

Climate Vulnerability and Priorities for Action in the Arab Region

Carol Chouchani Cherfane, Director, Arab Centre for Climate Change Policies
Regional Consultation with the Civil Society: Climate/SDGs Debt Swap Programme as a
Viable Innovative Financing Instrument Toward Financing Climate Action and the SDGs
21 August 2023



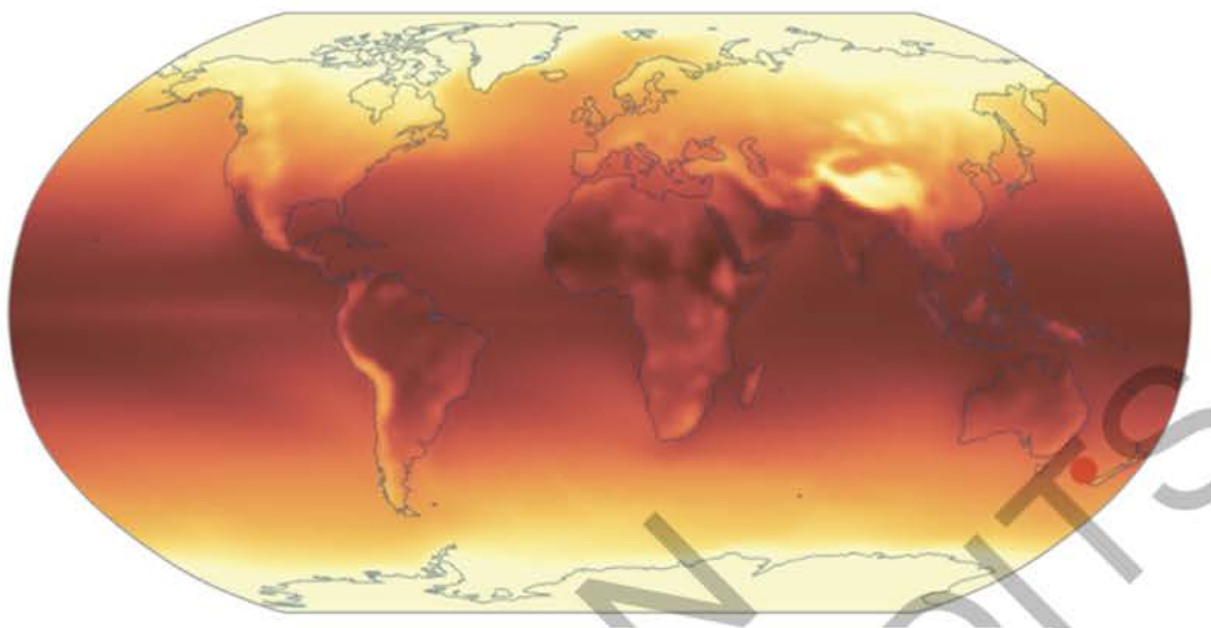
Shared Prosperity **Dignified Life**



IPCC Sixth Assessment Report: Climate Change 2022

WGII on Impacts, Adaptation and Vulnerability

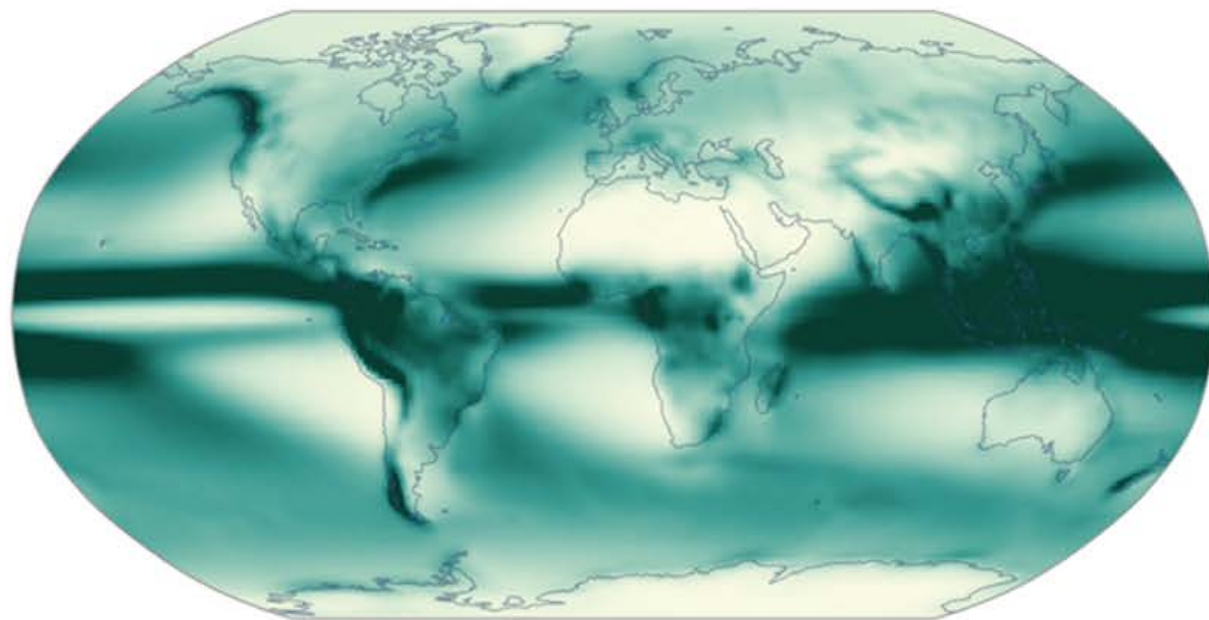
Observed Temperature Change



Mean temperature (°C)
Period 1995–2014



Observed Precipitation Change

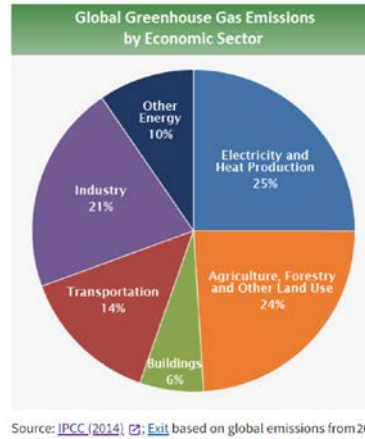
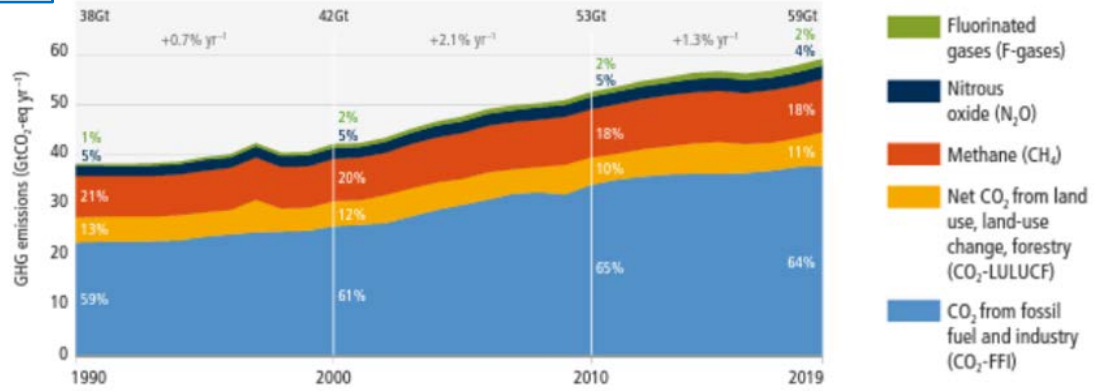


