

Climate Challenges and Climate Finance Flows to Arab States

Carol Chouchani Cherfane, Director, Arab Centre for Climate Change Policies
Cluster Lead, Climate Change and Natural Resource Sustainability Cluster
Towards COP28: Arab Regional Forum on Climate Finance
Dubai, 6 November 2023



UNITED NATIONS

الاستقيا
ESCWA

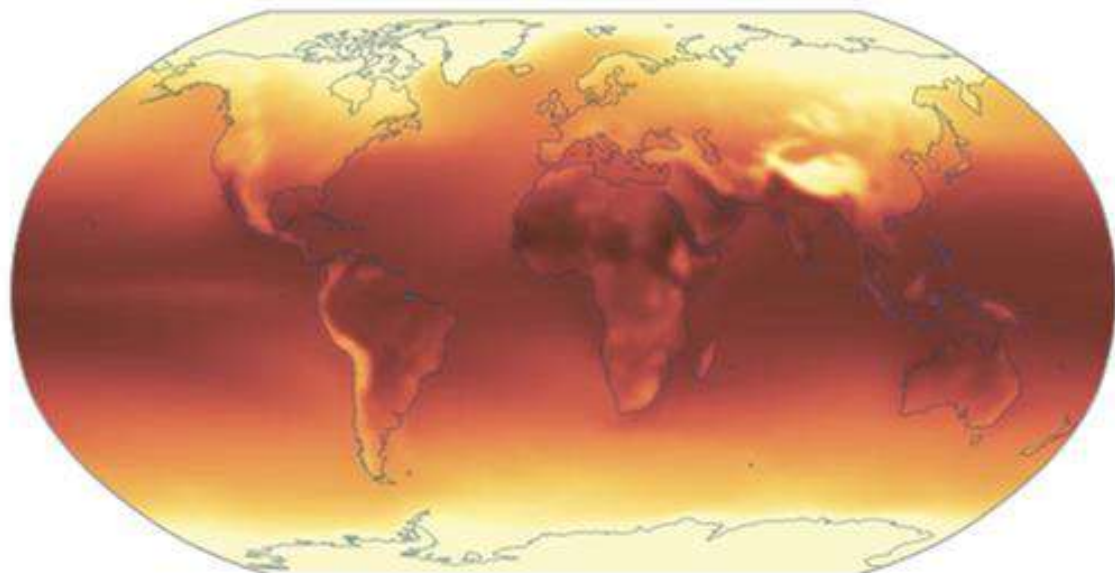
Shared Prosperity **Dignified Life**



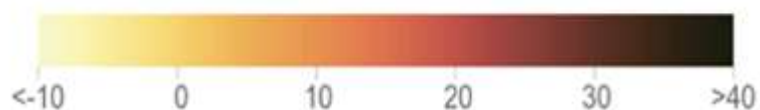
IPCC Sixth Assessment Report: Climate Change 2022

WGII on Impacts, Adaptation and Vulnerability

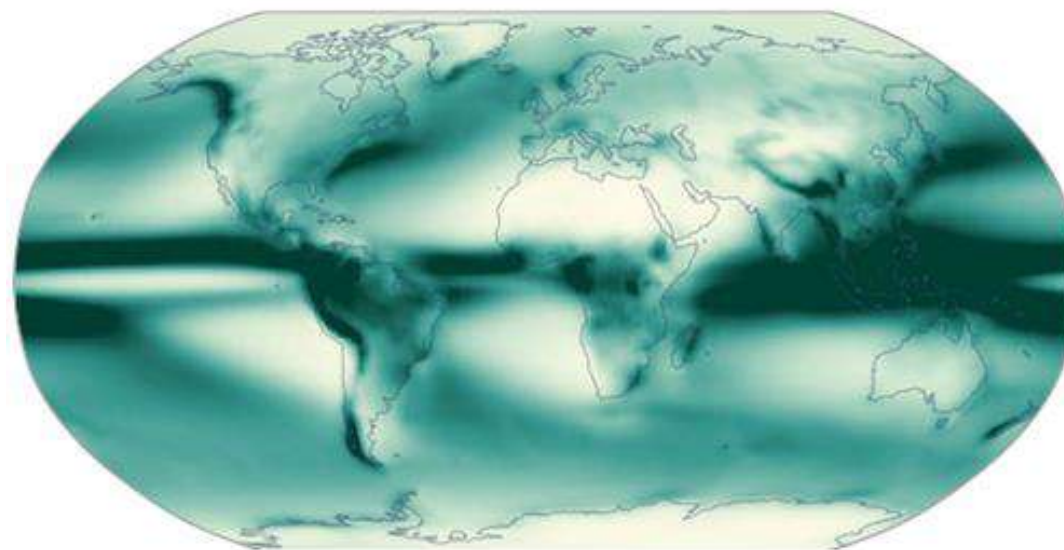
Observed Temperature Change



Mean temperature (°C)
Period 1995–2014



Observed Precipitation Change



Total Precipitation (mm/day)
Period 1995–2014
CMIP6 - Annual (34 models)



Intergovernmental Panel on Climate Change (IPCC): Global Assessment Report - IPCC Regions

SELECT VISUALIZATION

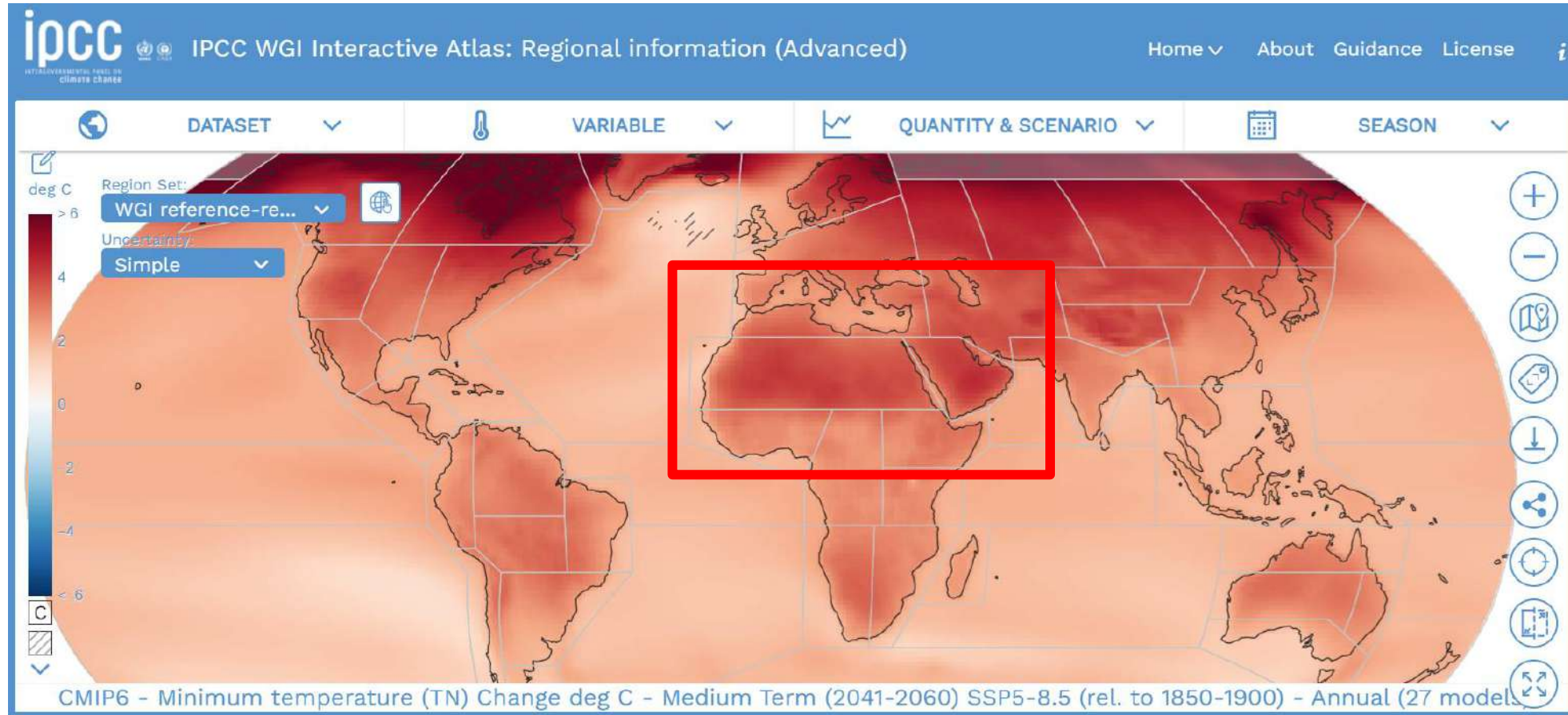
MAP REGIONS

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-information>



عربي



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



SMHI



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.



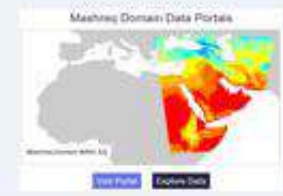
KNOWLEDGE NODES

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

PARTNERSHIPS

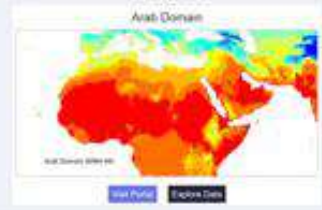
Strategic partnerships for supporting strategic objectives to implement climate change adaptation and mitigation programs at the national and regional levels

Request Data



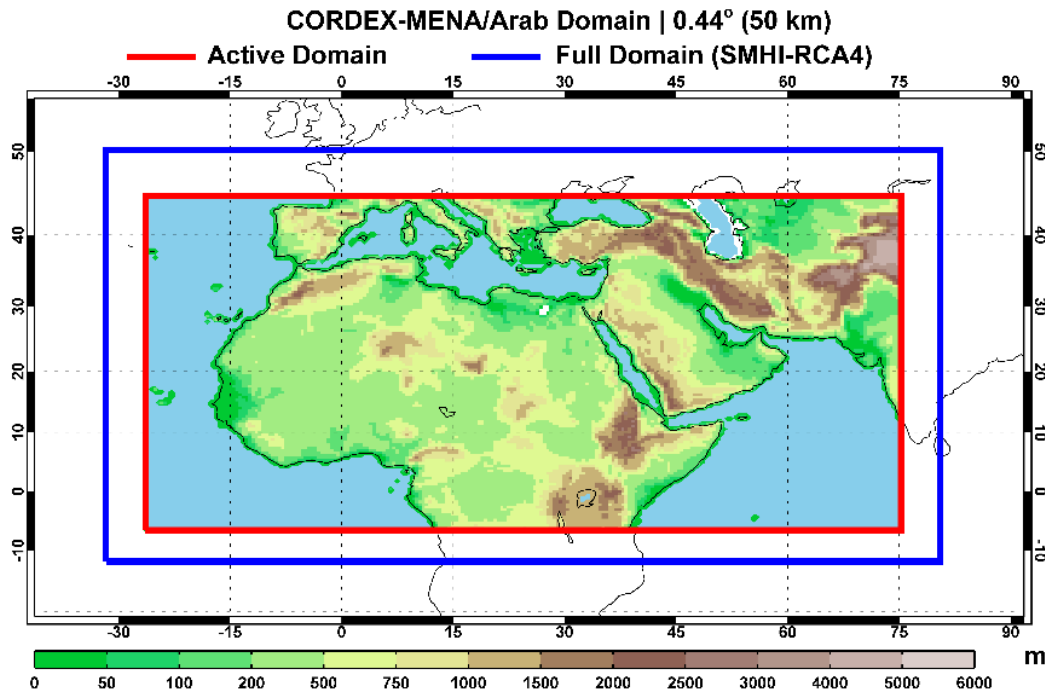
Mashreq Domain

DATA PORTALS
www.riccar.org

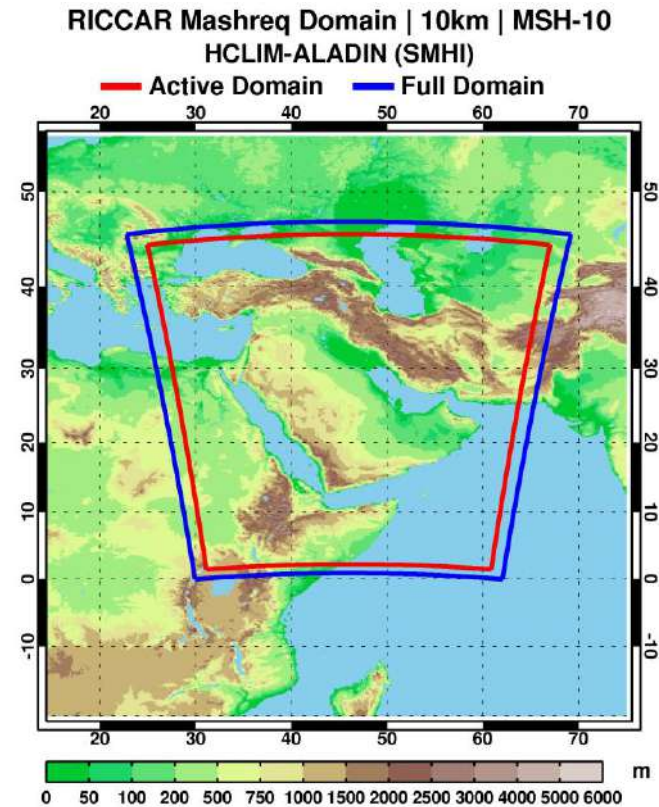


Arab Domain





- **50 km² grid scale resolution**
- RCP 8.5 ensemble (business-as-usual)
- RCP 4.5 ensemble (moderate mitigation)



www.riccar.org

New

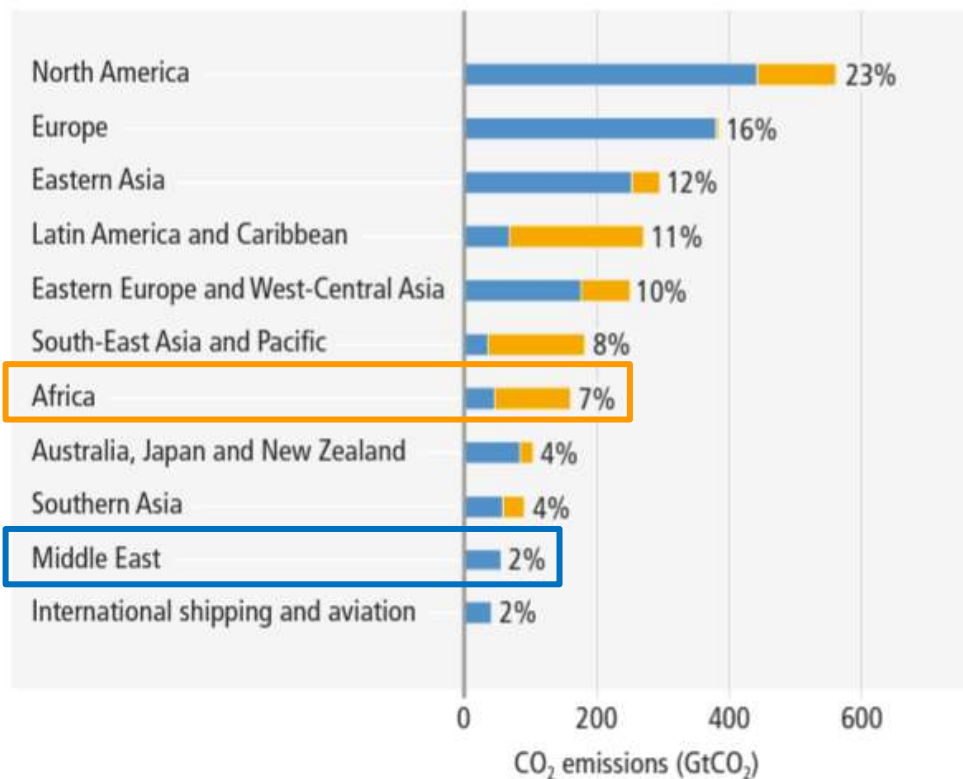
- **10 km² grid scale resolution**
- SSP5-RCP 8.5 ensemble
- SSP2-RCP 4.5 ensemble
- Six-member ensembles using CMIP6 GCMs
- All projections bias corrected to support hydrological & agricultural analysis

