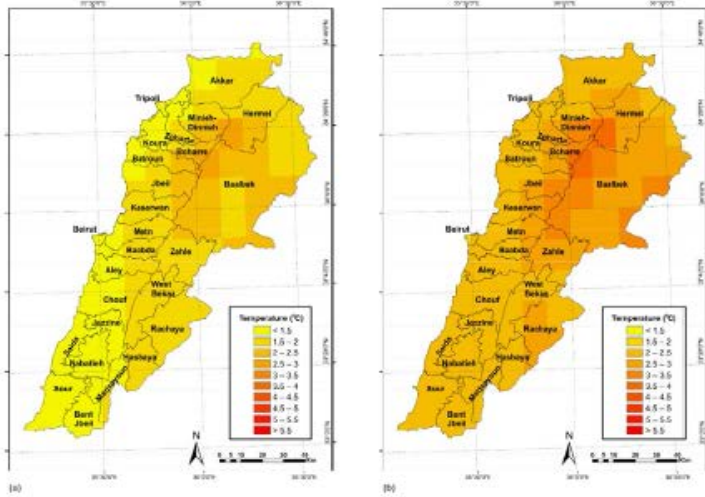


FIGURE 8: Change in temperature compared to the reference period at end-century for (a) RCP4.5 and (b) RCP8.5 (0.11° grid resolution)

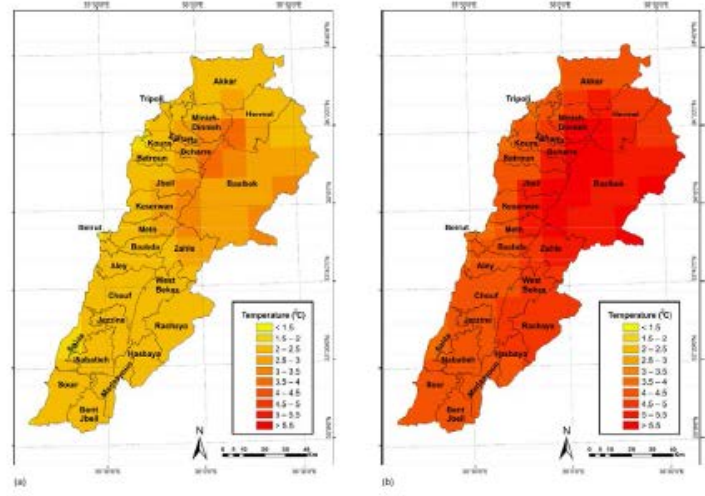


FIGURE 21: Vulnerability at mid-century for (a) RCP4.5 and (b) RCP8.5

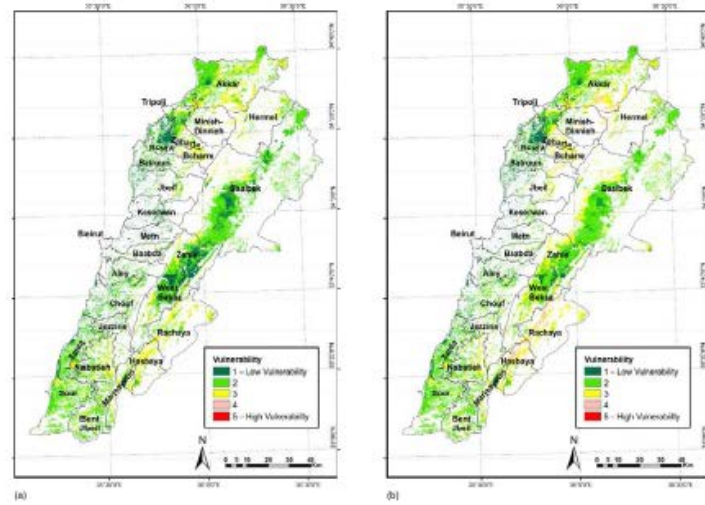


FIGURE 22: Vulnerability at end-century for (a) RCP4.5 and (b) RCP8.5

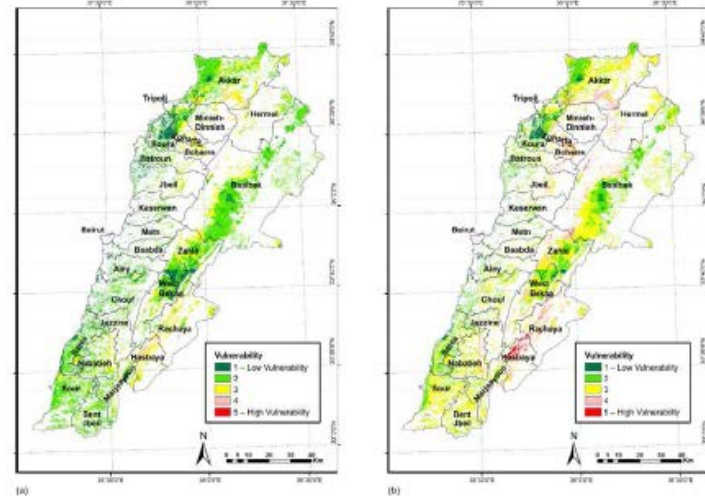


FIGURE 25: Selected vulnerability hotspots for end-century RCP8.5 in (a) Akkar, (b) Hasbaya, (c) Rachaya, (d) Baalbek and Zahle, and (e) Zgharta and Bcharre