Total Precipitation (mm/day)
Period 1995–2014
CMIP6 - Annual (34 models)

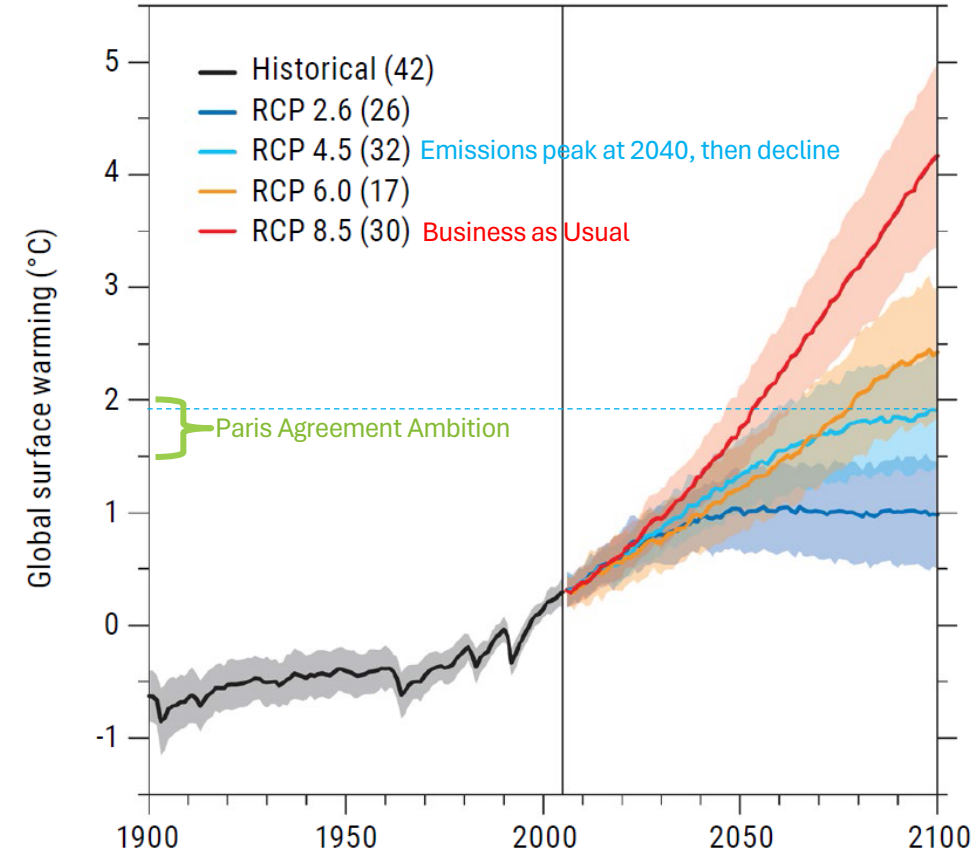


Global Trends & Projections

1 a. Global net anthropogenic GHG emissions 1990–2019⁽⁵⁾



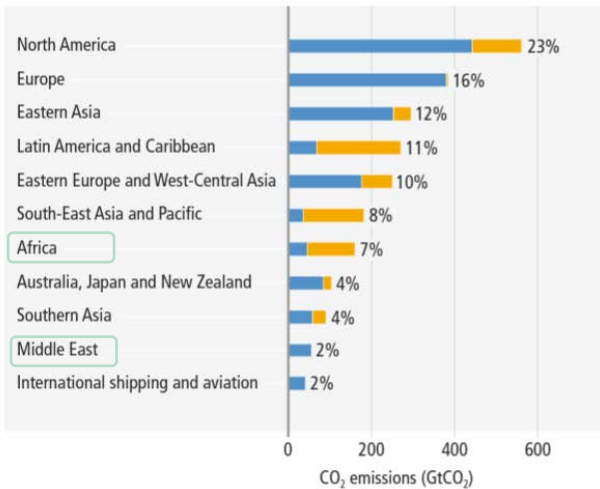
2 Mean global temperature change relative to 1986–2005



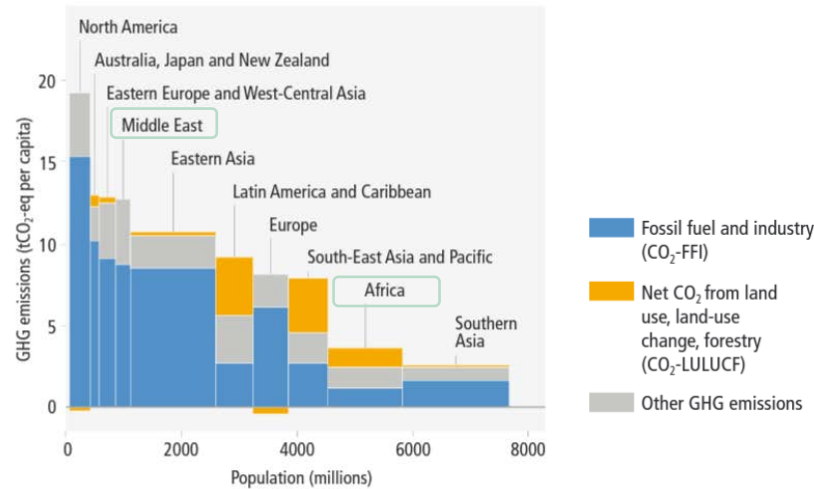
The number of CMIP5 Representative Concentration Pathway (RCP) model runs is given in the parentheses.

Source: Adapted from Knutti and Sedláček (2013) as cited in Swedish Meteorological and Hydrological Institute (2017), *RICCAR Regional Climate Modelling and Regional Hydrological Modelling Applications in the Arab Region*. E/ESCWA/SDPD/2017/RICCAR/TechnicalNote.1.

3 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)





عربي



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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.