RICCAR MENA/Arab Domain adopted by World Climate Research Programme
Coordinated Regional Climate Downscaling Experiment (CORDEX)

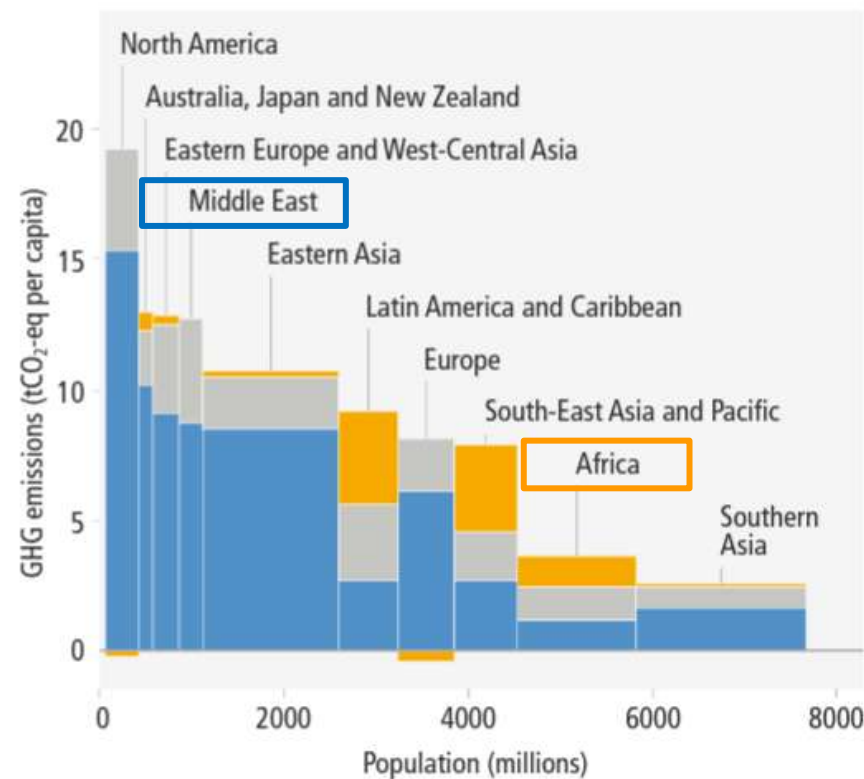
Achieving the Global Climate Goal requires a Just & Inclusive Energy Transition

Adaptation costs will increase in the absence of ambitious mitigation

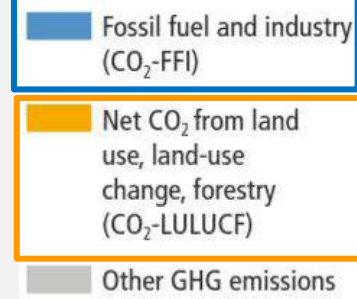
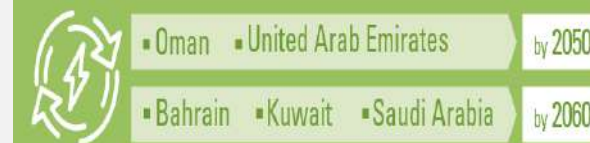
b. Historical cumulative net anthropogenic CO₂ emissions per region (1850–2019)



c. Net anthropogenic GHG emissions per capita and for total population, per region (2019)

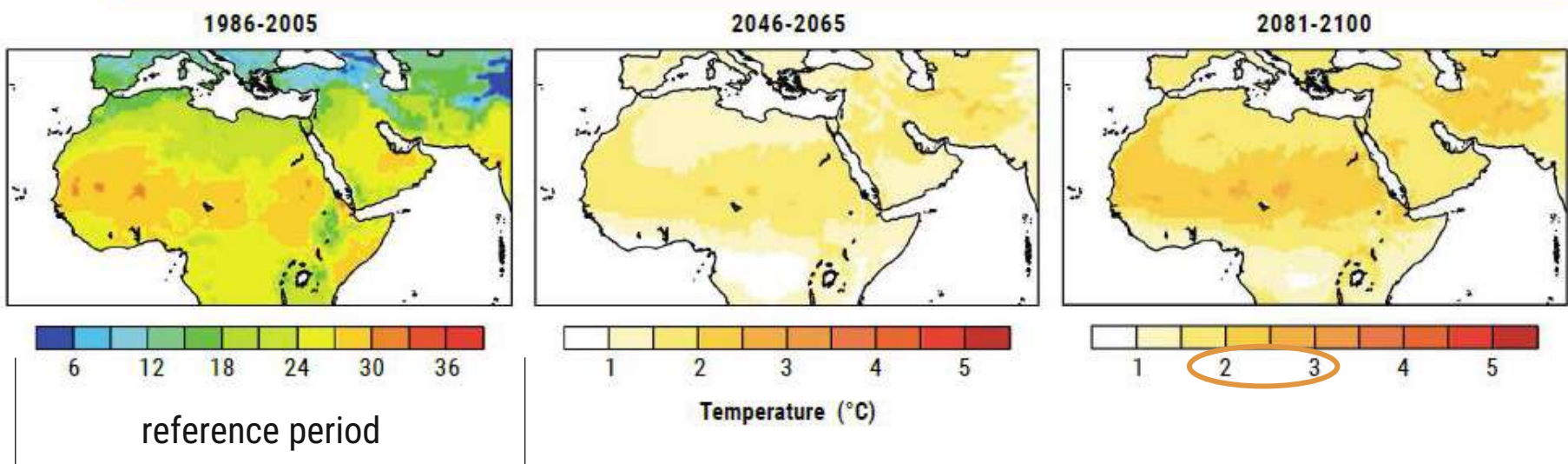


Economy-wide net-zero emissions target

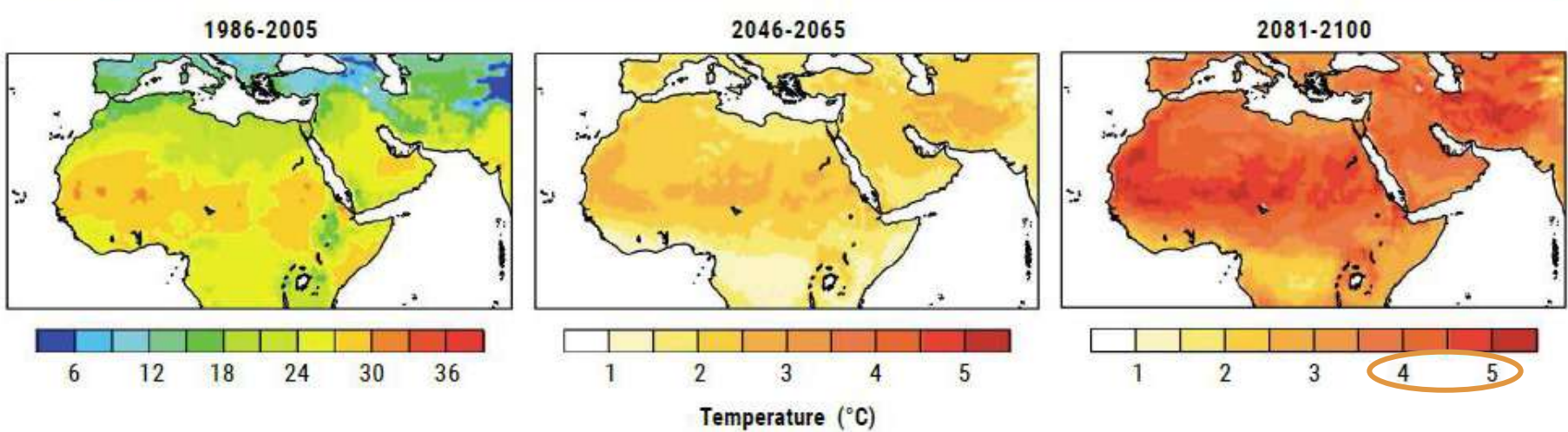


Arab Domain Mean Temperature projected to increase 2.6°C by mid-century and up to 4.8°C by end-century compared to reference period (1986-2005)

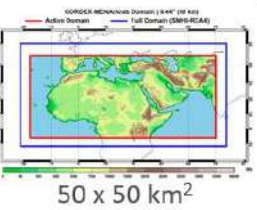
RCP 4.5



RCP 8.5



Moderate Emissions Reduction Scenario



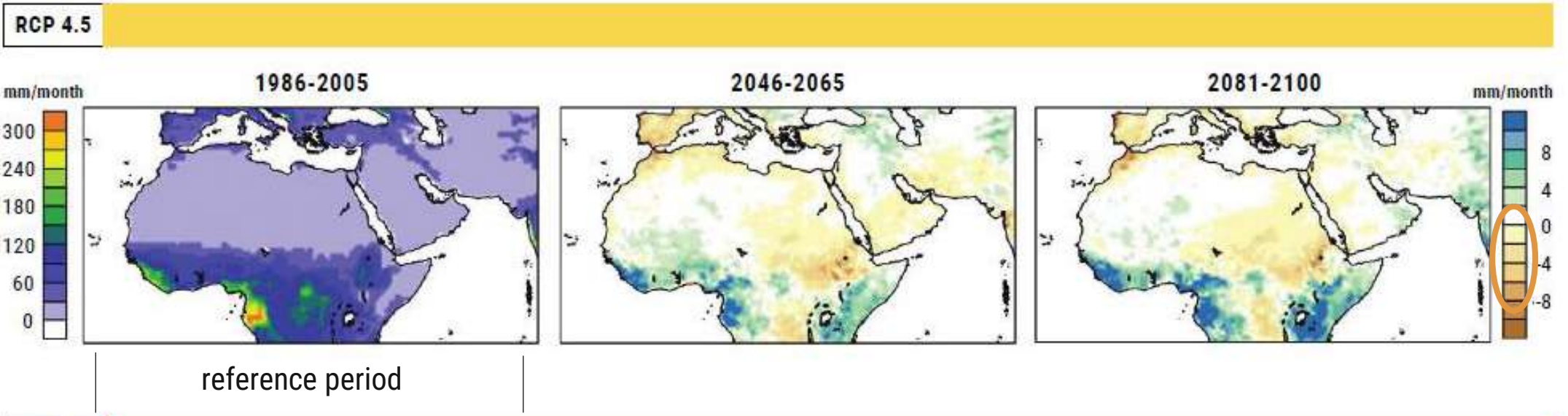
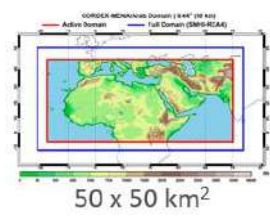
Business-as-Usual Emissions Scenario

Average Temperature in the Arab Region is already 0.8°C higher than the reference period at the start of this century

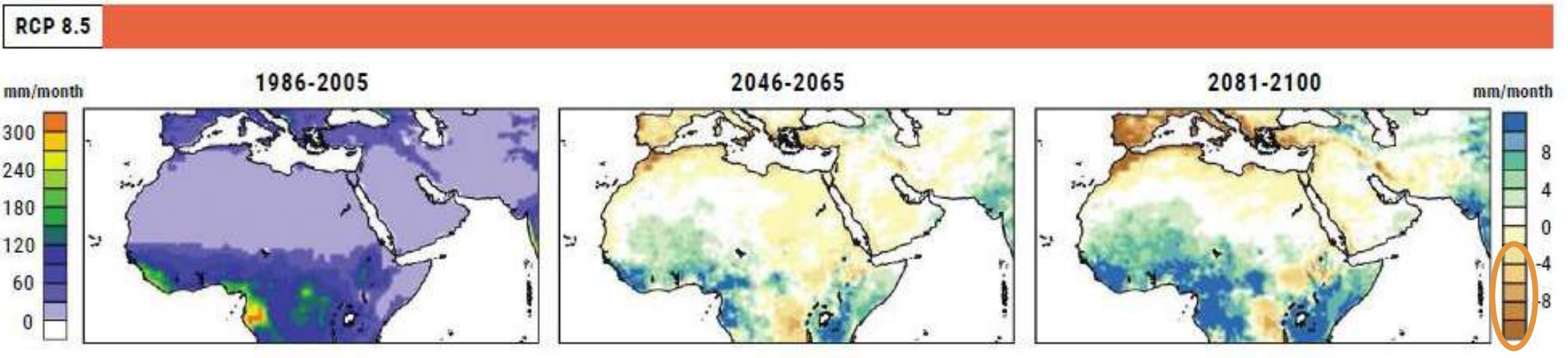


Precipitation trends are largely decreasing until the end of the century, with some areas expected to exhibit an increase in intensity & volume of rainfall