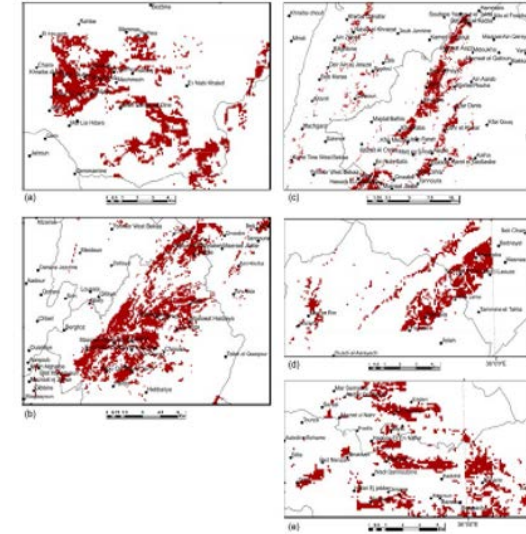
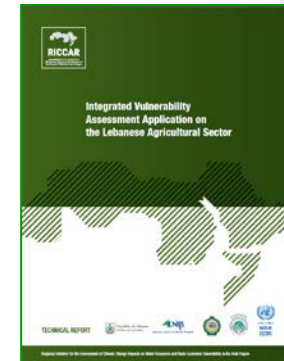
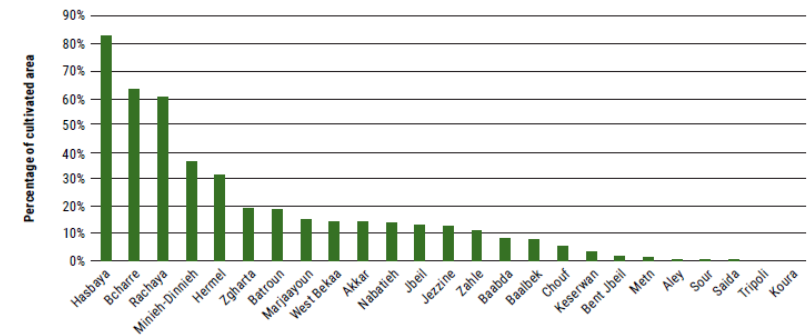
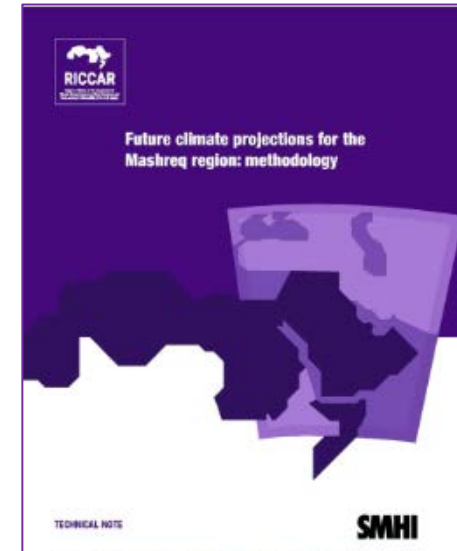
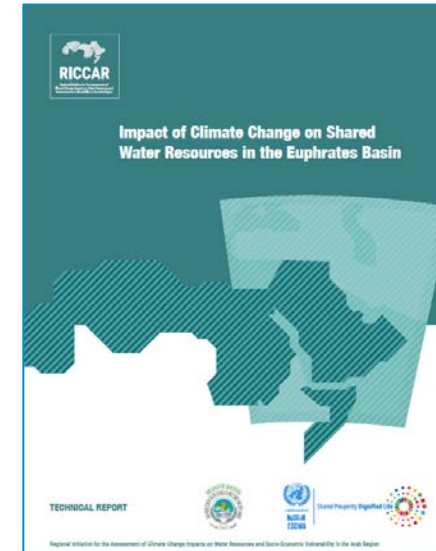
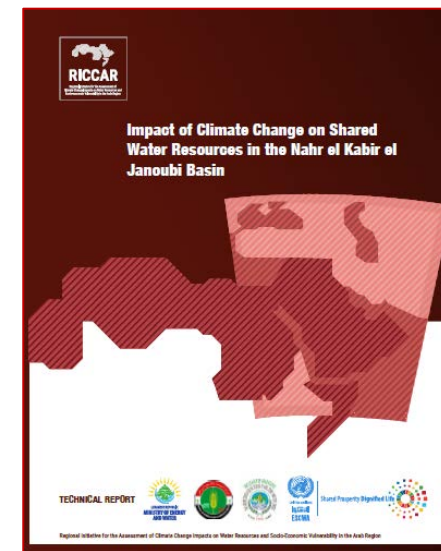
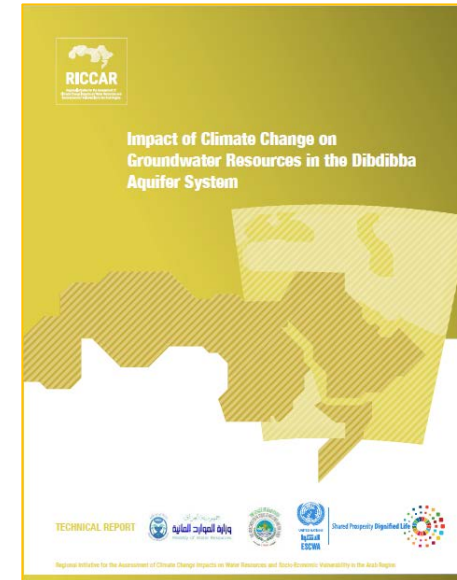
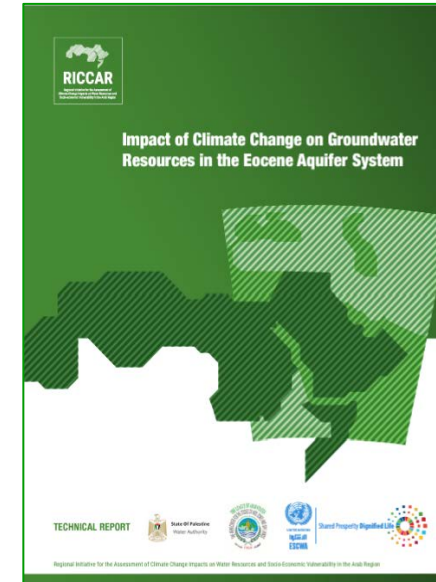
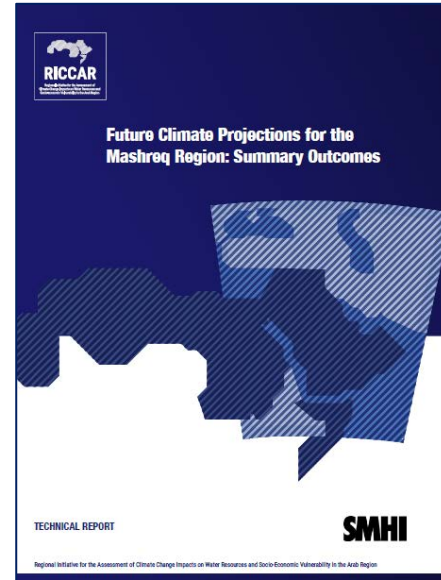
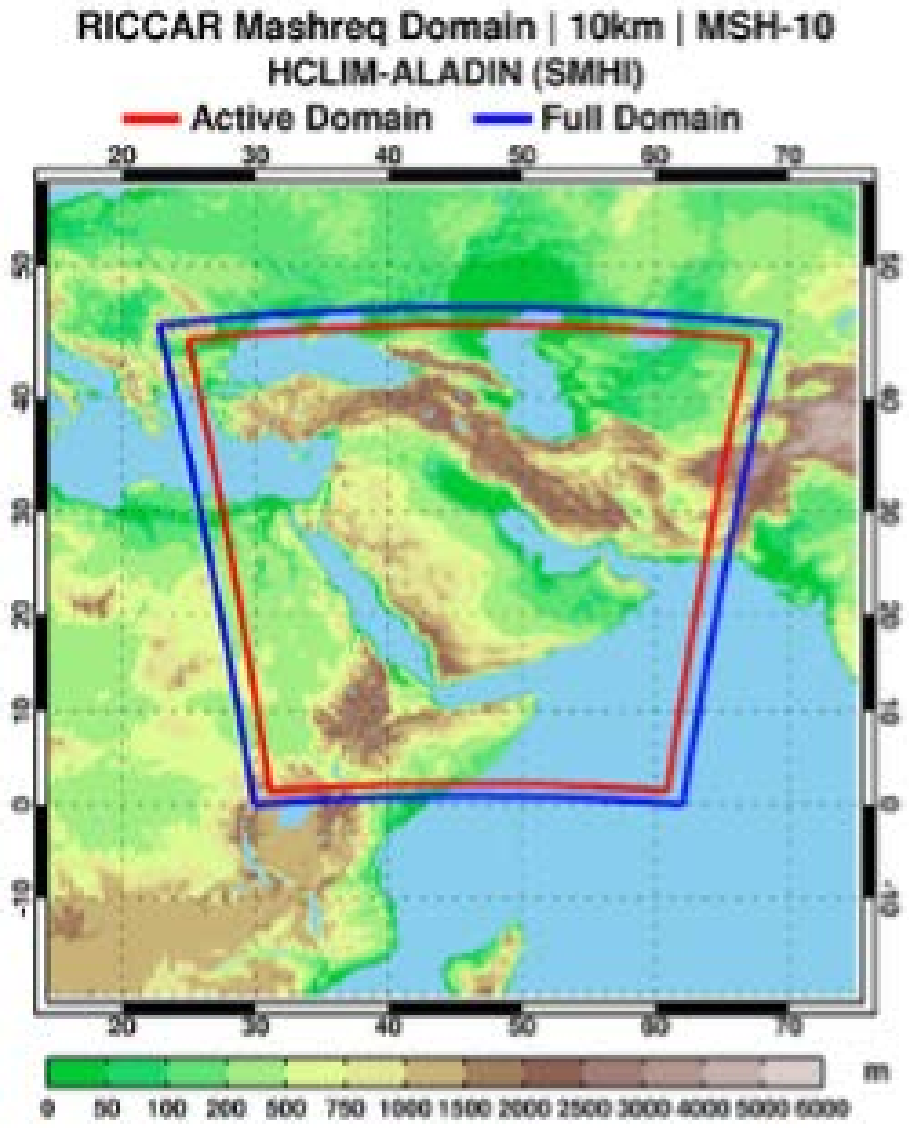