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

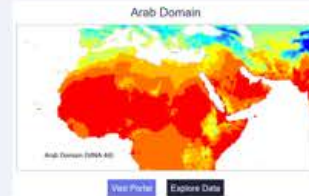


Request Data



Mashreq Domain

DATA PORTALS
www.riccar.org



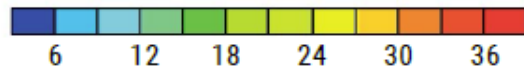
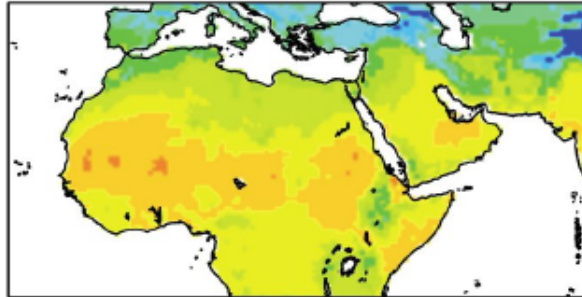
Arab Domain



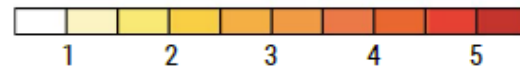
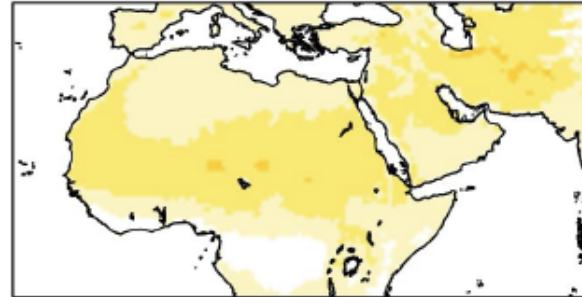
Mean Temperature projected to increase 2.6°C by mid-century and up to 4.8°C by end-century compared to reference period (1986-2005)

RCP 4.5

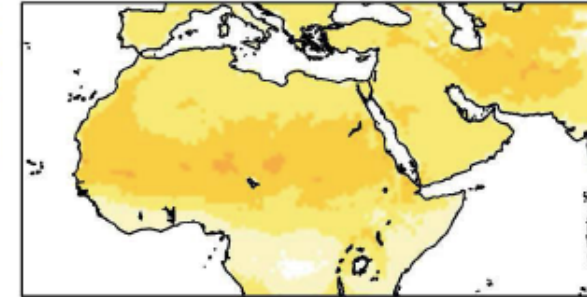
1986-2005



2046-2065



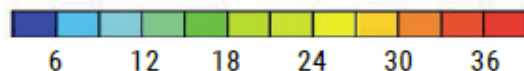
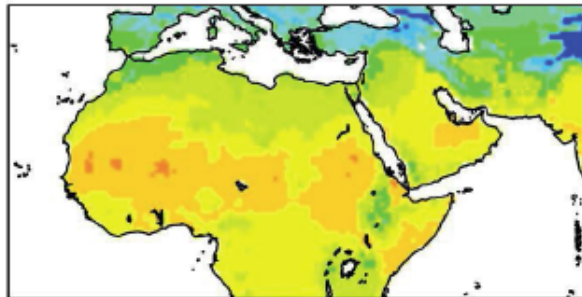
2081-2100



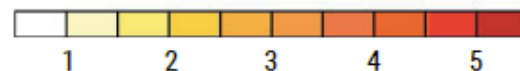
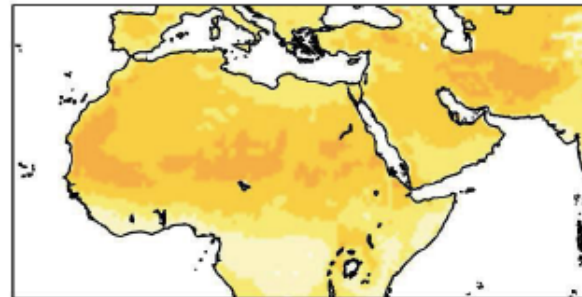
Temperature (°C)

RCP 8.5

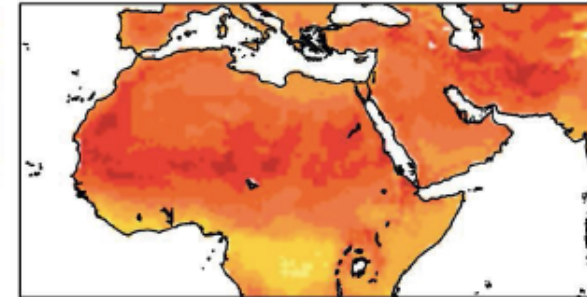
1986-2005



2046-2065



2081-2100

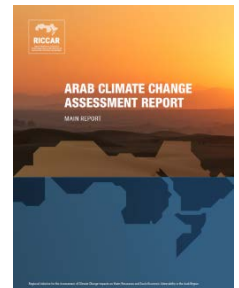


Temperature (°C)

Moderate
Emissions
Reduction
Scenario

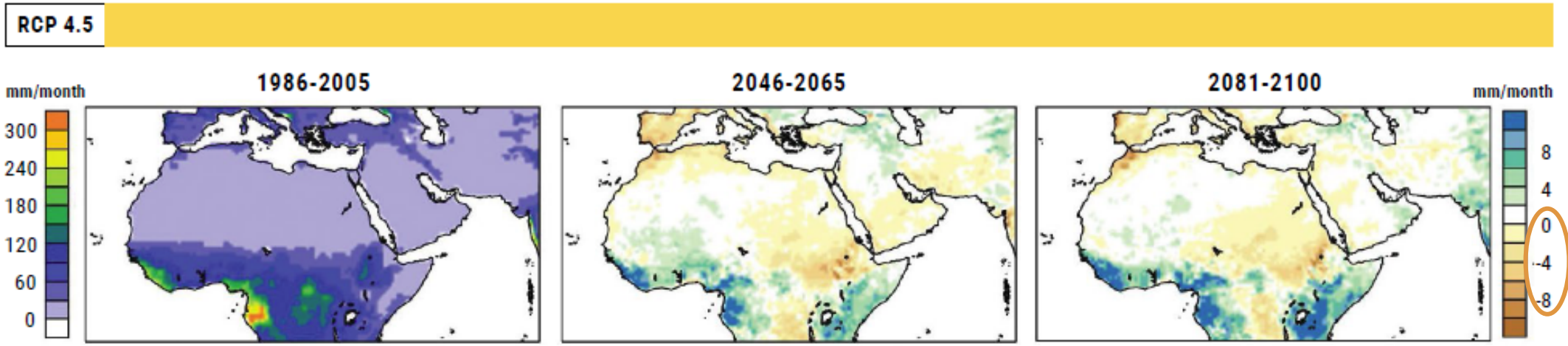
Business-
as-Usual
Emissions
Scenario

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

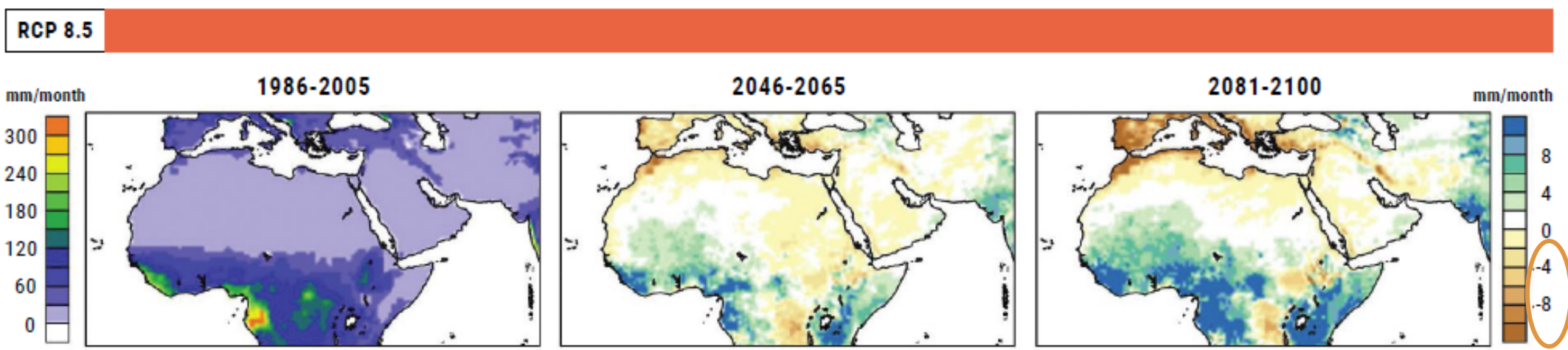


Precipitation trends are largely decreasing until the end of the century, with some areas expected to exhibit an increase in intensity & volume of rainfall