Moderate Emissions Reduction Scenario



Business-as-Usual Emissions Scenario

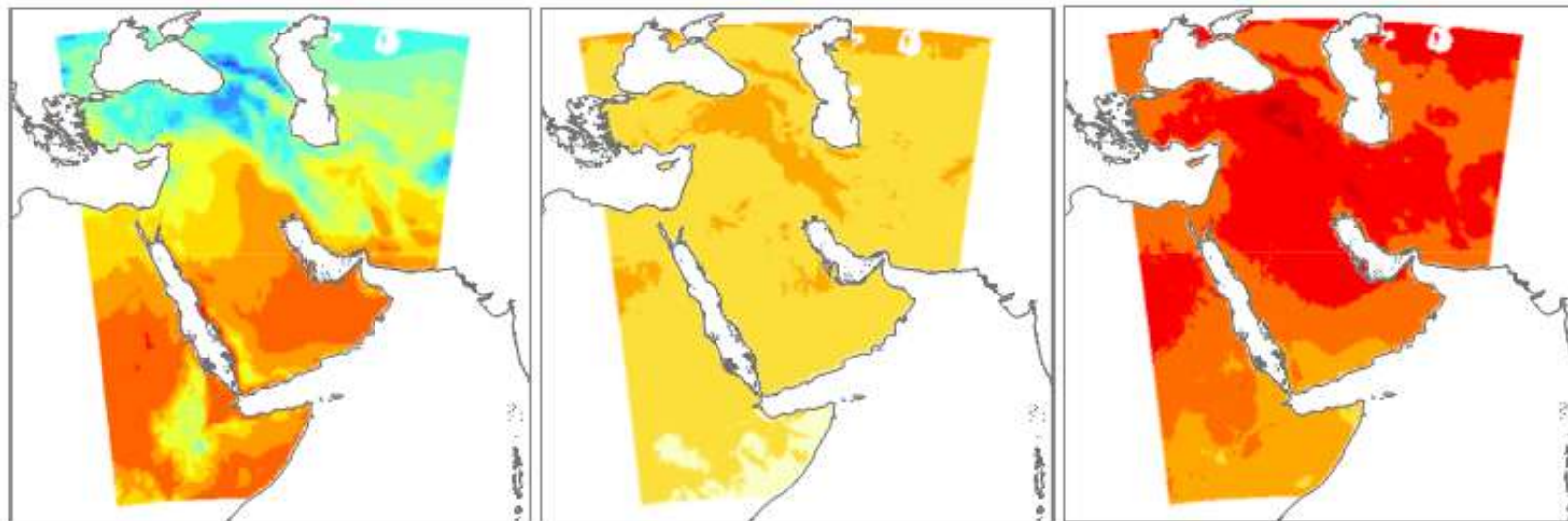


Mean Annual Temperature Change (°C) for SSP5-RCP8.5

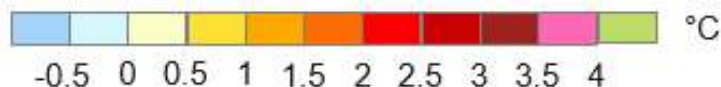
1995 - 2014

2021 - 2040

2041-2060



reference period



1995 - 2014

2021 - 2040

2041-2060



Mashreq
Domain

United
Arab
Emirates

**Arabian Peninsula (AP) is
warming at a faster rate
than the global mean**

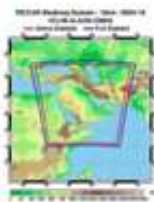
2021-2040
compared to:

1850-1900:
+2.2 °C (AP)

+1.7 °C (global mean)

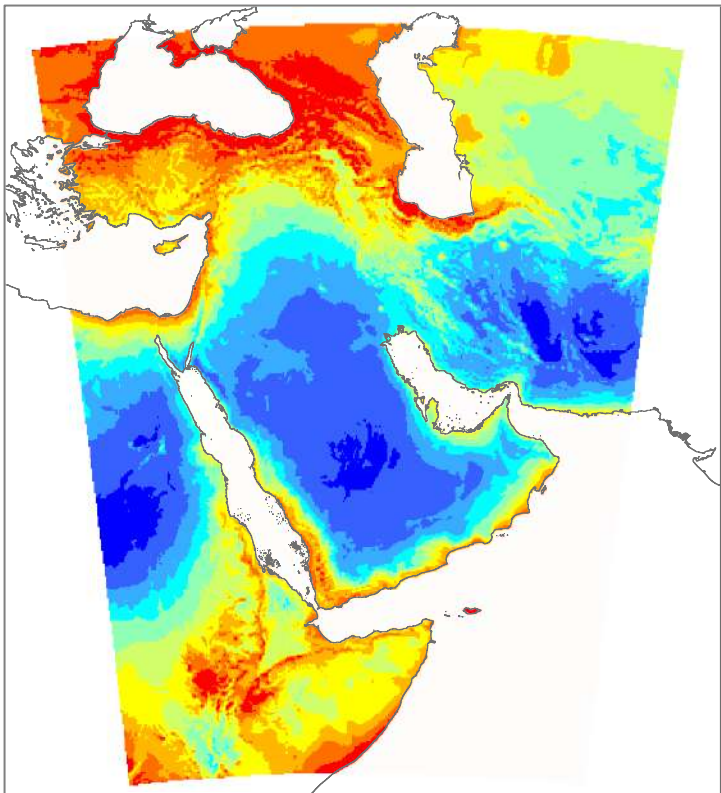
1995-2014:
+1.1 °C (AP)

+0.7 °C (global mean)

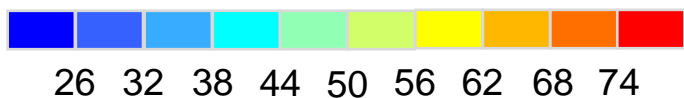


Change in relative humidity for near term (2021-2040) and mid-term (2041-2060) compared to the reference period (1995-2014), SSP5-8.5 scenario

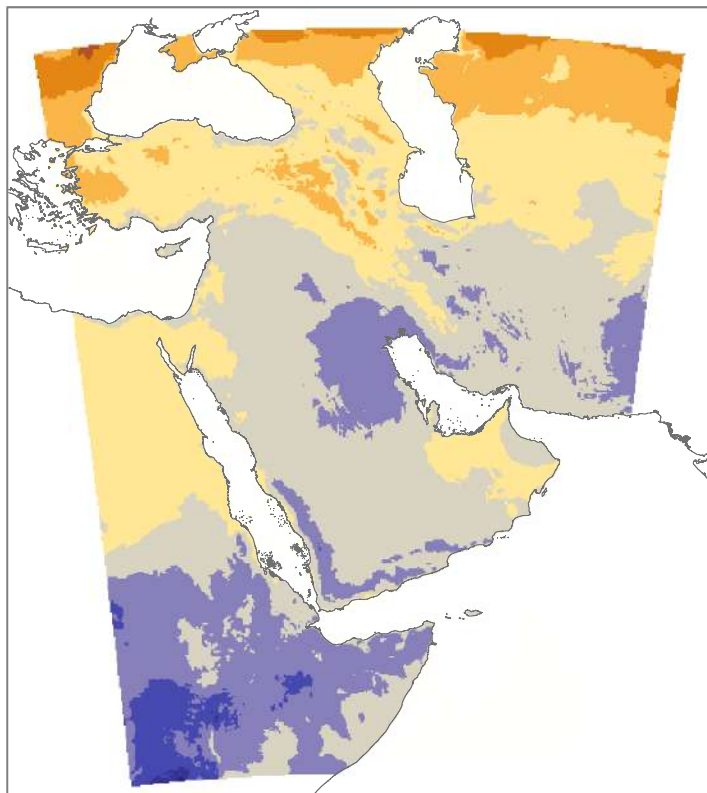
1995 – 2014



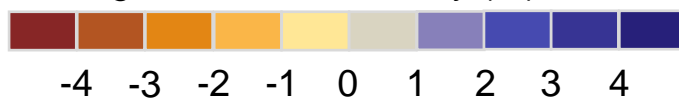
Relative humidity (%)



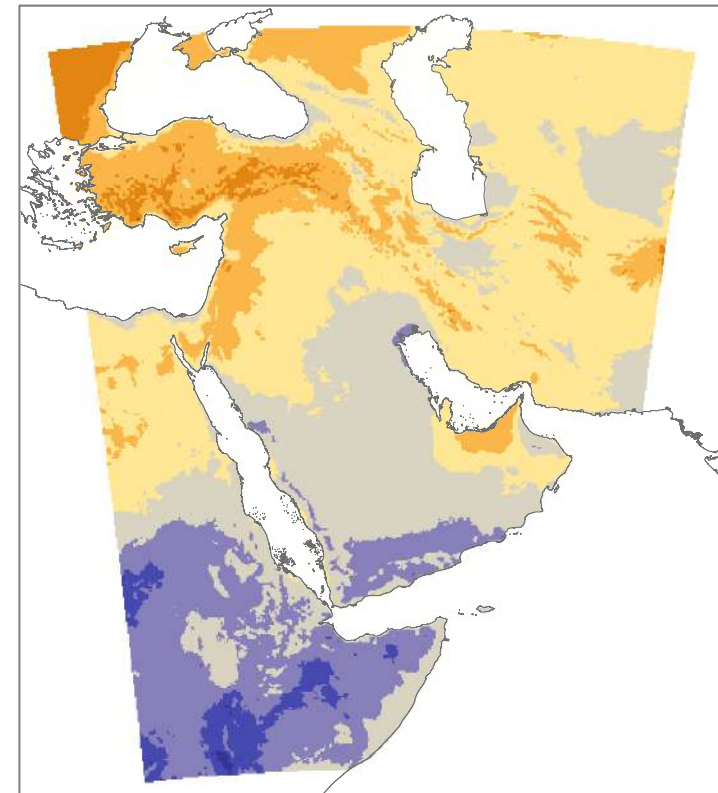
2021 – 2040



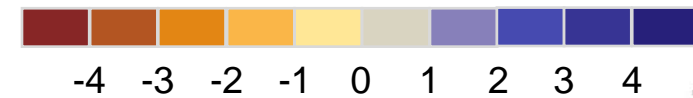
Change in relative humidity (%)



2041 – 2060



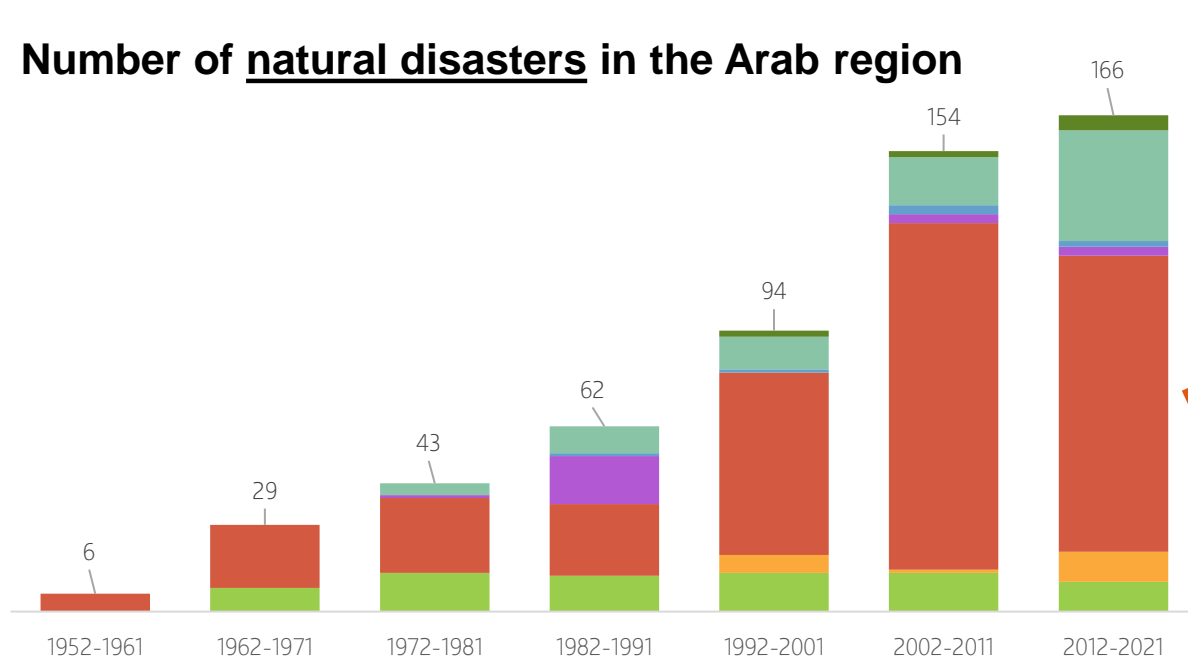
Change in relative humidity (%)



Air temperature of 31 °C with 60% humidity will result in an apparent temperature of 35 °C

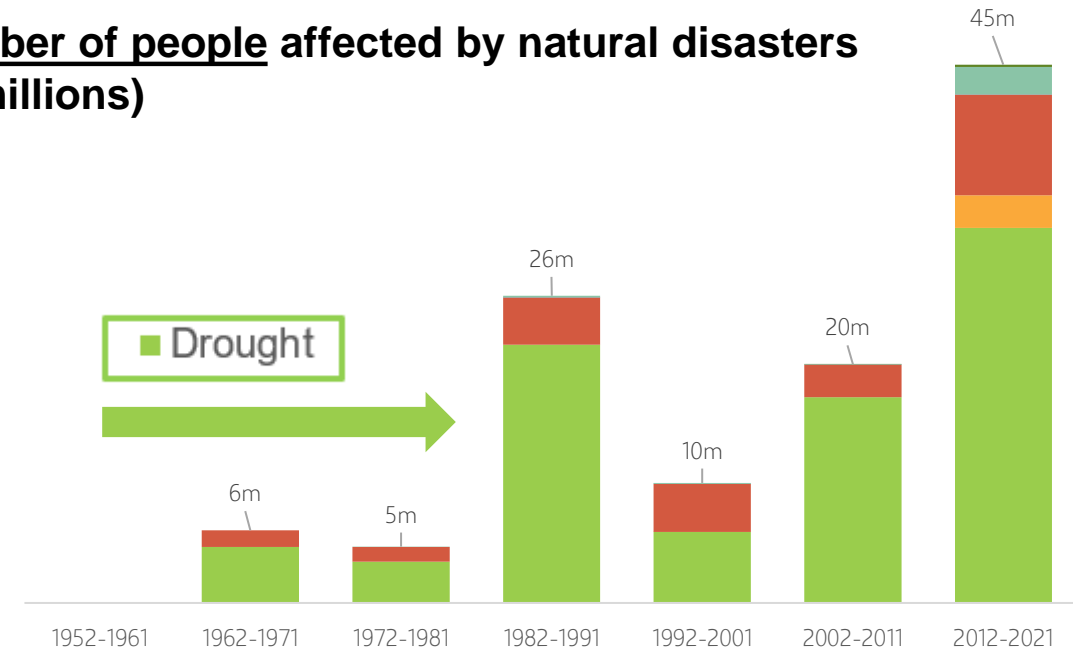
Natural Disasters affecting People in the Arab Region: Climate & Water-related Disasters are the Most Prevalent