FIGURE 23: Percentage of cultivated area with high vulnerability by caza (End-century RCP8.5)



Mashreq Domain Projections

SSP5-8.5 at 10 km² - available
 SSP2-4.5 at 10 km² - forthcoming





RICCAR

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

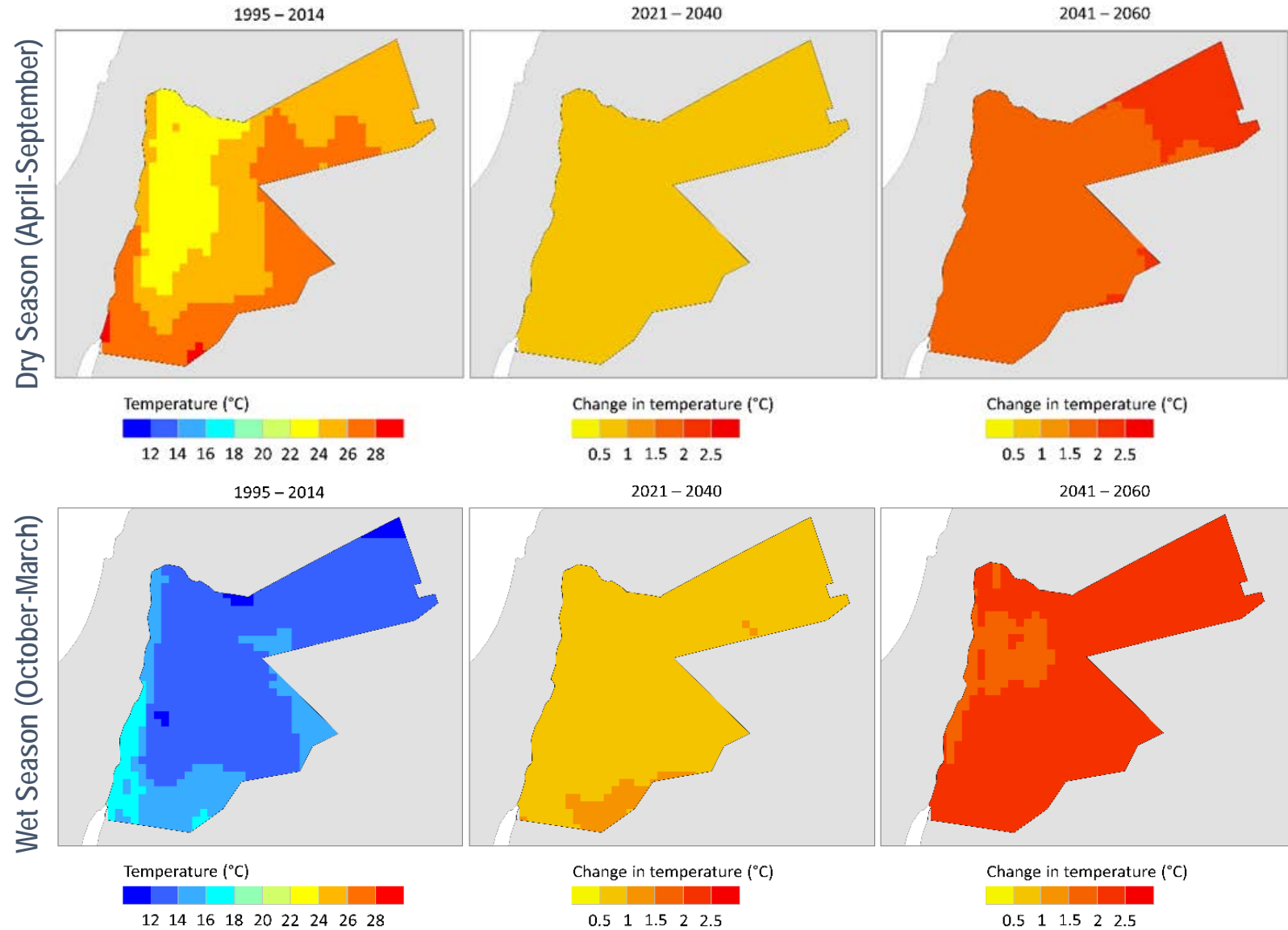
Vulnerability Assessment of Jordan Water and Wastewater Sector

www.riccar.org

Change in temperature based on Mashreq Domain SSP5-8.5 at 10 km²

Projected increases in temperature for the near-term (2021-2040) are approximately 0.8 to 1 °C and 1.7 to 2 °C for the mid-term (2041-2060).