Moderate Emissions Reduction Scenario

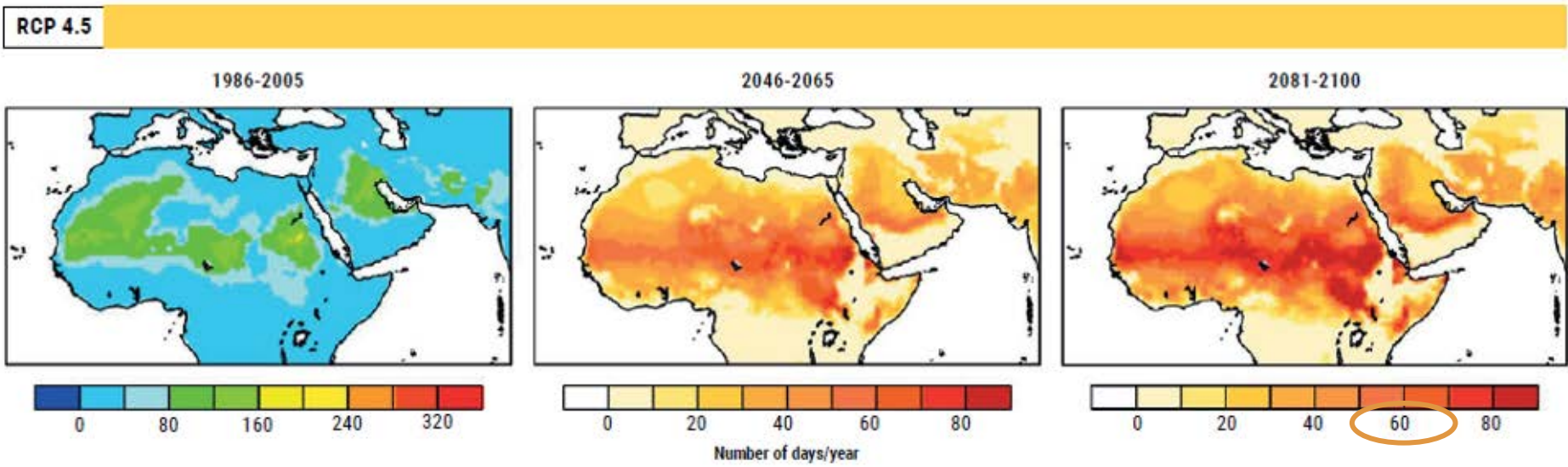


Business-as-Usual Emissions Scenario

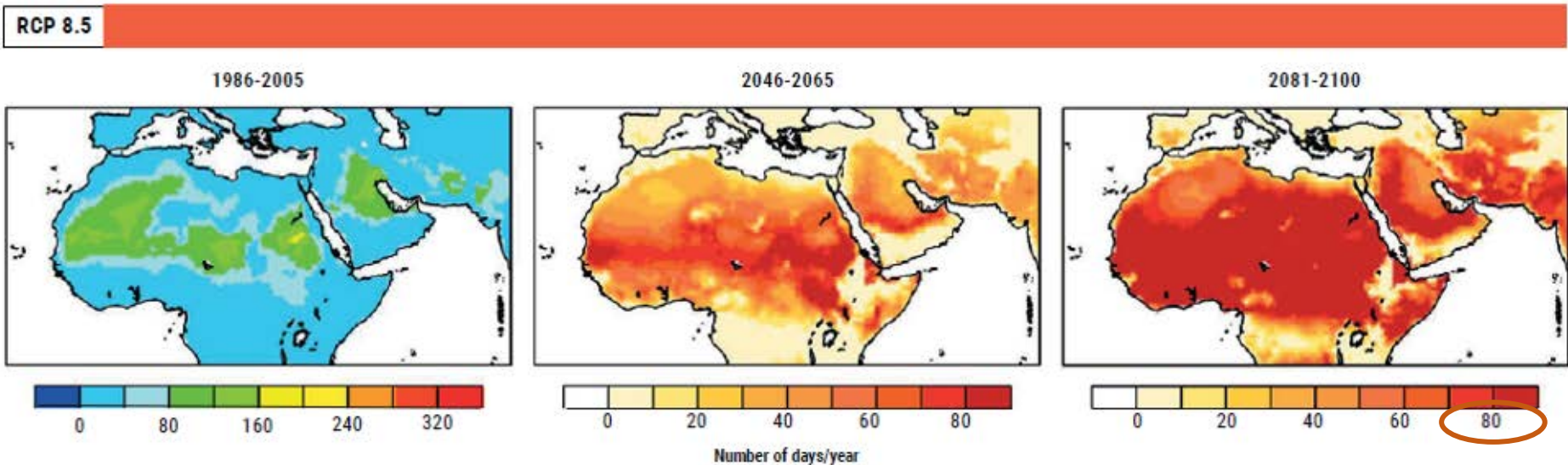


Mean change in SU40 for mid-century and end-century for ensemble of three RCP 4.5 and RCP 8.5 projections compared to the reference period