Number of natural disasters in the Arab region



Frequency at Regional Scale

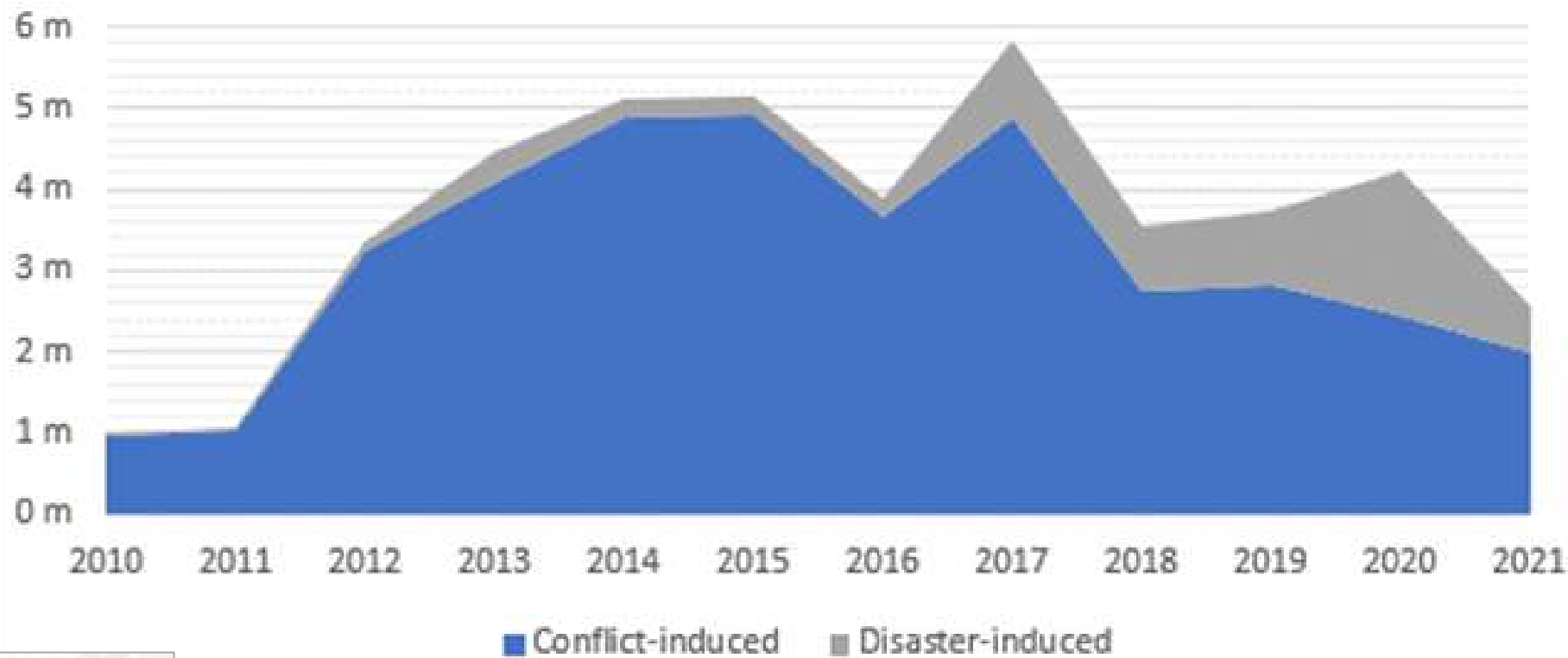
Number of people affected by natural disasters (in millions)



Implications for People

- Drought
- Extreme temperature
- Flood
- Insect infestation
- Landslide
- Storm
- Wildfire

Natural disasters contribute to internal displacement, but conflict remain key cause of displacement in the Arab Region



Disaster-induced IDPs **due to natural disasters** were most pronounced in the year 2020 reaching **31 million** globally and **2 million** regionally (most IDPs were in the Arab region).

However, the volume fell in the year 2021 to **24 million globally** and **560 thousand regionally**.

Conflict still primary cause of displacement in the region.

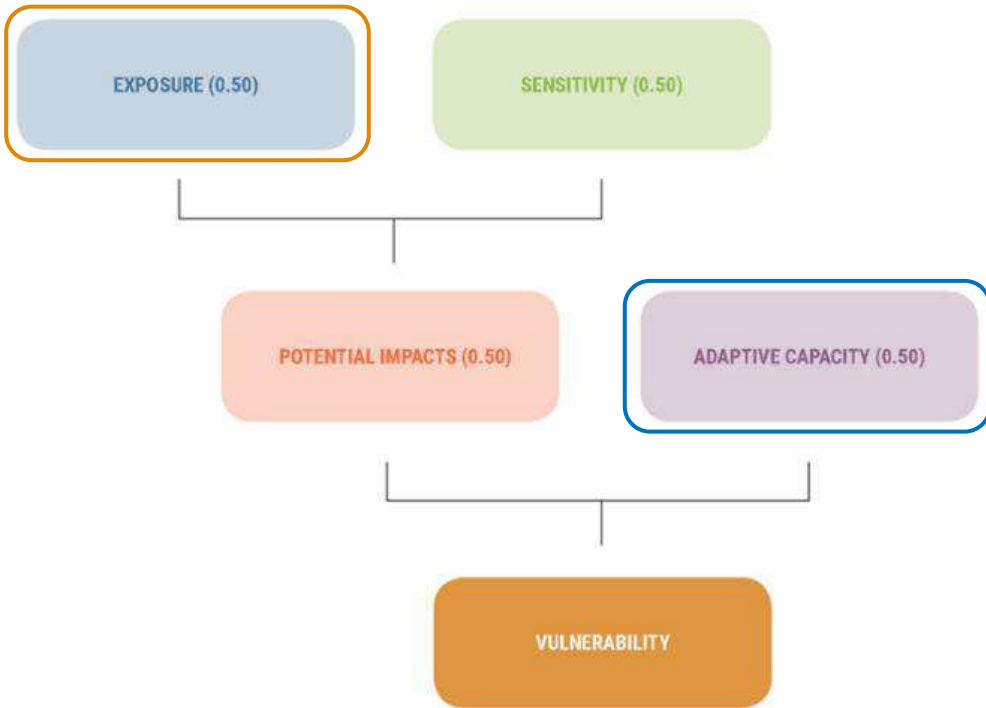
Need to consider frequency of extreme climate events & adaptive capacity.

Conflict-induced IDP numbers peaked regionally in 2017 (4.9 million), while disaster-related IDPs in 2017 totalled under 1 million (16% of IDPs in the region) and declined until the 2020 flood events.

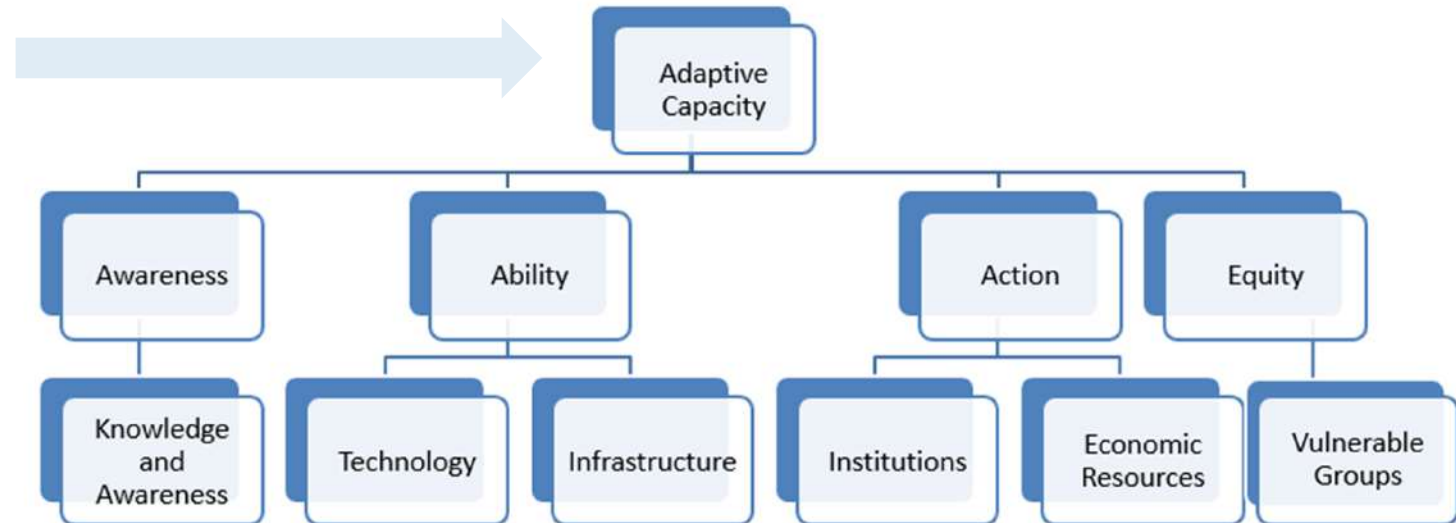


Climate Change Vulnerability Assessments

Integrated Vulnerability Assessments: Incorporating the Socio-Economic Dimension



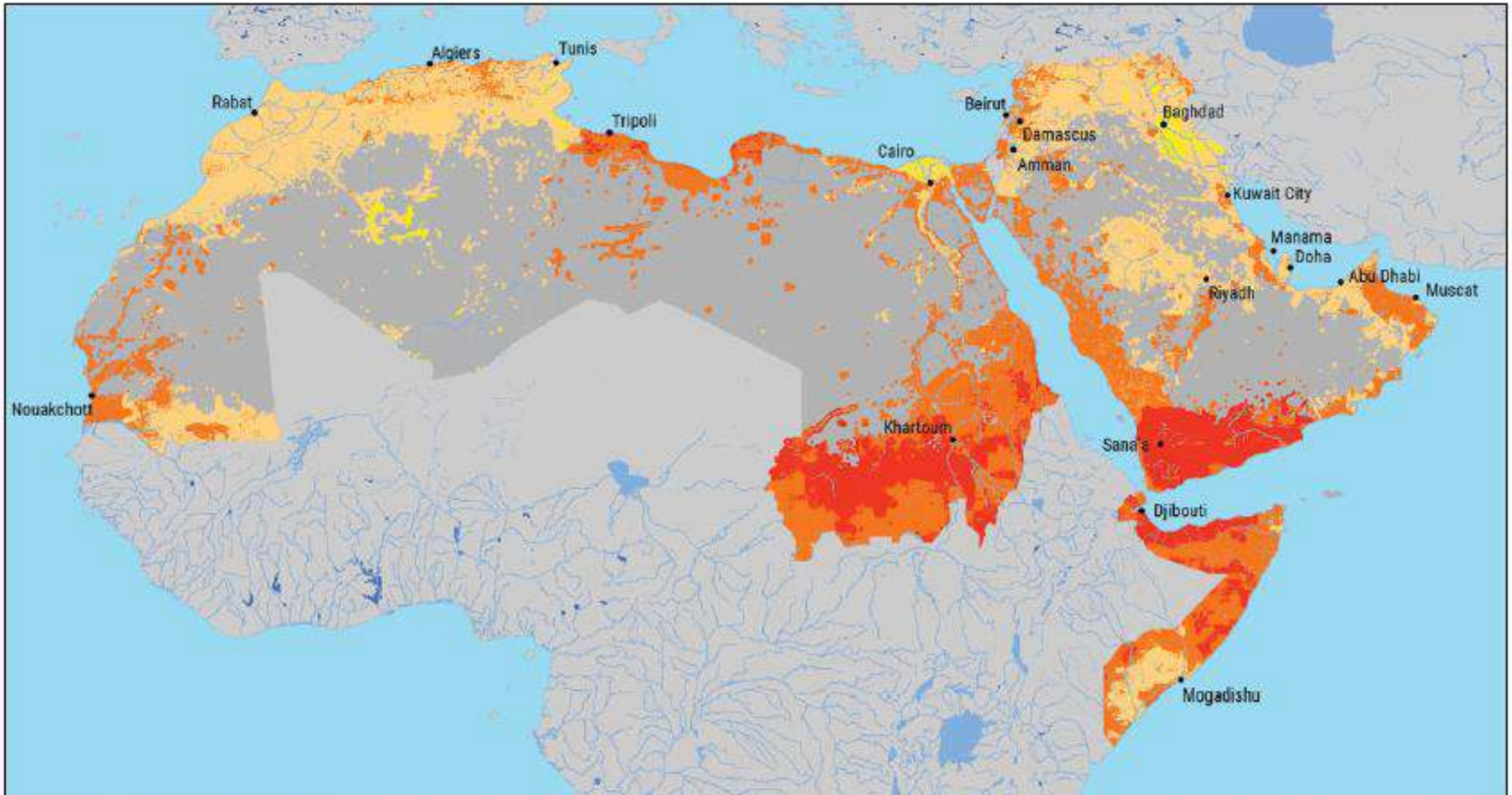
Strengthening Adaptive Capacity increases Climate Resilience





**Water Availability
Vulnerability**

**End-Century
RCP 8.5**



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

Legend

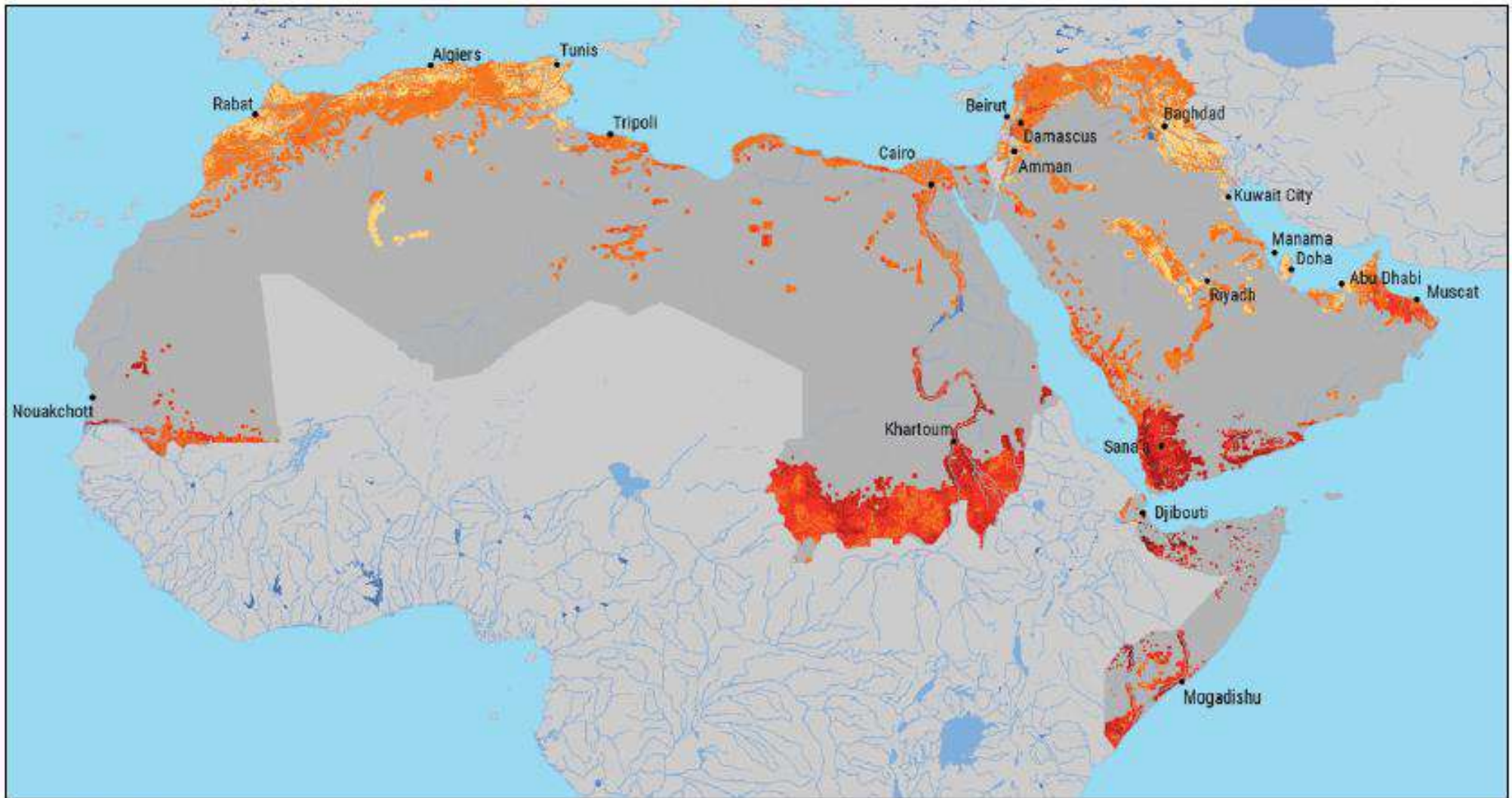
-  Lakes
-  Reservoirs
-  Rivers
-  Intermittent rivers
-  Major cities
-  Area not relevant to subsector
-  Low Vulnerability
-  High Vulnerability