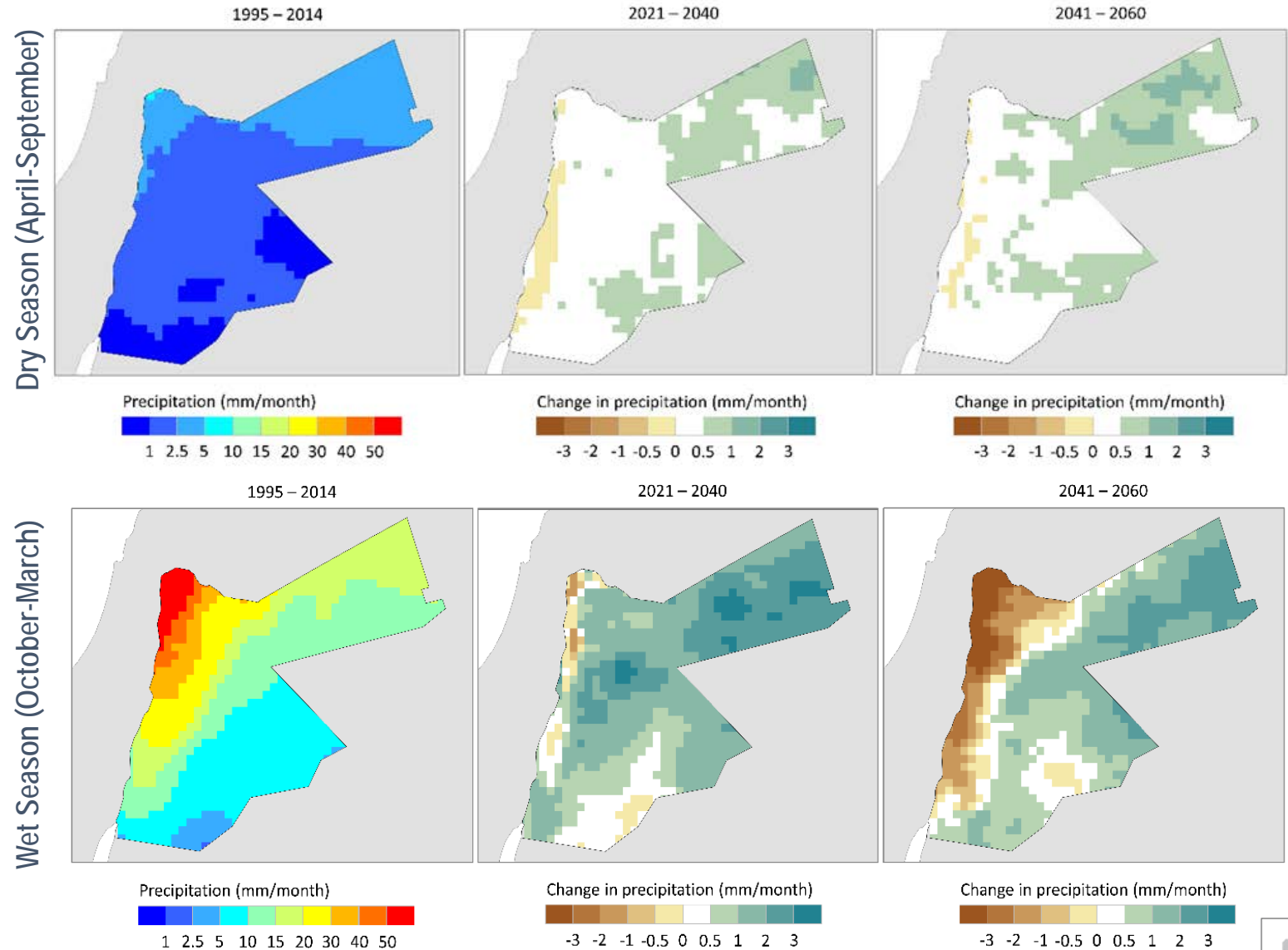
Projected increases in temperature are slightly higher compared to the dry season, approximately 0.8 to 1.1 °C for the near-term and 1.8 to 2.3 °C for the mid-term.



Change in precipitation based on Mashreq Domain SSP5-8.5 at 10 km²

Projected changes in precipitation reveal a general increase in precipitation up to 1.2 mm/month during the near-term (2021-2040) and 1.3 mm/month for the mid-term (2041-2060), compared to the reference period.

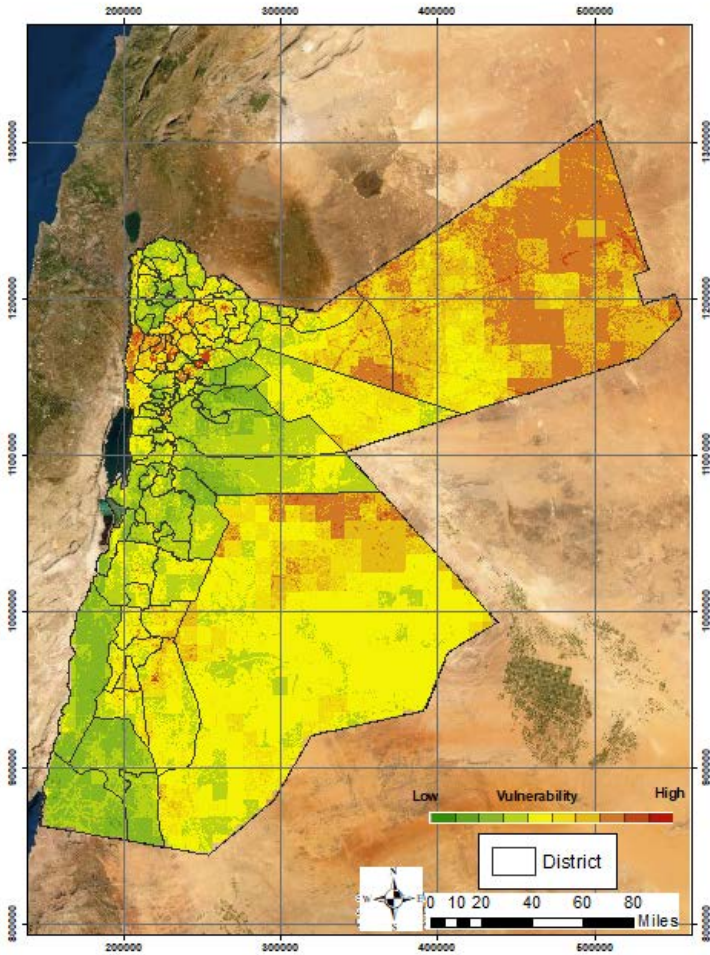
Projected precipitation reveals a decrease in the Sawad al-Urdunn vicinity, particularly for the mid-term; a decrease up to -7.9 mm/month is expected. The Syrian Desert projects the largest increases in precipitation, > 3.2 mm/month for both the near-term and the mid-term.