Moderate Emissions Reduction Scenario

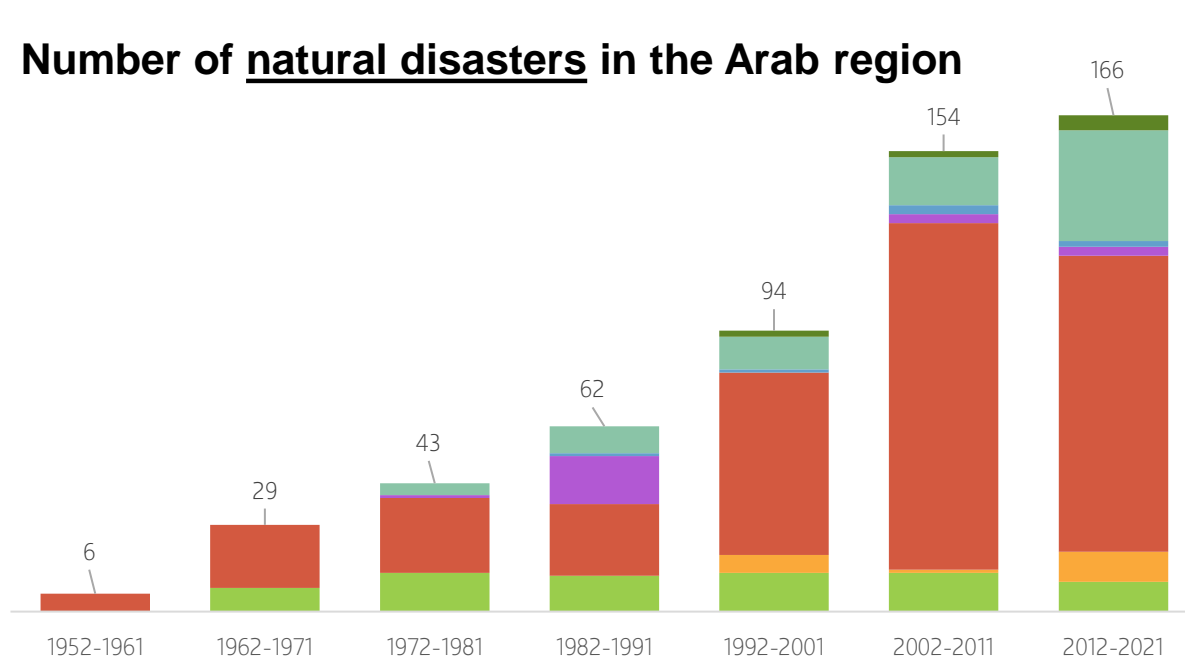


Business-as-Usual Emissions Scenario

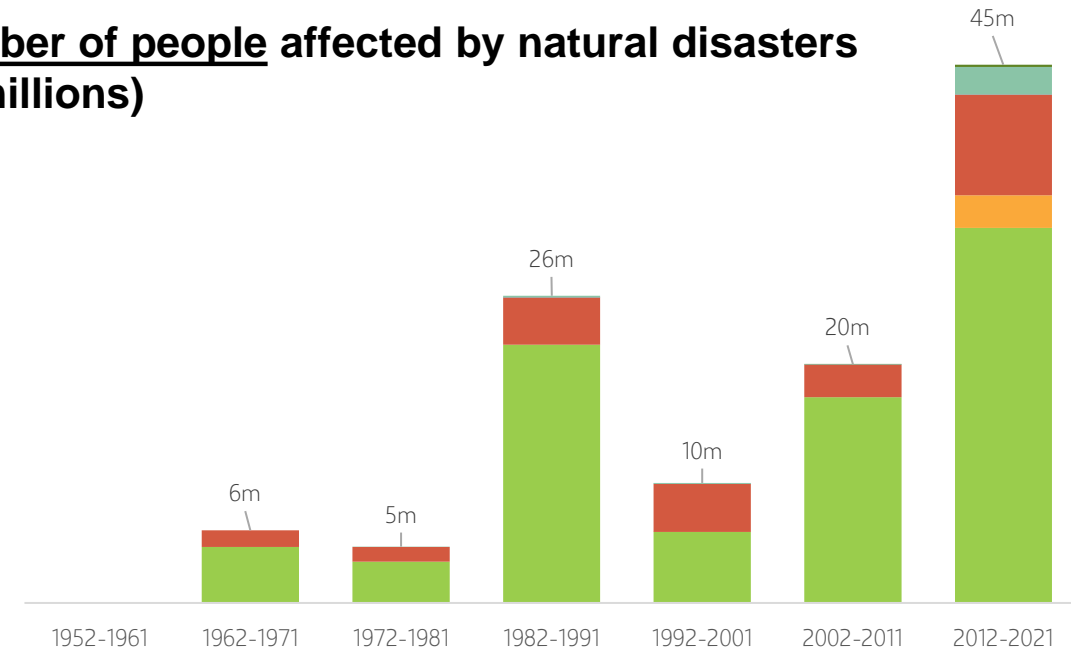


Natural Disasters affecting People in the Arab Region: Water-related Disasters the Most Prevalent

Number of natural disasters in the Arab region



Number of people affected by natural disasters (in millions)



Frequency at Regional Scale

Implications for People

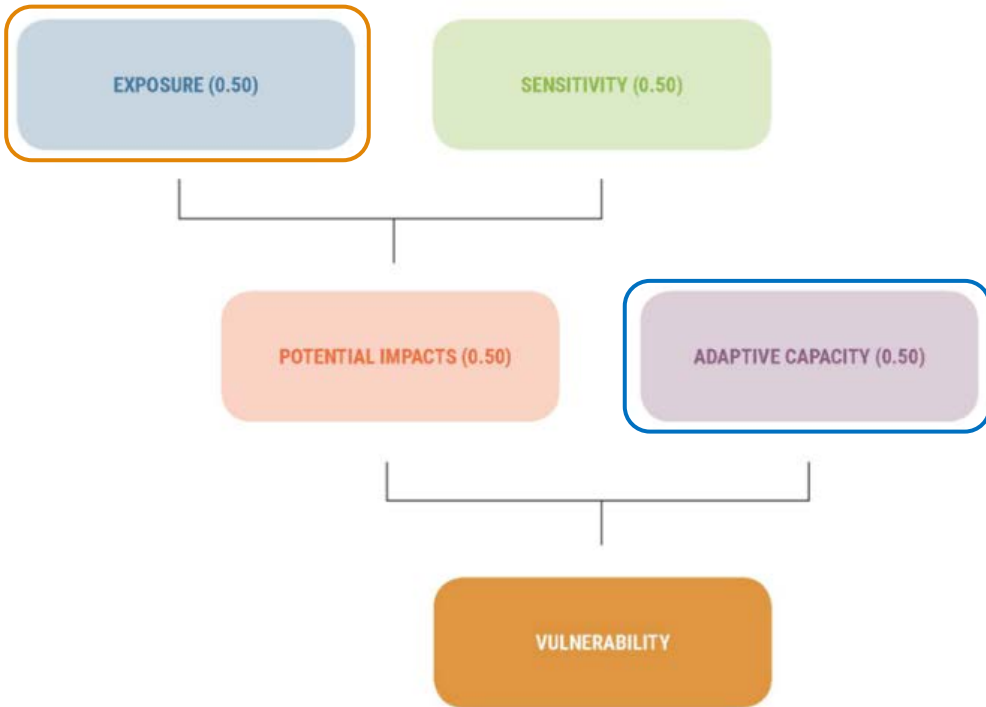


Source: EM-DAT, CRED / UCLouvain (Belgium)