Water Availability for Crops Vulnerability

**End-Century
RCP 8.5**



AGRICULTURE: WATER AVAILABLE FOR CROPS

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

Legend



Lakes



Rivers



Major cities



Reservoirs



Intermittent
rivers

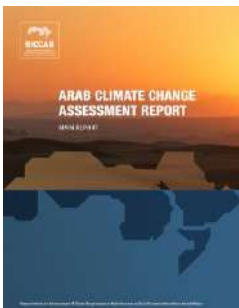


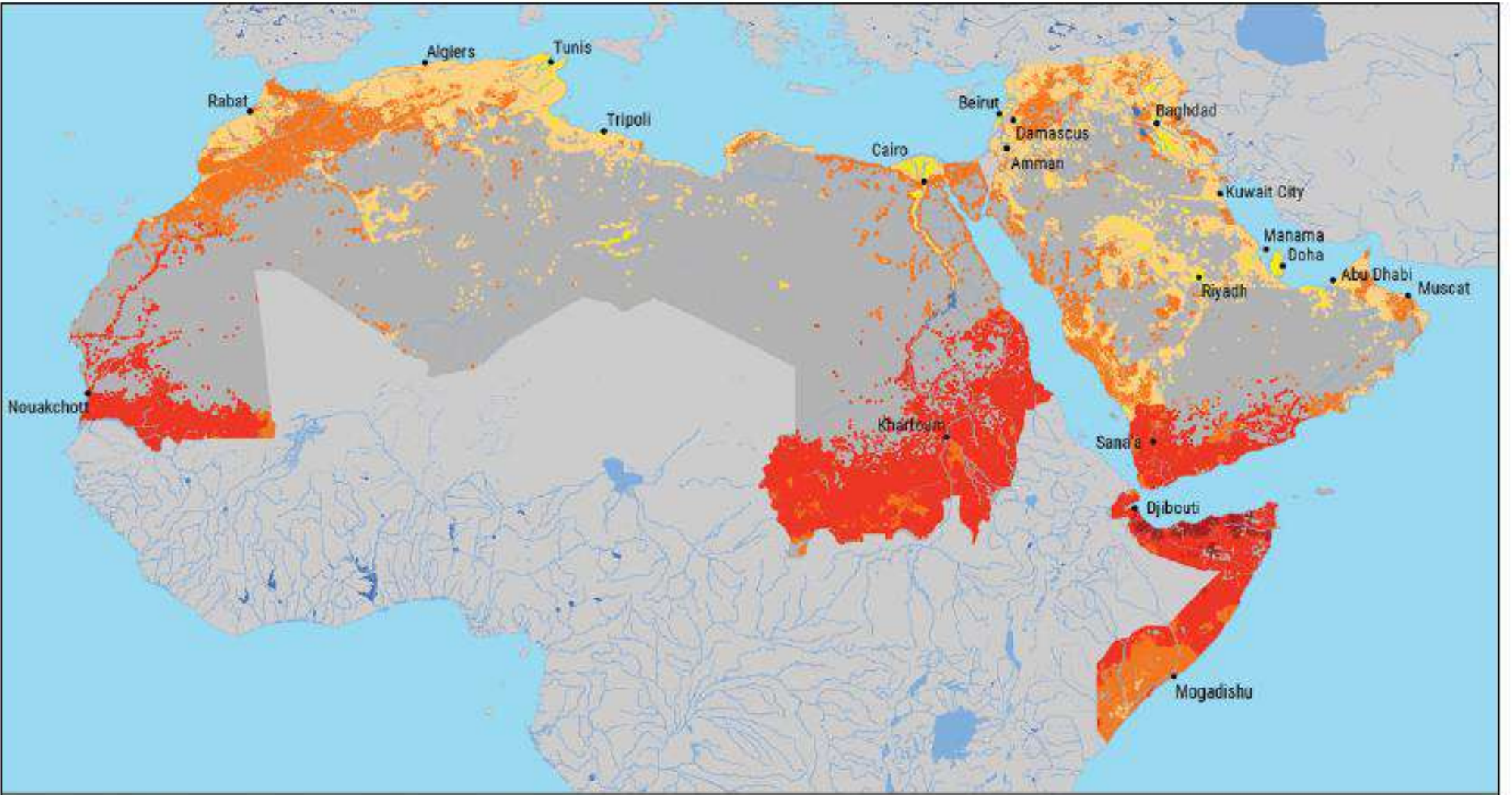
Area not relevant
to subsector



Low Vulnerability

High Vulnerability





**Water Availability
for People:
Agricultural
Employment
Vulnerability**

**End-Century
RCP 4.5**

PEOPLE: EMPLOYMENT RATE FOR THE AGRICULTURAL SECTOR
VULNERABILITY: RCP4.5 END-CENTURY (2081-2100)

Legend

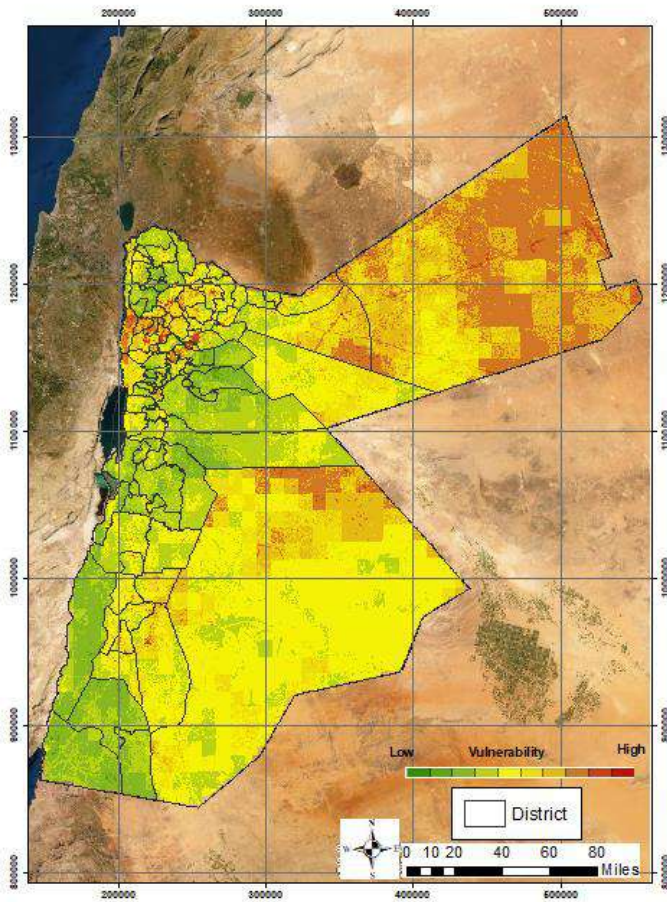
-  Lakes
-  Reservoirs
-  Rivers
-  Intermittent rivers
-  Major cities
-  Area not relevant to subsector
- 

Low Vulnerability High Vulnerability

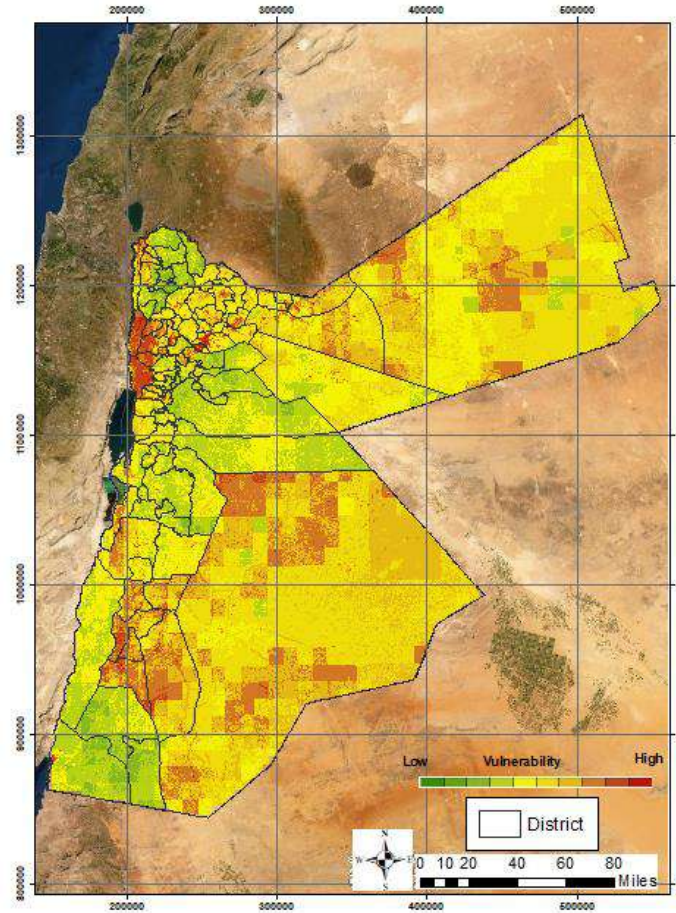


Vulnerability Assessment of the Water Sector to Climate Change in Jordan: Supports ESCWA's Climate/SDG Debt Swap-Donor Nexus program for Jordan

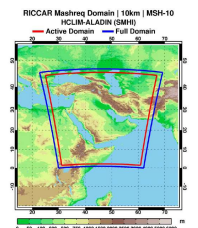
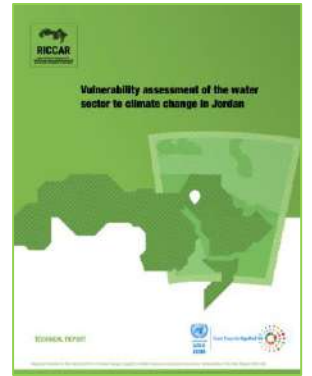
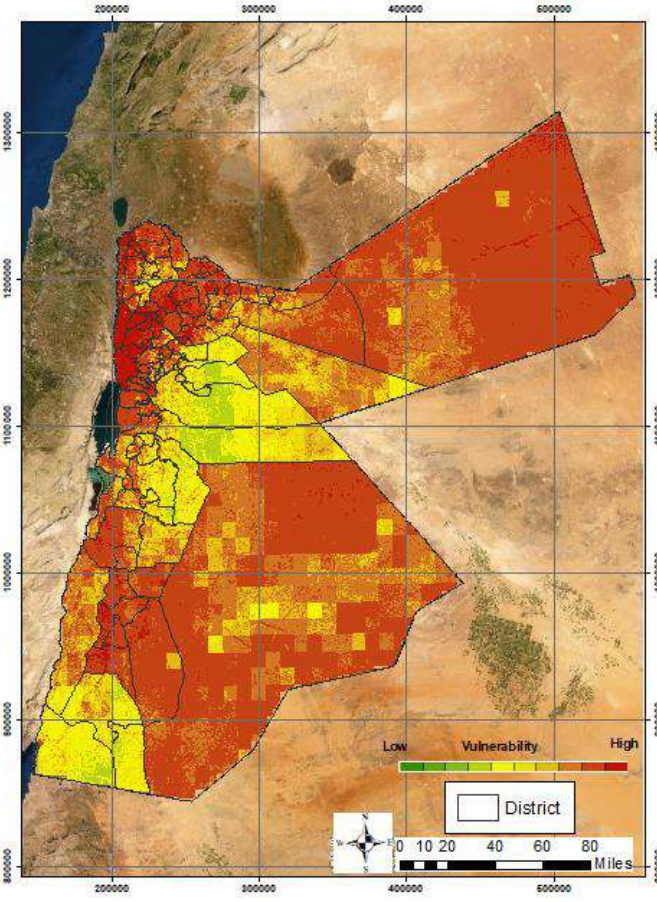
Vulnerability at reference period
1995-2014



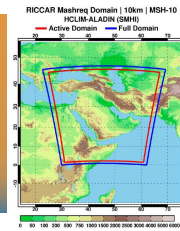
Vulnerability at near-term
2021-2040



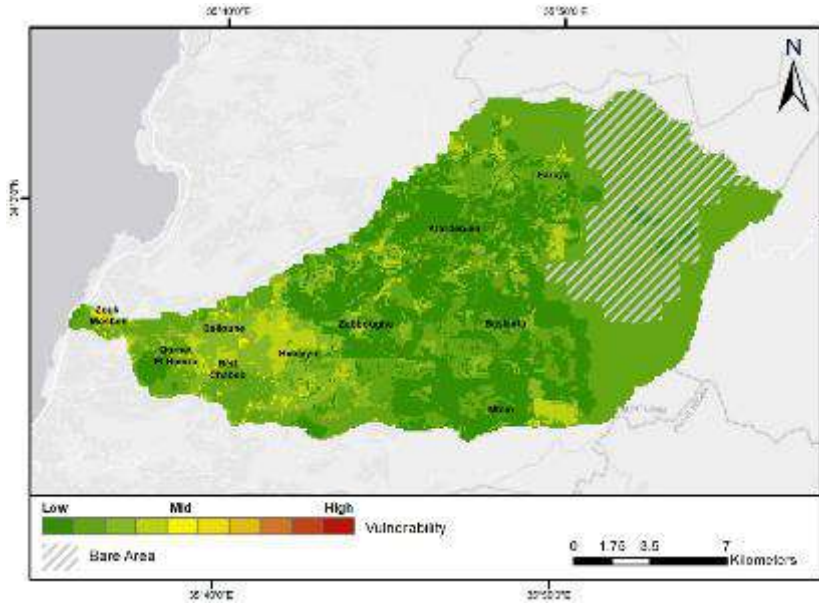
Vulnerability at mid-century
2041-2060



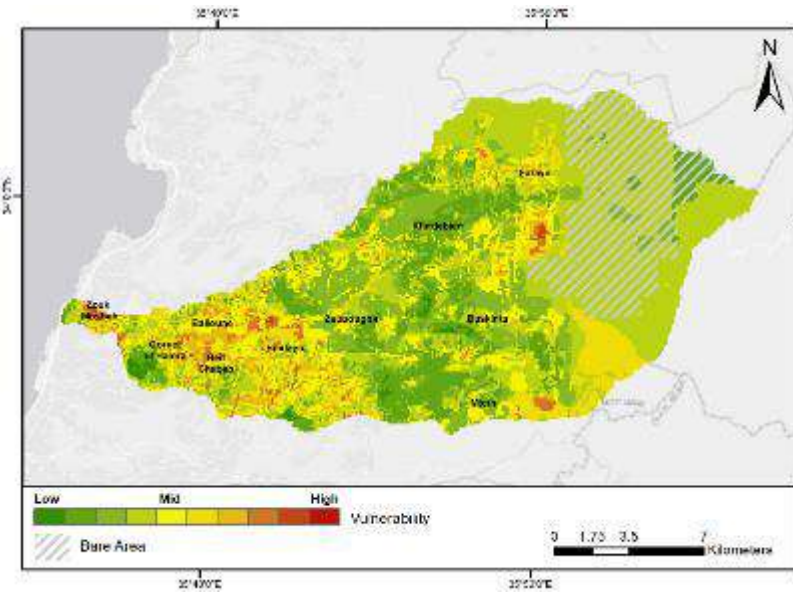
Nahr el Kalb Watershed (Lebanon): Vulnerability Assessment & Impact on Agricultural Output