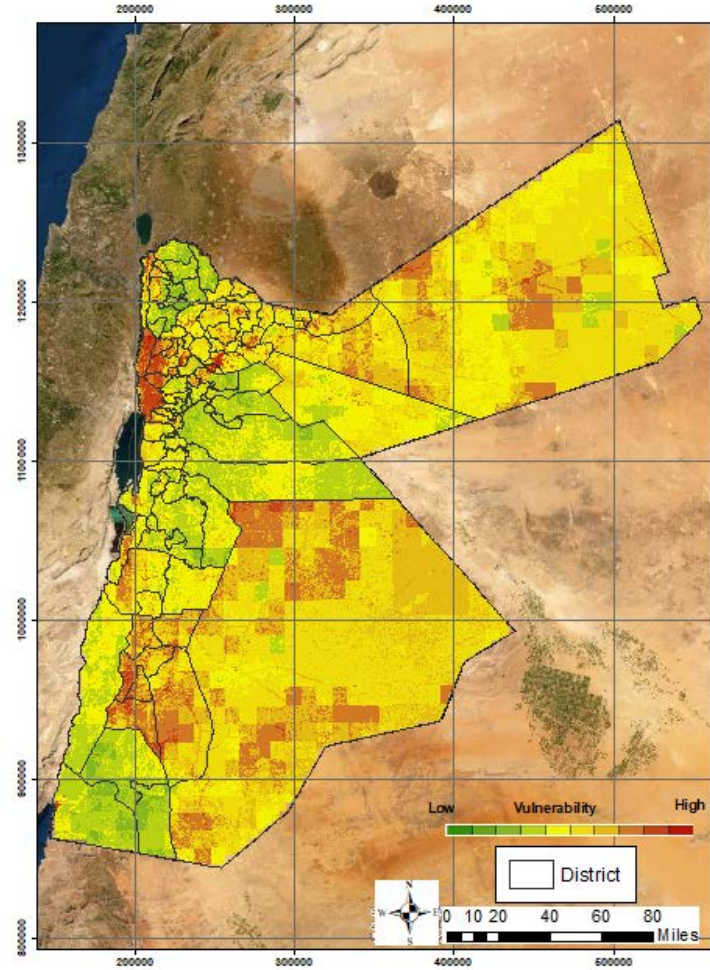
VULNERABILITY

Annual Vulnerability of the Water Sector: at District Level

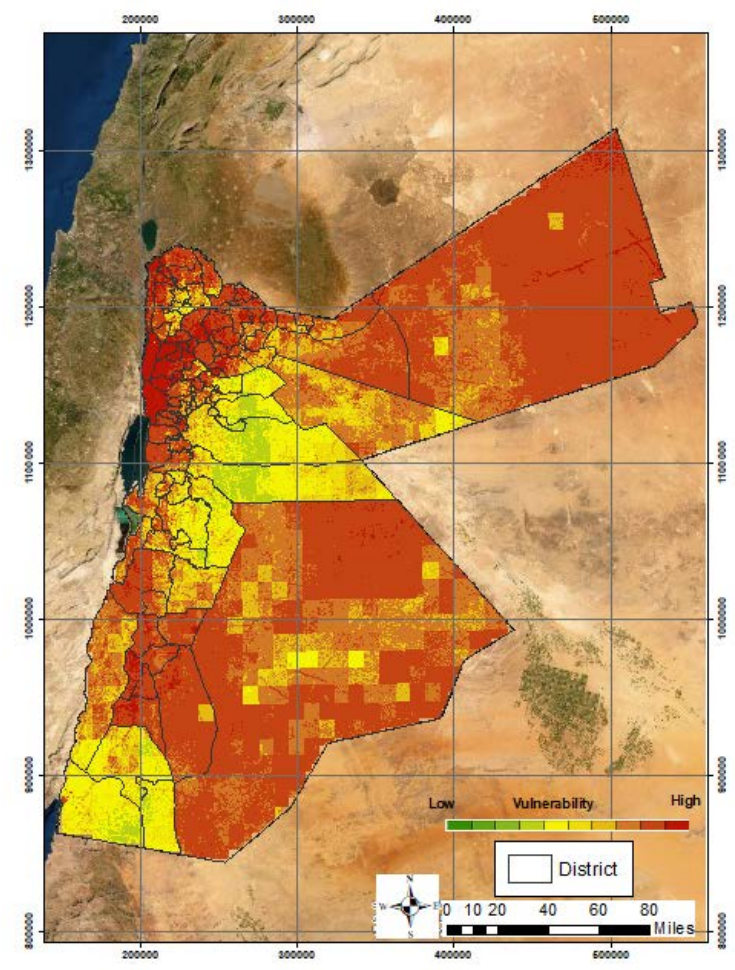
Vulnerability at reference period
1995-2014