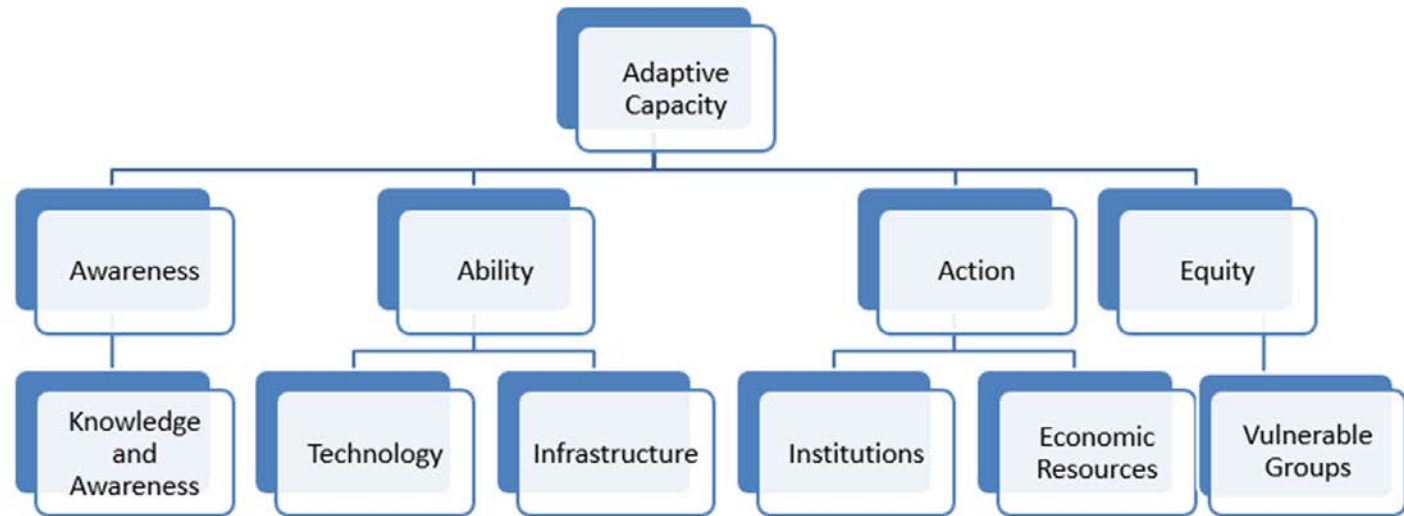
Centre for Research on the Epidemiology of Disasters (CRED)

Climate Change Vulnerability Assessments

Integrated Vulnerability Assessments: Incorporating the Socio-Economic Dimension



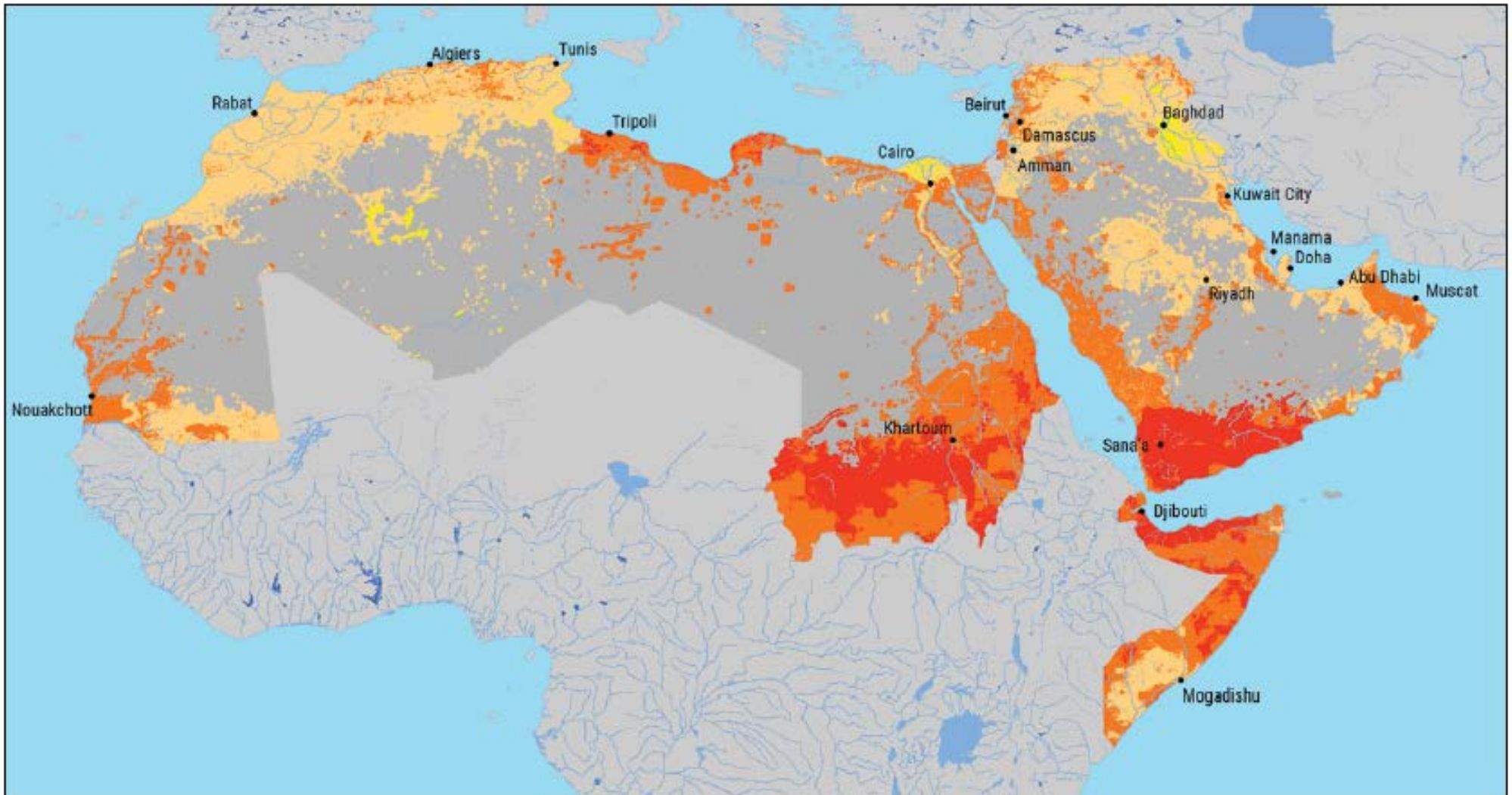
Strengthening Adaptive Capacity increases Climate Resilience