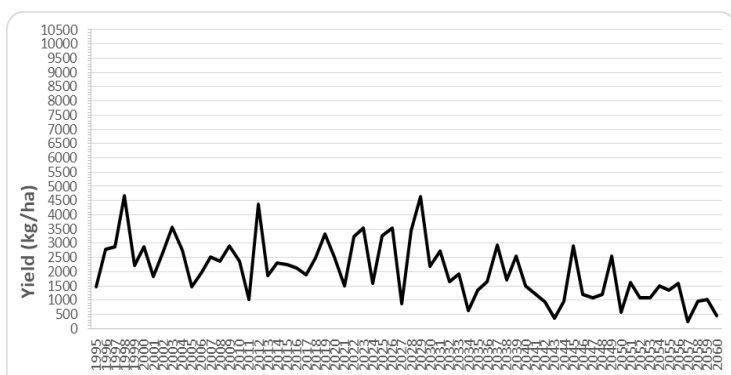
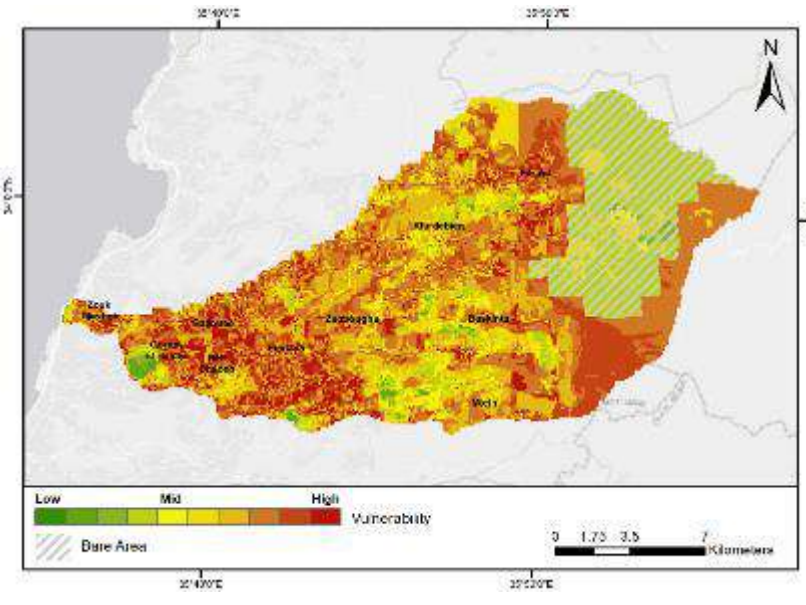
Reference Period (1995-2014)



Near term (2021-2040)



Mid-term (2041-2060)



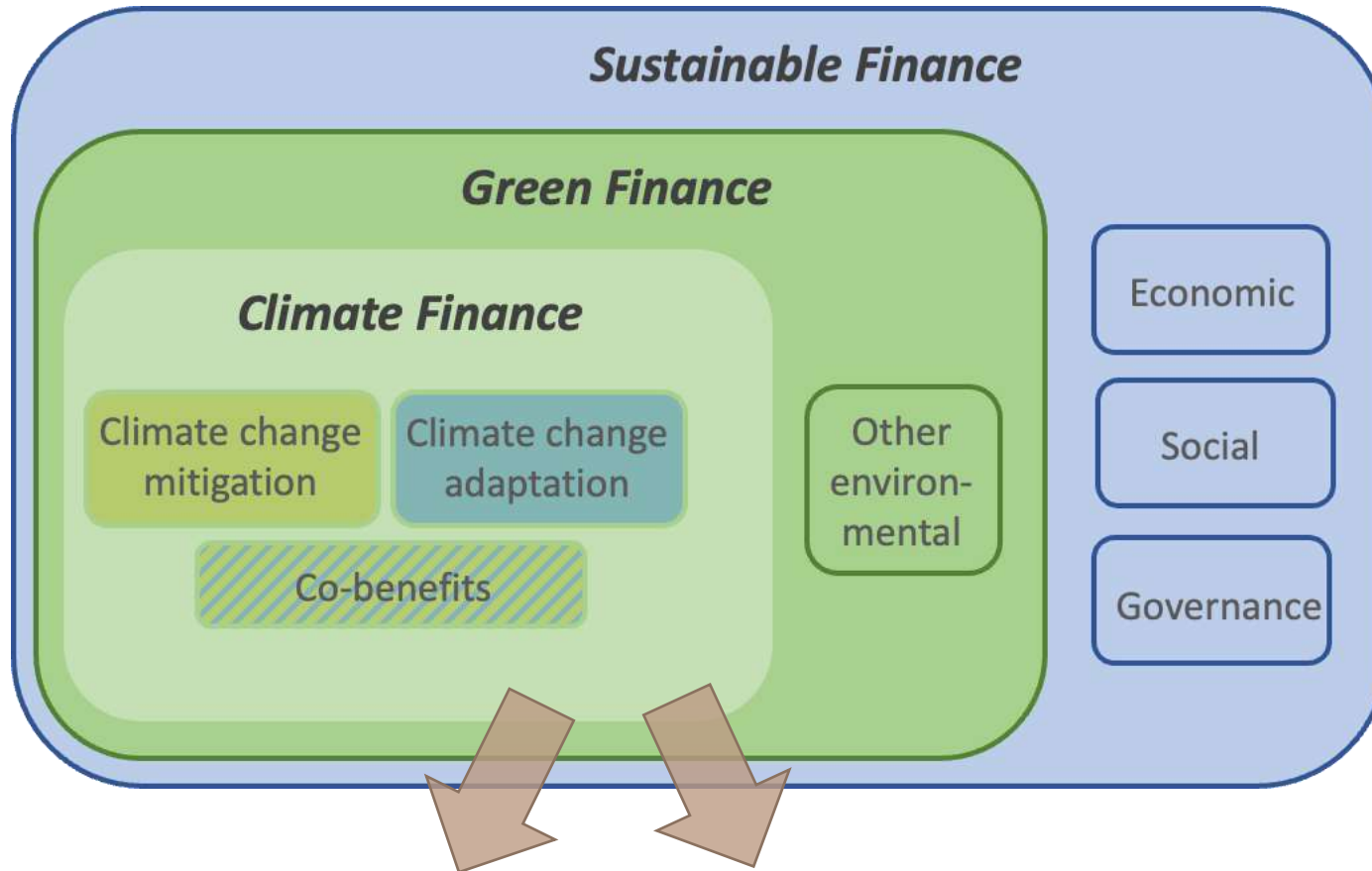
Climate Impact on Apple Production

Investment Interventions	Estimated Budget (US\$)	Estimated Duration
Enhancing Agriculture Sector Resilience	\$15,750,000	3 years
Improving Industrial Water Use	\$1,470,000	1.5 years
Livelihood Diversification through Sustainable Tourism	\$810,000	1.5 years
Reforestation and Risk Reduction of Forest Fires	\$1,630,000	3 years



Tracking green and climate finance:

Rio markers and the OECD database on climate-related development finance



Principal green/climate objective

= “**pure**” green/climate finance, activity would **not** have been undertaken or funded without the climate objective

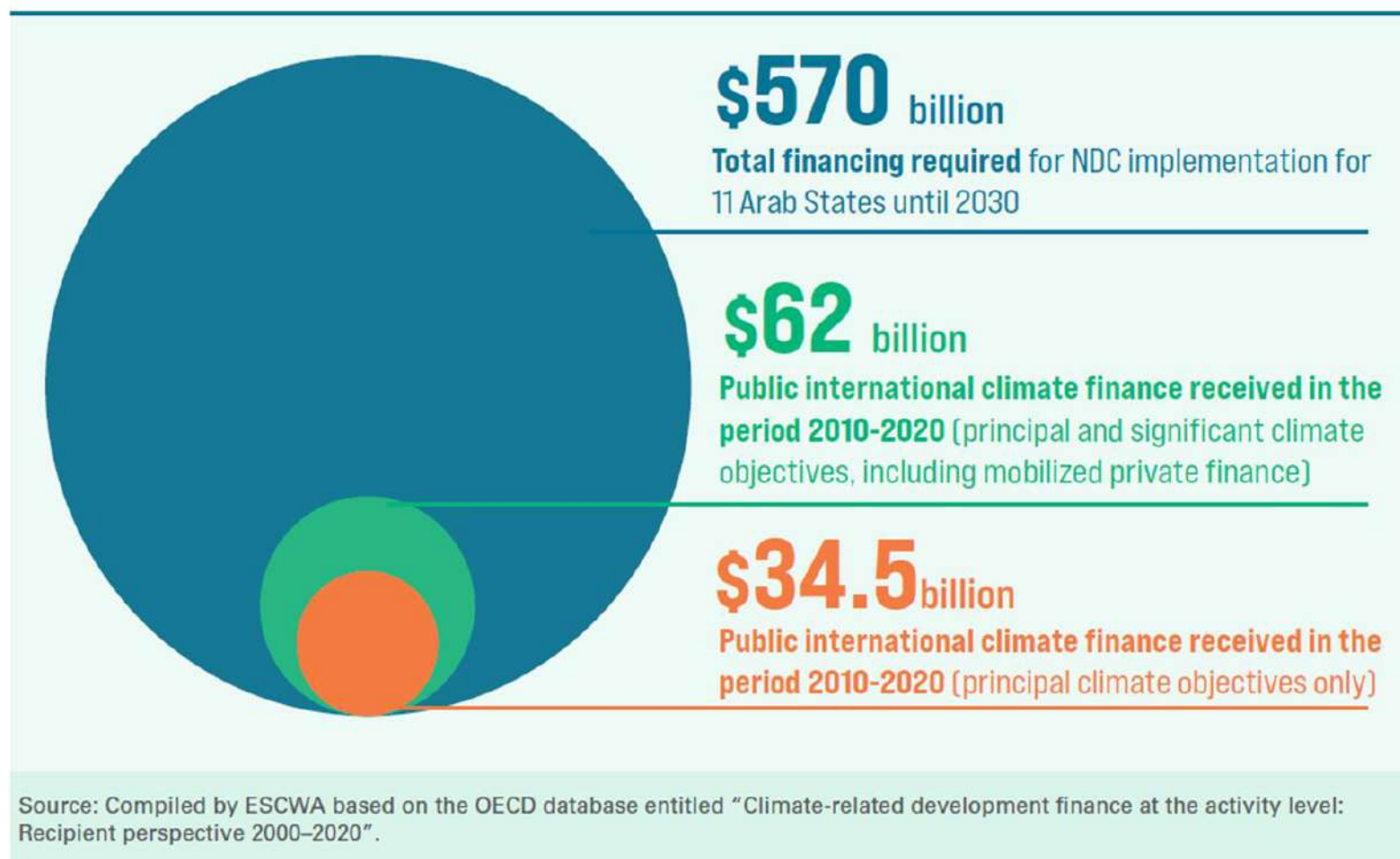
Significant green/climate objective

= activity has **other prime objectives** but has been **formulated or adjusted** to help meet the green/climate policy objective

- **Rio markers** were developed to **monitor and report** on financing targeting the themes of the **3 Rio conventions** signed during the 1992 Earth Summit on biodiversity, desertification and climate change
- **Rio Markers** for climate help to **categorize and track** climate finance

Sources: https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf and <https://europa.eu/capacity4dev/public-environment-climate/wiki/short-guide-use-rio-markers>, and UNEP, 2016: Inquiry: Design of a Sustainable Financial System – Definitions and Concepts Background Note (https://wedocs.unep.org/bitstream/handle/20.500.11822/10603/definitions_concept.pdf)

Public Climate Finance Flows to Arab States Do Not Meet Needs



The image shows the cover of a report titled "Climate finance needs and flows in the Arab region". The cover features a green header with the title and logos for ESCWA and the Sustainable Development Goals. Below the header is a photograph of a hand placing a wooden block with a green plant icon on a row of other blocks with various climate-related icons. The report includes an "Introduction" section that discusses the vulnerability of the Arab region to climate change and the projected increase in average annual temperature of almost 5°C.