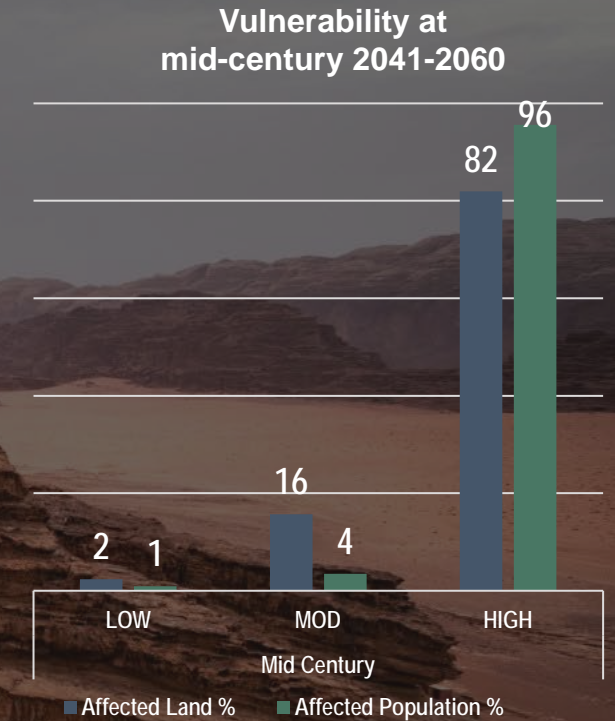
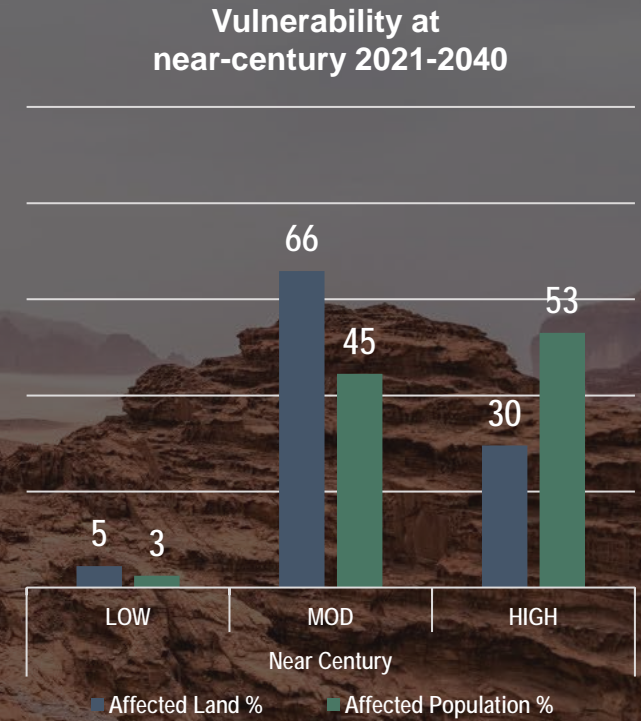
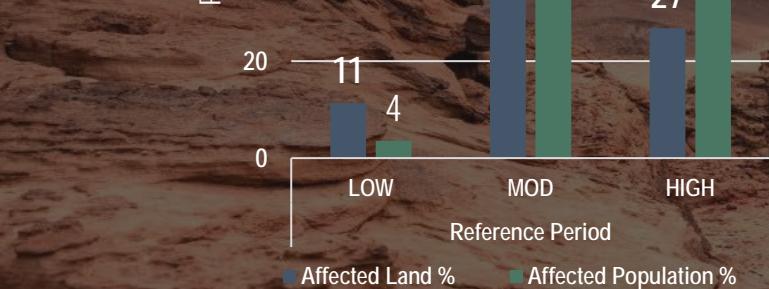
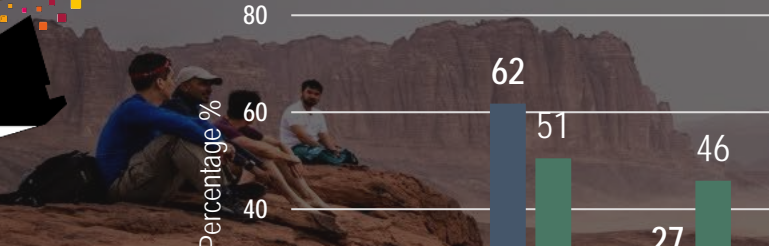


Vulnerability at near-century
2021-2040



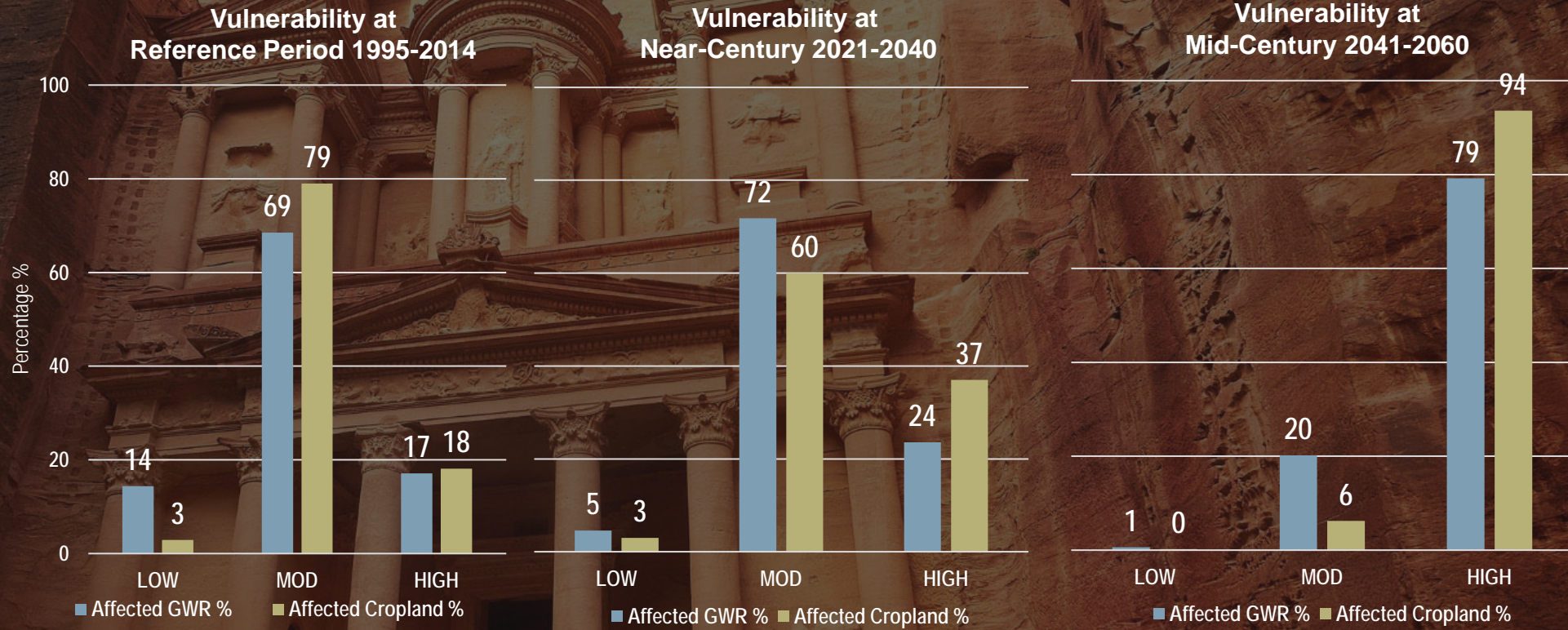
Vulnerability at mid-century
2041-2060





	Reference Period			Near Century			Mid Century		
	LOW	MOD	HIGH	LOW	MOD	HIGH	LOW	MOD	HIGH
Total land = 89,342 km ²									
Affected Land km²	10,171	55,175	23,996	4,011	58,909	26,422	2,176	14,017	73,150
Percentage %	11	62	27	5	66	30	2	16	82
Total Pop = 10184811									
Affected population inhabitant	366,653	5,143,330	4,674,828	254,620	4,532,241	5,397,950	91,663	356,468	9,736,679
Percentage %	4	51	46	3	45	53	1	4	96