**Water Availability
Vulnerability**

**End-Century
RCP 8.5**

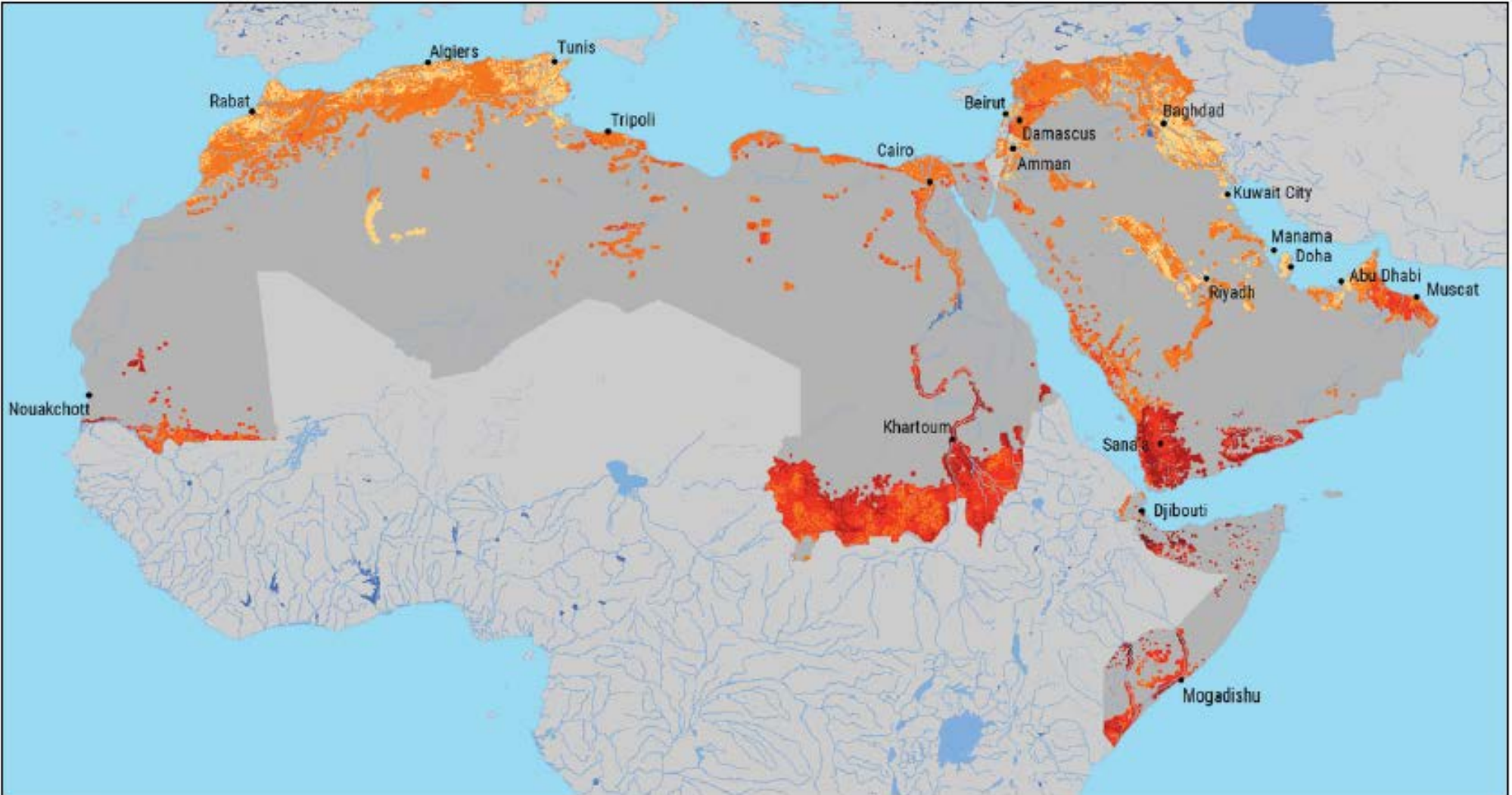


WATER: WATER AVAILABILITY
VULNERABILITY: RCP8.5 END-CENTURY (2081-2100)