Climate finance needs and flows in the Arab region

ESCWA
Sustainable Development Goals

E/ESCWA/CL.1/CCS/2022/Policy Brief.1

Introduction

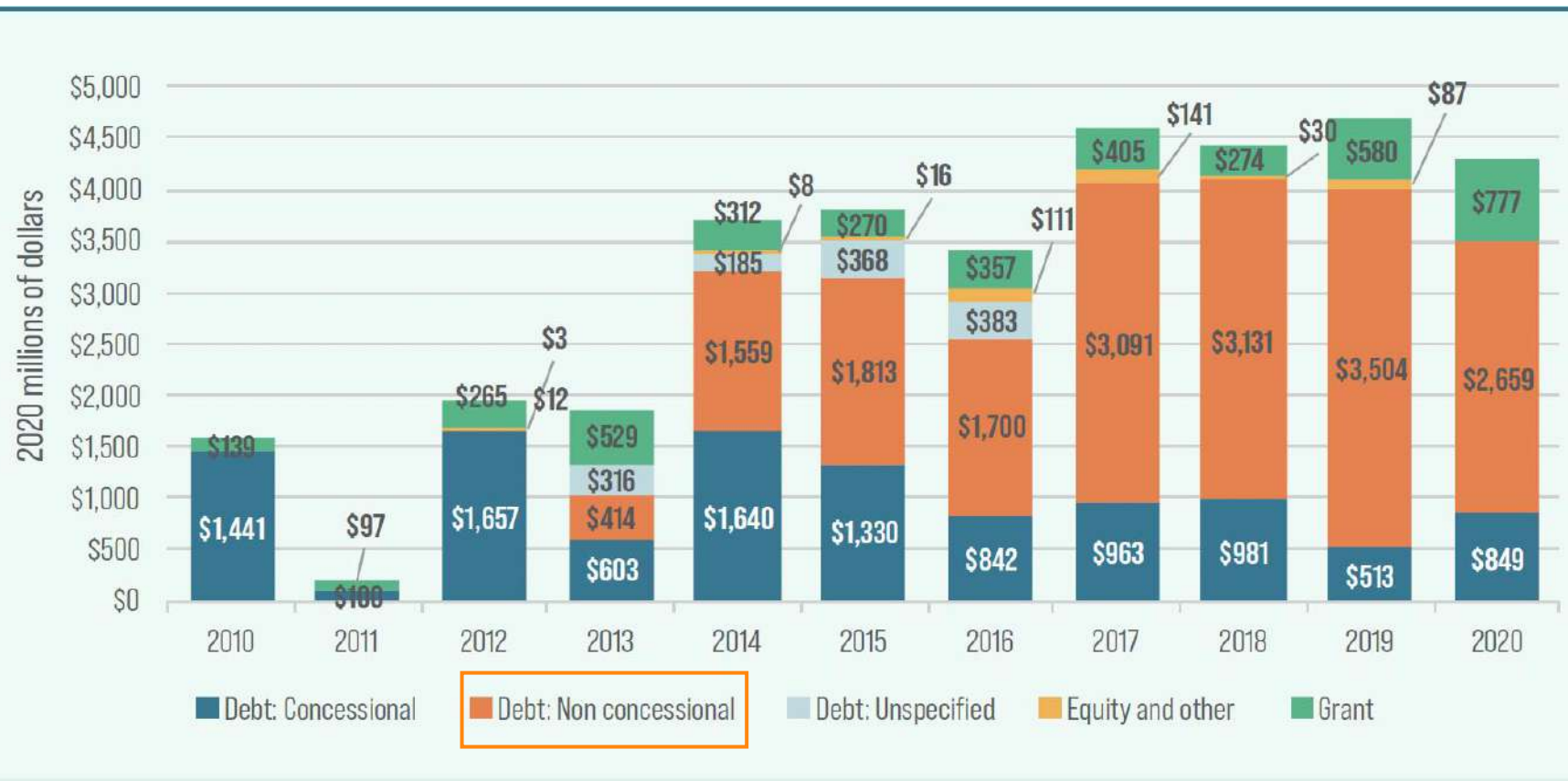
The Arab region is highly vulnerable to climate change. The adverse effects of climate change are already being felt by rural and urban communities and across sectors. Regional climate models project that the average annual temperature could increase by almost 5 °C before the end of the century under the high emission scenario.¹ Precipitation levels are projected to follow a decreasing yet volatile trend overall. More frequent droughts and forest fires will be witnessed in some areas, while an increase in the number of flash floods is expected in others. This is affecting water security, agricultural productivity, tourism, ecosystems and health. Socioeconomic and environmental impacts are projected to worsen in the future, with risks to security and stability. To enhance resilience, countries need to reinforce their adaptive capacity. This includes

Average annual temperature could increase by almost **5°C**

1. ESCWA and others, Arab Climate Change Assessment Report, Arab Report 2017, p. 42.

Public international climate finance in the Arab region: High debt financing

Total public international climate finance to Arab region by type of financial instrument



- **Positive trend:** Financing increased over past decade, even with pandemic

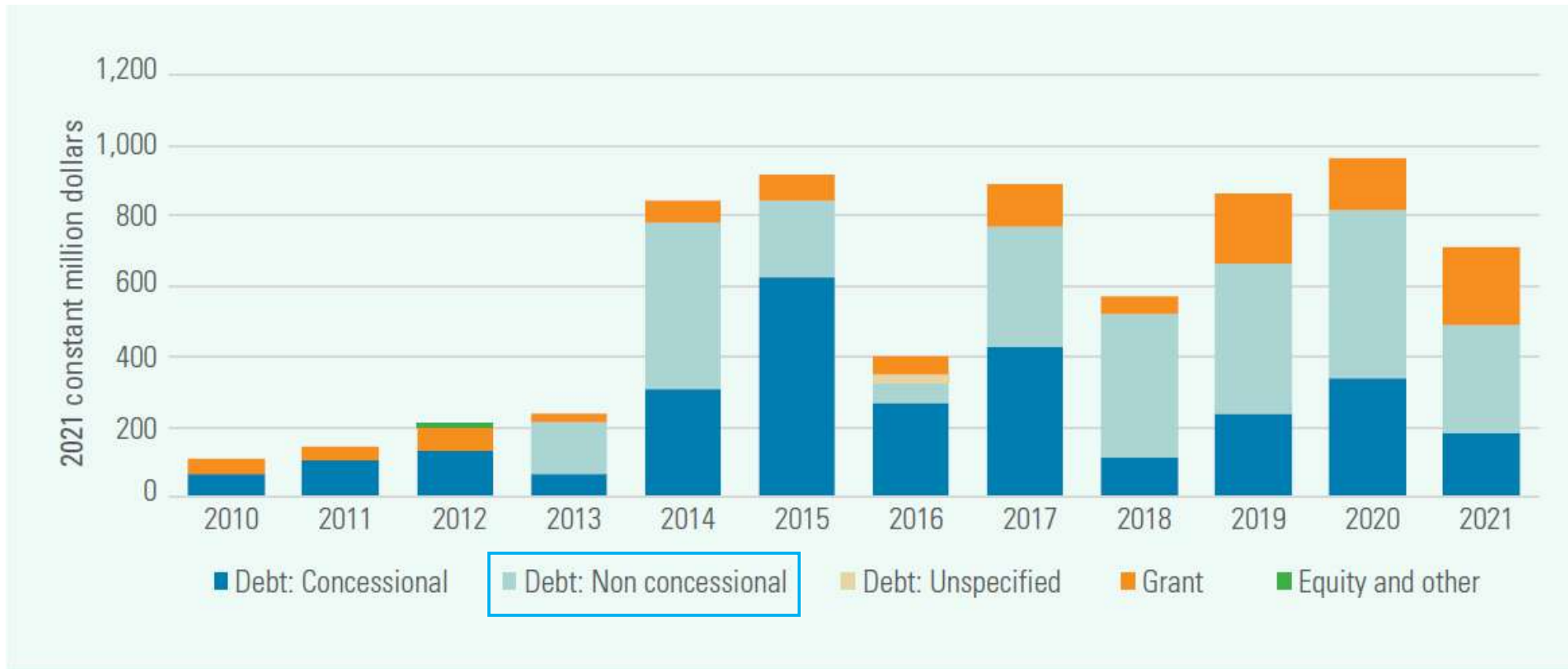
But:

- **Excessive debt financing:** 7 times more loans than grants between 2010-2020 despite historically high gross public debt of \$1.4 trillion in 2020 in the Arab region
- **MDB commitments up,** but bilateral support declining
- **Private sector finance** that is not mobilized by public international climate finance is **not widely available**
- Only **4%** of finance is sourced from global **climate funds** in Arab region

Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2020". It includes commitments with climate marked as a principal objective (Rio tag) and includes climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included.

Public international climate finance for Water & Water for Agriculture: More Grant Financing since 2019, but Debt Dominates

Public international climate finance to Arab region for water sector and agricultural water resource projects by type of financial instrument



Source: Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2021–2000". It includes commitments with climate marked as a principal objective (Rio tag) as well as climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included. The water sector and agricultural water resources are defined as OECD sector 140: I.4. Water Supply & Sanitation and subsector 31140: Agricultural Water Resources. Numbers are in 2021 constant million dollars.

Climate finance for water in the Arab region

Introduction

The Arab region is one of the most water scarce regions in the world. 16 out of 22 Arab countries fall below the water scarcity line of 1,000 cubic metres per capita per year, and 13 fall below the absolute minimum threshold of 500 cubic metres per capita. This directly affects drinking water availability, health, sanitation and economic livelihoods, agricultural productivity, industry, cities and the functioning of ecosystems. The Global Commission on the Economics of Water states that the hydrological cycle, which is affected by water scarcity, is a global natural asset and a fundamental infrastructure that is essential for sustainable development, human resilience and well-being in the world.

19 out of 22 Arab countries fall below the water scarcity line at 1,000 m³ per capita per year

(2023)

Geographic disparities in the distribution of climate finance flows, but also inadequate costing of needs & preparation of bankable projects

The costed climate finance needs of 11 Arab States is

\$570 billion

until 2030

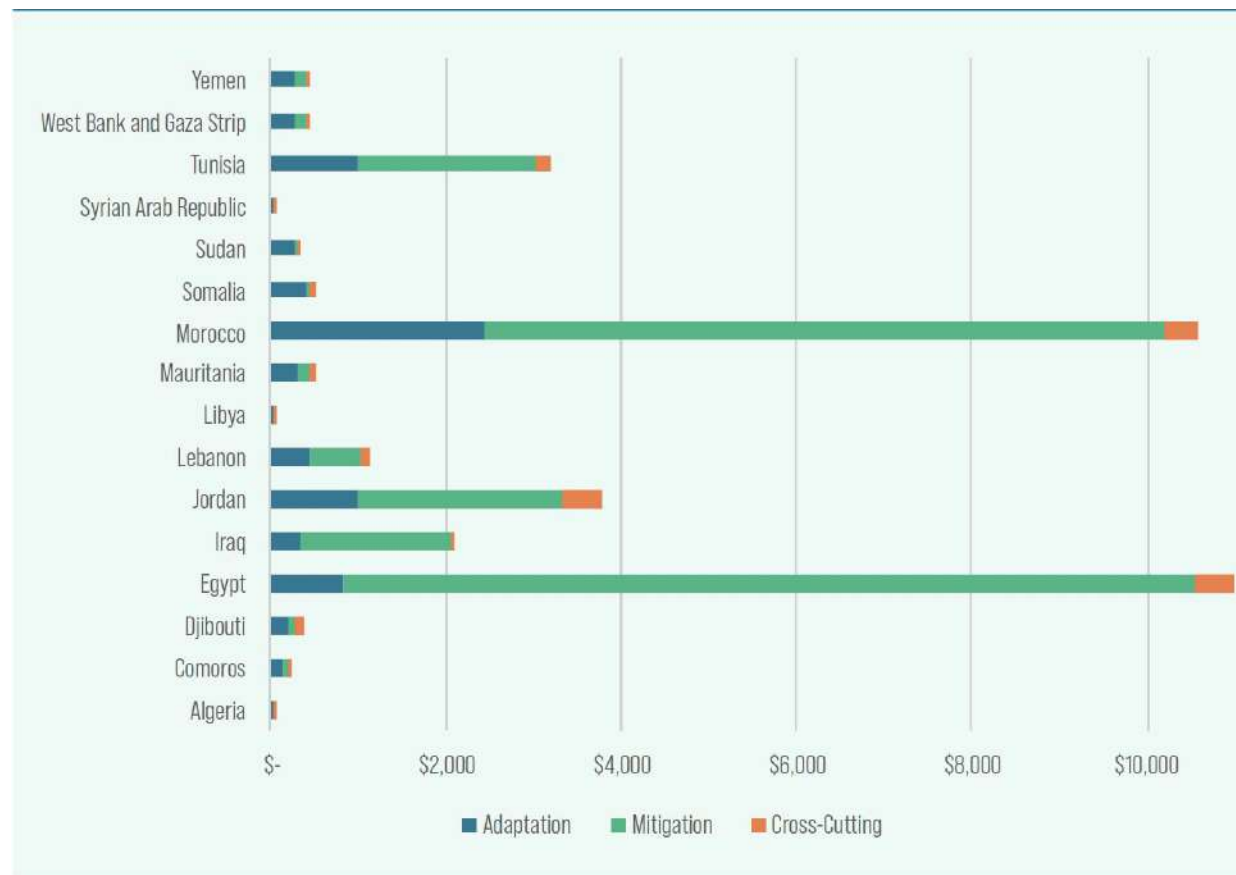
Egypt, Iraq and Morocco account for

\$425 billion

of the total support requested



Climate finance flows in the Arab region by country and purpose, 2010–2020
(In 2020 millions of dollars)



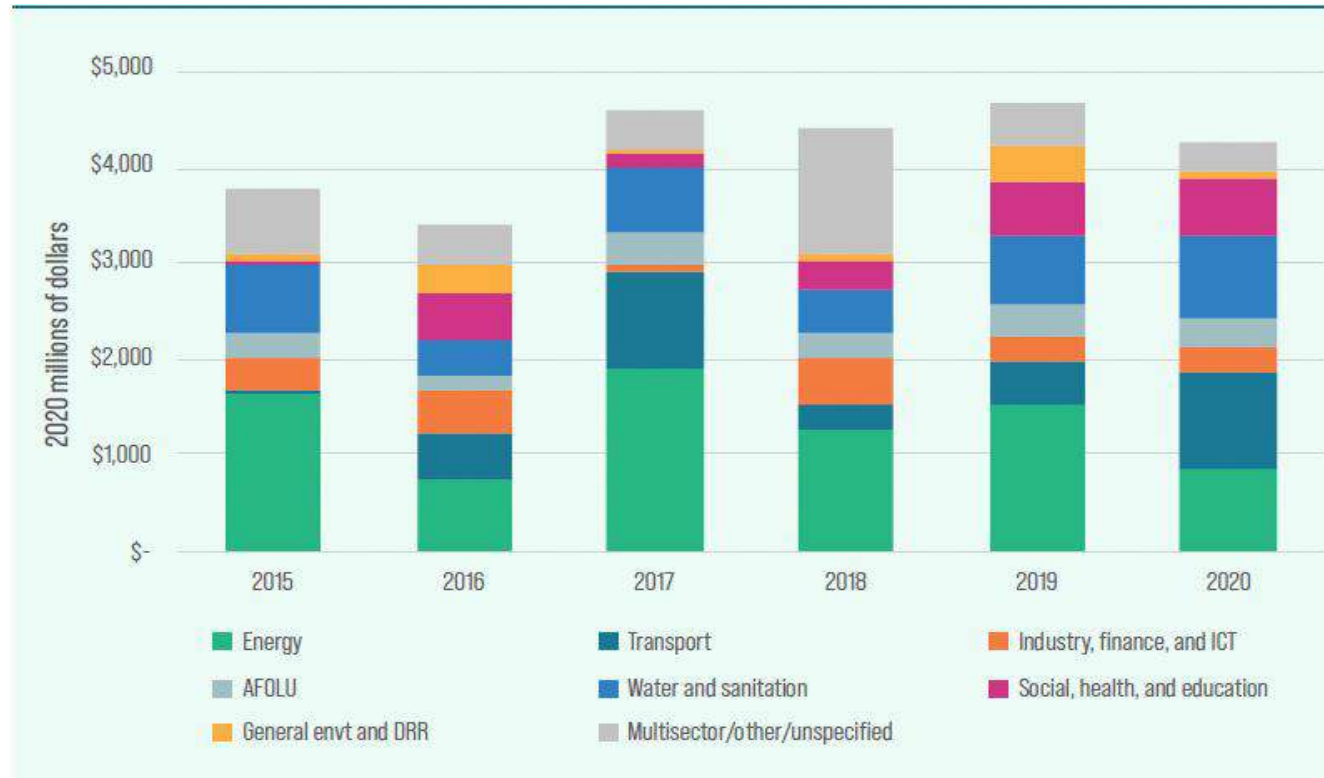
Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2020". It includes commitments with climate marked as a principal objective (Rio tag) and includes climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included.