Summary of Vulnerability Assessment Results of the Water Sector to Climate Change



Groundwater recharge area



	LOW	MOD	HIGH	LOW	MOD	HIGH	LOW	MOD	HIGH
Total Area = 18058.12									
Affected Area km ²	260	12,370	3,093	829	12,970	4,255	119	3,645	14,300
Percentage %	14	69	17	5	72	24	1	20	79

Cropland Areas



	LOW	MOD	HIGH	LOW	MOD	HIGH	LOW	MOD	HIGH
Total Area = 2152.76									
Affected Area km ²	61	1,701	391	62	1,297	793	4	134	2,019
Percentage %	3	79	18	3	60	37	0	6	94



المبادرة الإقليمية لتقييم أثر تغيّر المناخ على الموارد المائية وقابلية تأثر القطاعات الاجتماعية والاقتصادية في المنطقة العربية

موارد المعرفة

الهدف الرئيسي لمركز المعرفة الإقليمي هو توفير إمكانية الوصول للمعلومات لتسهيل التعاون والتنسيق والحوار والتبادل بين الدول العربية والمنظمات

بوابة البيانات

تتيح بوابة البيانات التصور التفاعلي لخرائط ريكار كما توفر الوصول إلى مخزون بيانات ريكار



عُقد المعرفة

ابتكار مبادرات تواصل وطنية، إقليمية ودولية لنقل وتبادل المعلومات

الشركاء

شراكة إستراتيجية لدعم الأهداف الاستراتيجية لتنفيذ برامج التكيف مع تغيّر المناخ والتخفيف من أثاره على المستويين الوطني والإقليمي

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عقد المعرفة

ابتكار مراكز تواصل وطنية، إقليمية ودولية لنقل وتبادل المعلومات

الشركاء

شراكة استراتيجية لدعم الأهداف الاستراتيجية لتنفيذ برامج التكيف مع تغير المناخ والتخفيف من آثاره على المستويين الوطني والإقليمي

للحصول على معلومات



+

عقد
المعرفة

+

بوابة
البيانات

-

موارد
المعرفة





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

KNOWLEDGE RESOURCES

The central aim of this Regional Knowledge Hub is to provide access to information that can facilitate cooperation, coordination, dialogue and exchange among Arab States, organizations

DATA PORTAL

The data portal allows interactive visualization of RICCAR maps and provides access to RICCAR data repository.



Request Data

KNOWLEDGE NODES

Innovation of National, Regional and International Nodes for the Transfer and Sharing of Knowledge

PARTNERSHIPS

Strategic partnerships for supporting strategic objectives to implement climate change adaptation and mitigation programs at the national and regional levels

www.riccar.org

The RICCAR Regional Knowledge Hub is an open source database. We ask users to create a user profile to continually improve the user experience.

Download netCDF climate data

Download GIS data

DATA REQUEST FORM

1. Background

The Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR) is a joint initiative of the United Nations and the League of Arab States launched in 2010. It is implemented under the auspices of the Arab Ministerial Water Council and other bodies in a wide range of countries.

The RICCAR website and content databases are based on an integrated assessment methodology that includes:

- Regional climate modeling (RCM) outputs for the 2020-2100 period (Arab Domain), which is among the domains included in the Decadal Regional Climate Modelling Experiment (DR-CM) of the World Climate Research Program.
- Regional hydrological modeling (RHM) outputs for the surface water basins in Arab States, including the land and water stress of surface water basins that are shared or transboundary in nature. These data are available to the Arab region.
- Regional socio-economic assessment (SEA) outputs for various sectors across the Arab region covering the 21 Arab States included in the United Domain. The RICCAR assessment outputs are available in the Arab Climate Change Assessment Report (AR-Report) and Technical Annex.

2. Rationale of data acquisition and access

3. Users may require benchmarked regional climate modeling (RCM) and regional hydrological modeling (RHM) outputs for the Arab Domain. Available RCM and RHM output variables are described in the RICCAR Technical Annex Regional Climate Modelling and Regional Hydrological Modelling Applications in the Arab Region prepared by DRCM.

4. Temperature, precipitation, and hydrologic outputs are available in daily frequency from 1980 to 2100 for RCP 4.5 and RCP 8.5 at the scale of 0.5x0.5 km. Regional climate index are available annually and seasonally for the Arab domain.

5. RCM and RHM outputs for the hydrologic period, temperature, precipitation, and evaporation are available for RCP 4.5 and RCP 8.5 at the scale of 0.5x0.5 km.

6. Users may also require socioeconomic data used for the regional vulnerability assessment (VA) described in the RICCAR Technical Annex Regional Vulnerability Assessment: Arab Region Application prepared by UN/WHO/ICM, ACSS and DRCM.

7. Requests for data will be considered by UN/WHO/ICM primarily with a view to informing policy development, encouraging further research, and supporting education and training in the region.

8. Dissemination of data from RICCAR

9. Data is available to data users free of charge and under the conditions set forth in paragraph 2 to 7.7 below.

10. Requests for data must reach the United Nations Economic and Social Commission for Western Asia (UN/WHO/ICM) in writing and include the completed Data Request Form, which is attached for this purpose. The provision of data by UN/WHO/ICM will be decided on a case by case basis.

11. By signing the Data Request Form, the data user(s) listed in the form and all listed institutions agree in writing that the data requested are non-transferable to third parties, including other individual researchers in the same institution requiring a request in a single paper not listed in the form. The Data Request Form (DR-Form) is attached solely to the Data User(s) listed on the request form and for the purposes identified there within user-identified scope.