- **Egypt and Morocco** most successful in costing needs & accessing climate finance (\$21.6 billion 2010-2020)
- The **6 Arab LDCs** received only **6.6%** of public international climate finance coming to the region over the past decade, but **increase in financing share for LDCs** witnessed in past 2 years

Public Climate Finance Flows Skewed towards Mitigation rather than Adaptation and Resilience



Public international climate finance flows to the Arab region by sector



Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2020". It includes commitments with climate marked as a principal objective (Rio tag) and includes climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included.

© C

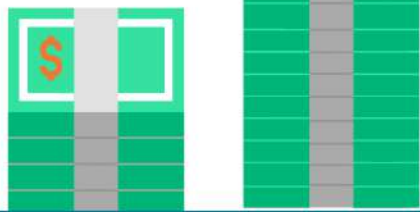
- **Water & agriculture** sectors are region's adaptation priorities, but underfunded
- **Energy & transport** sectors received twice the support of the water and AFOLU sectors between 2015-2020
- Only 4% for **disaster risk reduction**

Flows to mitigation summed

\$24.84 billion

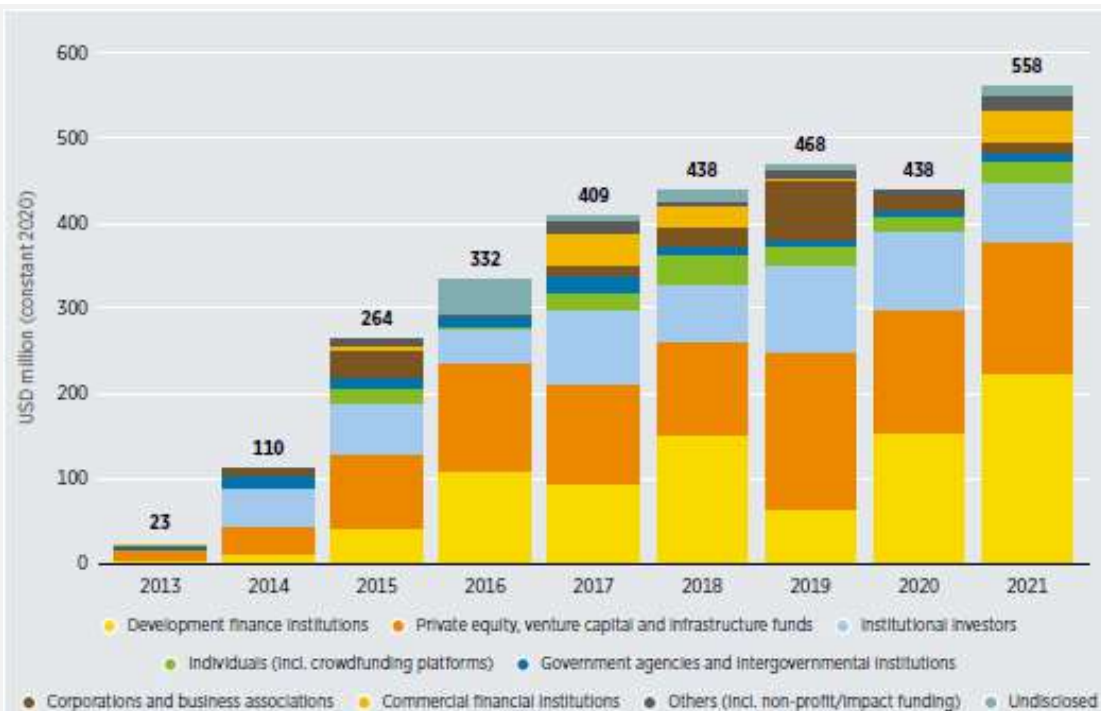
were **three times greater** than flows to adaptation

\$7.75 billion over the period 2010-2020



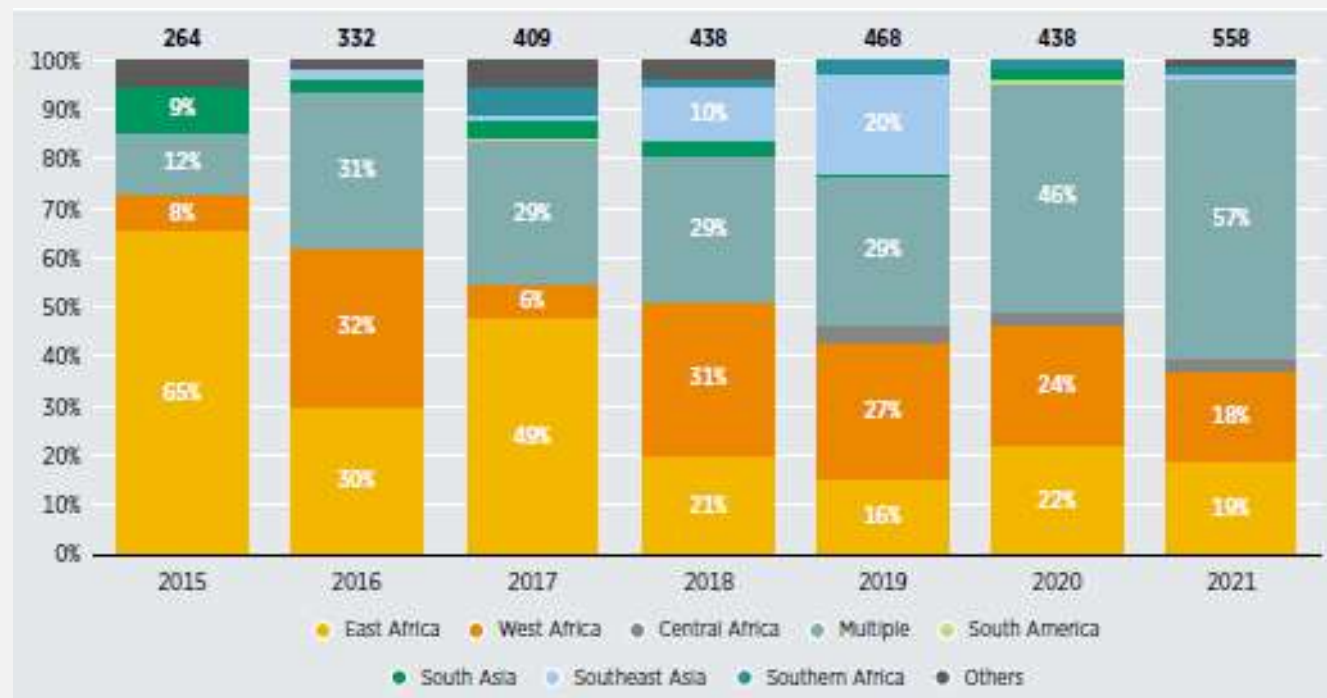
The Arab region attracts one of the lowest shares of investments in RE compared to other regions globally

Annual commitments to off-grid RE by type of investor



Development Finance Institutions (DFIs) currently play a crucial role in supporting small-scale RE projects in the Arab region, globally accounting for 79% of public investments in off-grid solutions, but increased opportunities exist for private sector investment

Shares of annual investment in off-grid renewables by subregion of destination



*"Others" include the Middle East and North Africa, Other Oceania, Transregional, Other Asia and Unknown.

Additionally, only 1% of total RE finance in 2020 came from concessional finance, hindering the energy transition in many developing countries, but also showing that cost recovery & profitability available with investment and credit guarantees

Need for an Arab regional green finance taxonomy

- Several **taxonomies** are **emerging globally**:
 - **Green** and **sustainable** finance taxonomies, or similar regulation, guidance and eligibility lists, are found in Bangladesh, China, Colombia, Egypt, the EU, Indonesia, Japan, Kazakhstan, Malaysia, Mongolia, Morocco, etc.
 - Existing taxonomies **affect the Arab region** through trade and financial interconnectedness.
 - Regional taxonomy could also be reflected in national budgets for improved coherence on flows & needs

- Example: The **EU sustainable finance taxonomy**

Substantially contribute

To at least one of the 6 environmental objectives as defined in the regulation



Do no significant harm

To any of the other 5 environmental objectives as defined in the regulation



Comply with minimum safeguards



Climate change mitigation



Climate change adaptation



Sustainable use and protection of water & marine resources



Transition to a circular economy



Pollution prevention & control



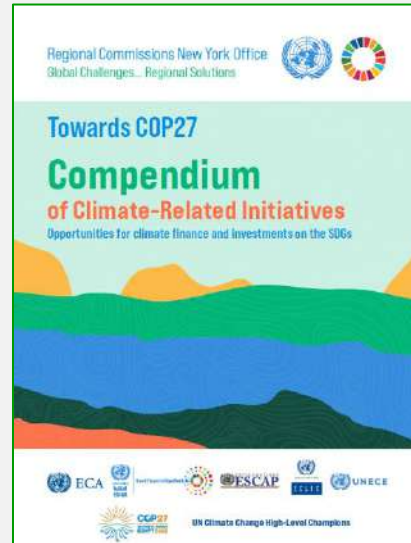
Protection and restoration of biodiversity and ecosystems

The 6 EU environmental objectives, including climate:

Arab Regional Initiatives for Mobilising Climate Finance

Arab Regional Forums on Climate Finance Beirut, 15 Sept 2022 & Dubai, 6 Nov 2023

- Mobilising climate finance for country-driven projects in Arab States
- \$4.2 billion in adaptation & mitigation projects proposed by Arab States



UN Climate Change High-Level Champions

www.unescwa.org/events/towards-cop-28-second-arab-regional-forum-climate-finance

Arab Initiative to Mobilize Climate Finance for Water

- **Water Action Agenda commitment** in support of the Water Action Decade
- Seeks to **build regional capacity** to mobilize finance for water action



Implementing Partners:



Collaborating Partners

- **Arab Forum for Mobilizing Climate Finance for Water @ MENA Climate Week (Riyadh, 10 Oct 2023)**
- **Climate Finance for Water in Arab Region Policy Brief**

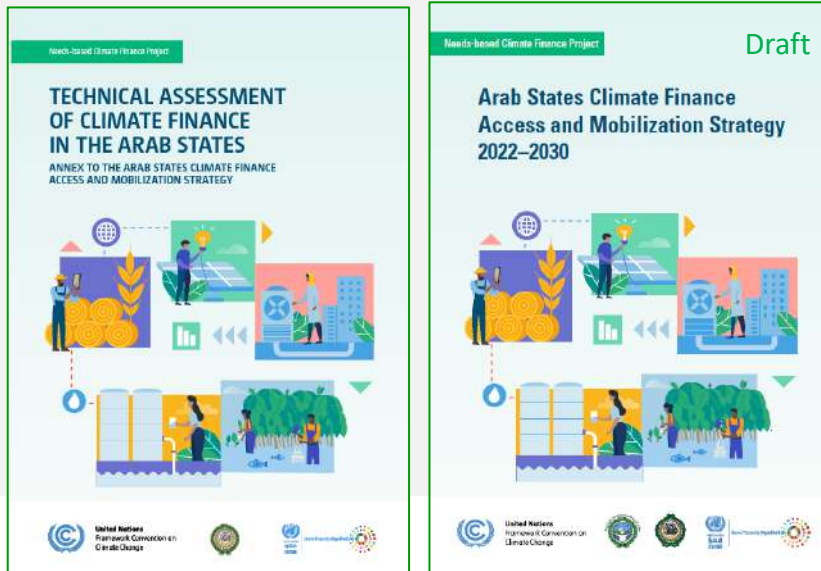
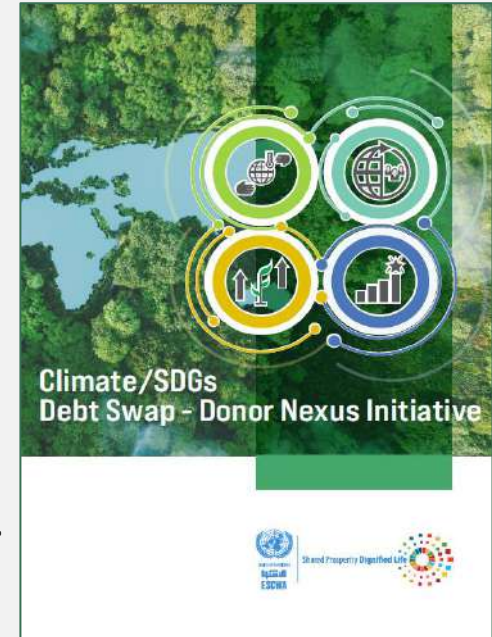
Arab Regional Initiatives for Mobilising Climate Finance

Needs-based Climate Finance Strategy for Arab States

- Technical Annex (2022) informed consultations
- Draft Strategy under review by CAMRE in October 2023
- Seeks to **develop capacity** for **assessing financing needs** and **priorities**, **accessing climate finance** and **mobilising resources from global funds**

Climate/SDGs Debt Swap – Donor Nexus Initiative

- Innovative financial instrument to secure **reliable, multi-year financing** for a debt swap programme
- External debt payments committed to in national budget allocated instead in local currency for **country-driven programmes** to implement climate & SDG goals.
- Reduces financial risk & creates financial space for action



United Nations
Climate Change



Shared Prosperity Dignified Life



Arab Regional Initiatives for Mobilising Climate Finance



Regional Initiative for Promoting Small-Scale Renewable Energy Applications in Rural Areas of the Arab Region (REGEND)

Solar installations in rural areas & MSME training for income generation in Tunisia, Lebanon & Jordan, especially for women



The free electricity supplied by the solar PV pumping systems for the farmers in Chorbane, Tunisia resulted in the following:



The reduced energy costs allowed the farmers to **develop more lands, hire more women farmers, and increase the value of their products.**



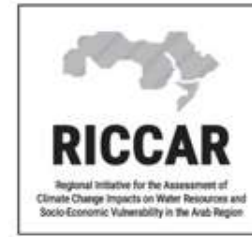
Multi-Stakeholder Biodiversity Platform

- **Preparing demand-driven bankable/actionable projects for protecting biodiversity for enhanced climate resilience through working groups involving governments, financial institutions and civil society**





Shared Prosperity Dignified Life



Request Data

DATA PORTALS

www.riccar.org

Thank you

chouchanicherfane@un.org

www.unescwa.org

www.unescwa.org/acccp

www.riccar.org

Prepared with valued contributions by:

Katharina Lehmann-Uschner, Layale Gedeon, Radia Sedaoui & Mustafa Ansari at ESCWA