12. The data shall not be used for commercial purposes.

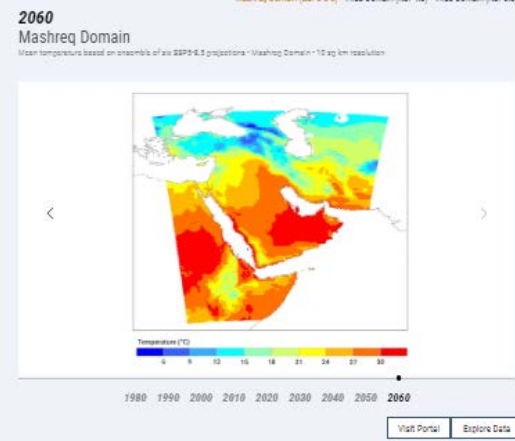
13. The data user(s) agrees that UN/WHO/ICM may inform the members States of the League of Arab States and RICCAR collaborating partners about the use for which data from RICCAR has been requested and will transfer the names and addresses of the data user(s) to those States and collaborating partners, as stated above.

14. UN/WHO/ICM may make available subsets of data from RICCAR on a request basis to support specific research and study projects, as stated above. Requests for the entire database or substantial parts of it cannot be considered.

15. Data or data subsets approved for dissemination will be provided in the platform format deemed suitable for dissemination by UN/WHO/ICM based on the request made. The transfer of data on external hard drives will only be considered on a very exceptional basis.

Individuals and institutions requesting data should include in writing by completing and signing the form, 5 copies of the request to the: National Technical Support, Regional Advisor for Geographic Information Systems for Climate Change, United Nations Economic and Social Commission for Western Asia (UN/WHO/ICM) via email to support@icm.un.org, with a copy to info@icm.un.org.

Next >



Regional Knowledge Hub: Arab Domain Portal



Food and Agriculture Organization
of the United Nations

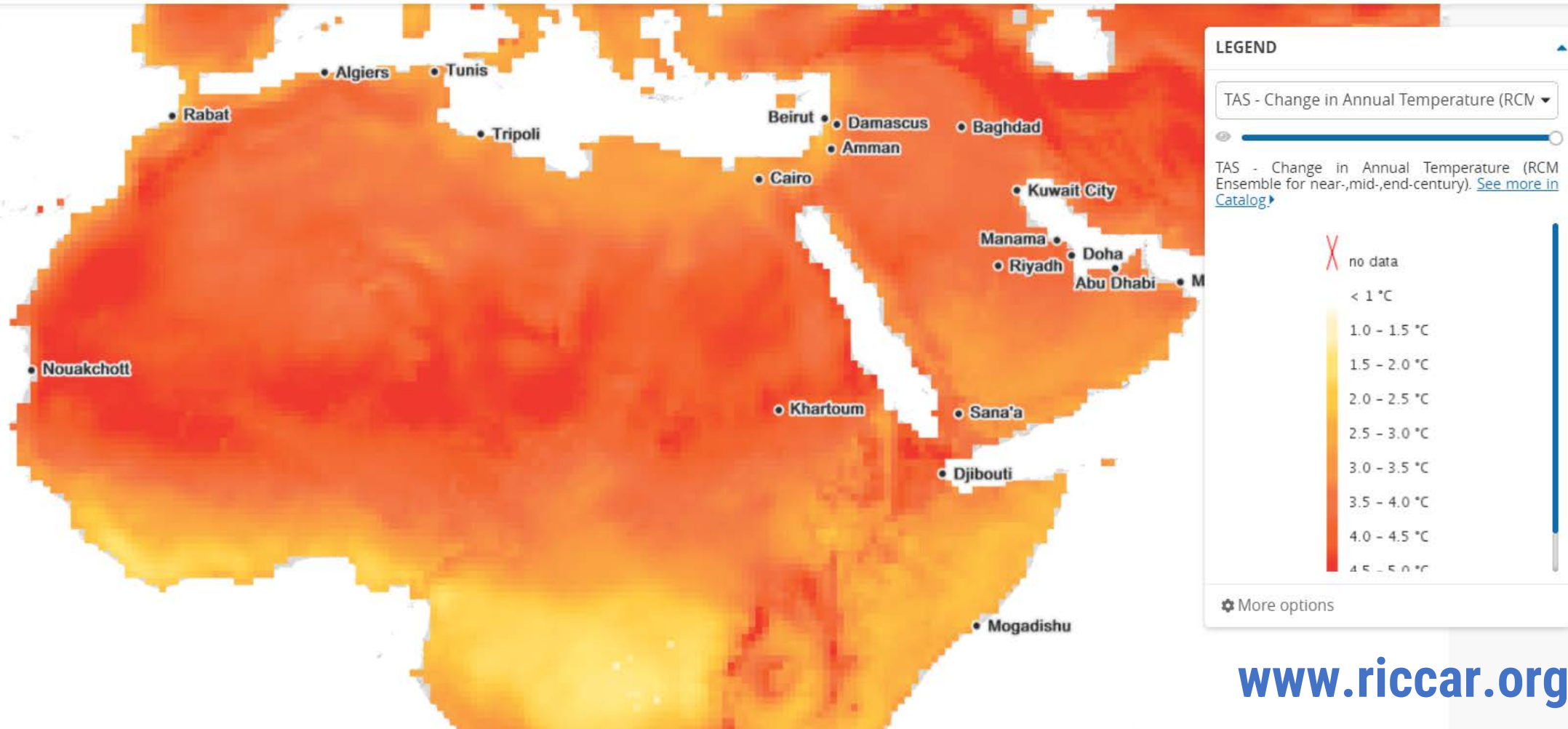


RICCAR
Regional Knowledge Hub Data Portal

Map

→ Sign in ? About

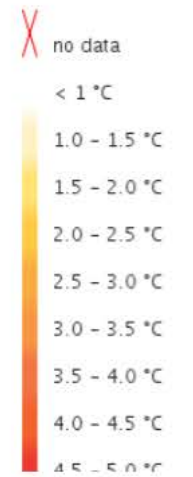
CLIMATE



LEGEND

TAS - Change in Annual Temperature (RCM)

TAS - Change in Annual Temperature (RCM Ensemble for near-,mid-,end-century). [See more in Catalog](#)



More options



ANALYSIS



LOCATE



LAYERS



CATALOG

500 km



Regional Knowledge Hub: Mashreq Domain Portal



Regional Knowledge Hub Data Portal

About

Mashreeq Region

Bias Corrected data

Reference period (1995-2014)

- Temperature
- Precipitation
- SU
- SU35
- SU40

Near-term (2021-2040)

Mid-term (2041-2060)

Raw RCM outputs

Upload your file