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

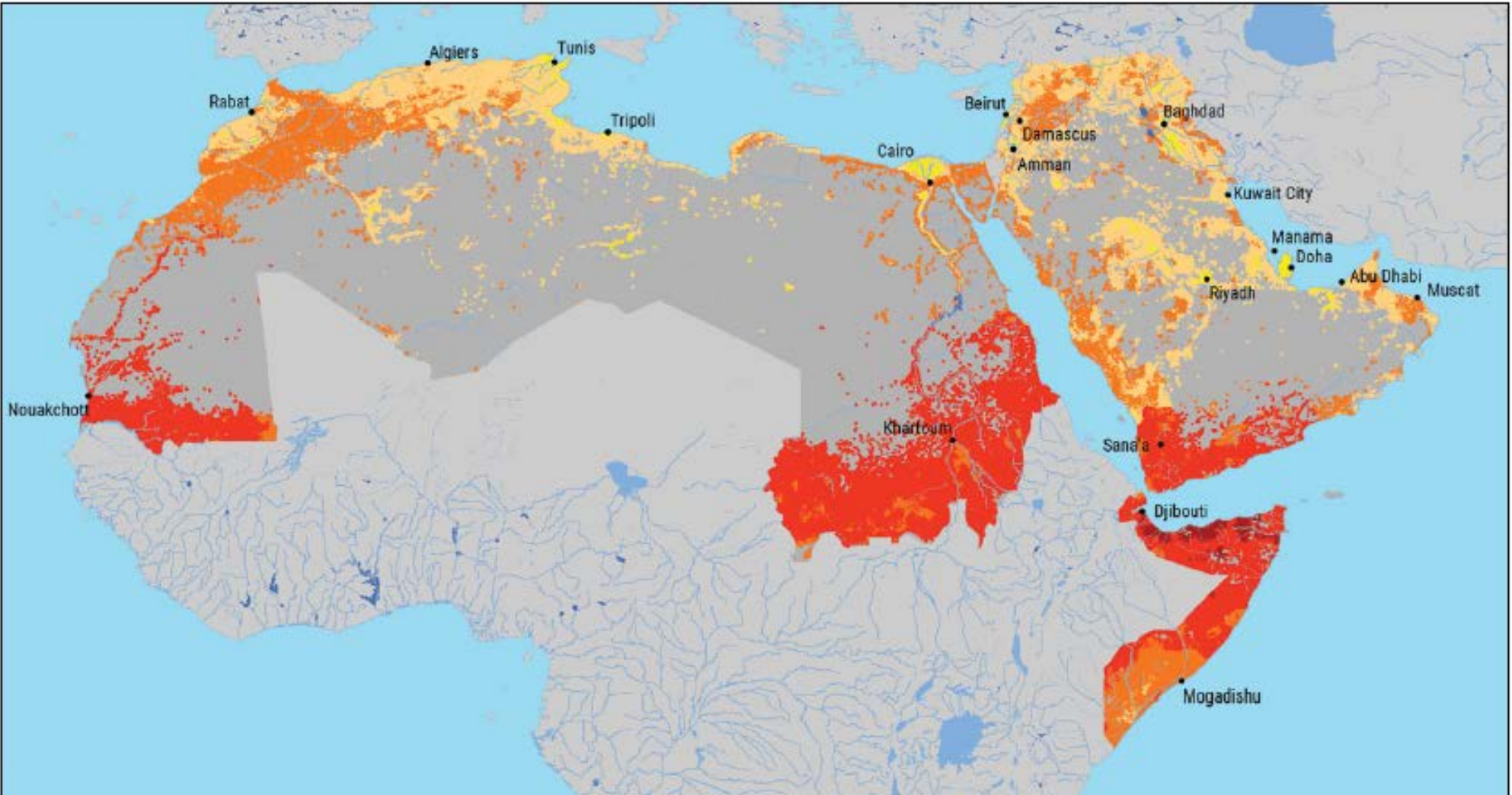
Low Vulnerability

High Vulnerability



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

**End-Century
RCP 4.5**



PEOPLE: EMPLOYMENT RATE FOR THE AGRICULTURAL SECTOR

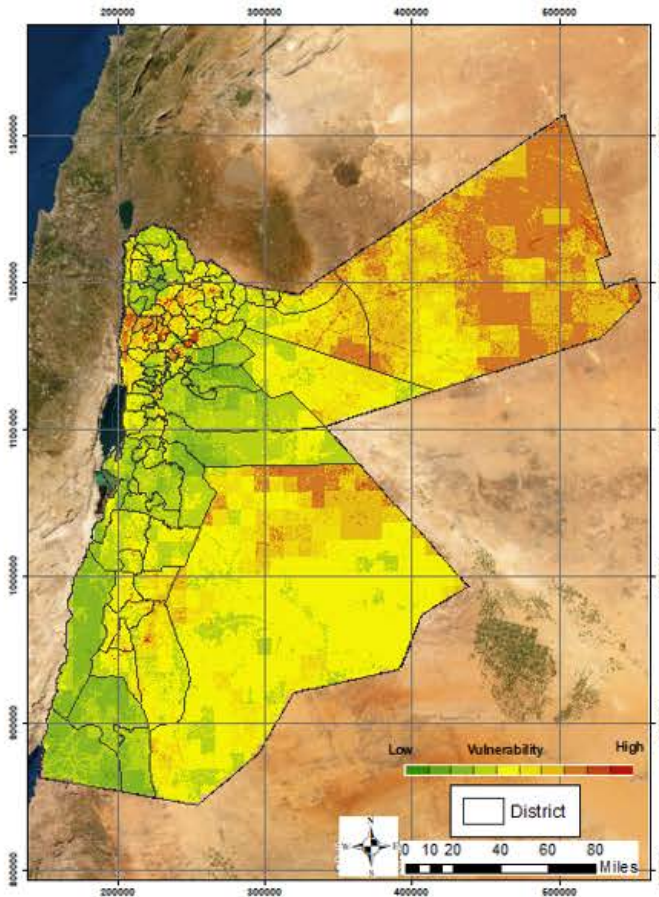
VULNERABILITY: RCP4.5 END-CENTURY (2081-2100)

Legend

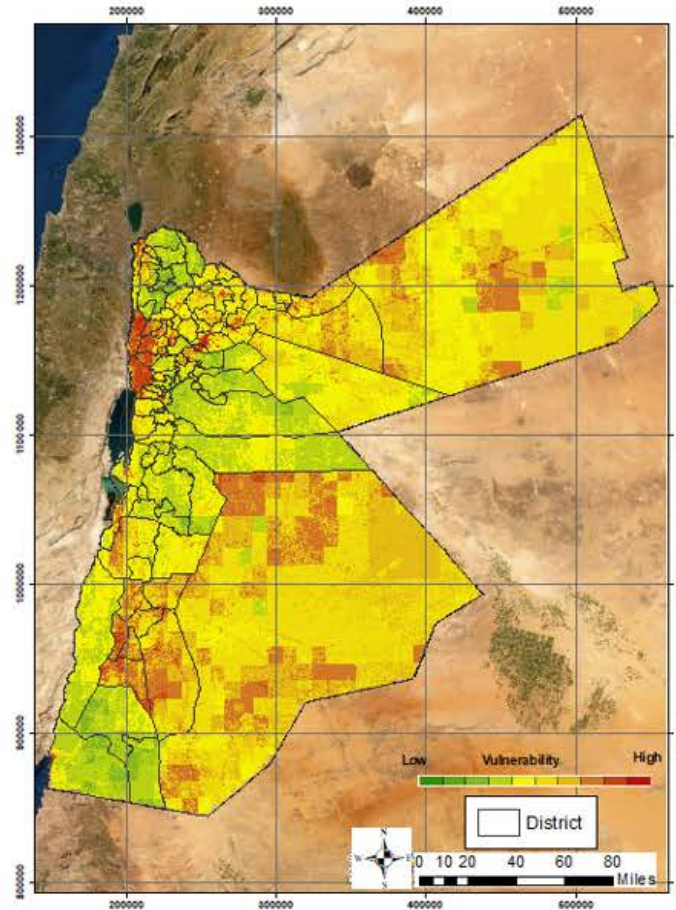
-  Lakes
-  Reservoirs
-  Rivers
-  Intermittent rivers
-  Major cities
-  Area not relevant to subsector
-  Low Vulnerability
-  High Vulnerability



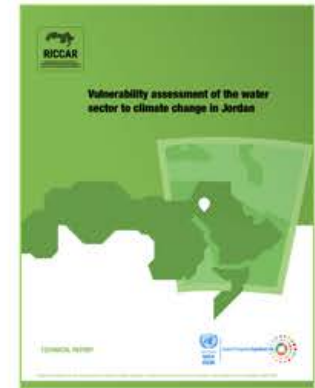
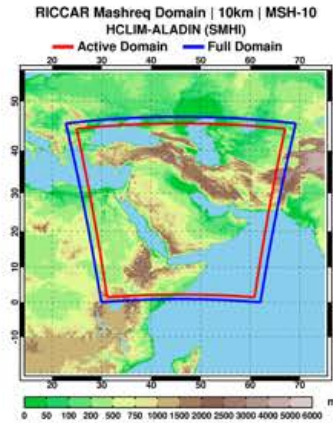
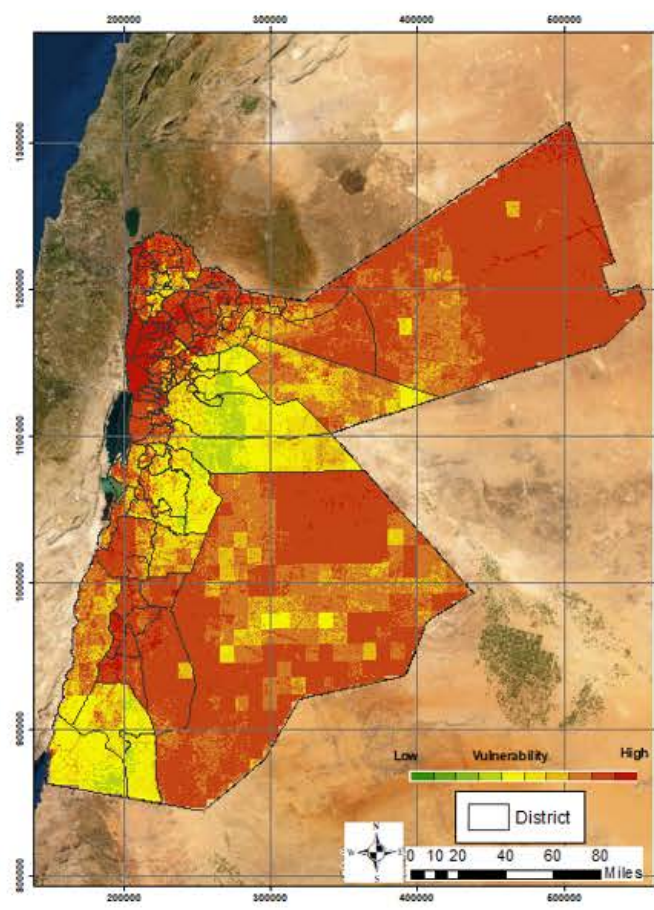
Vulnerability at reference period
1995-2014



Vulnerability at near-century
2021-2040



Vulnerability at mid-century
2041-2060

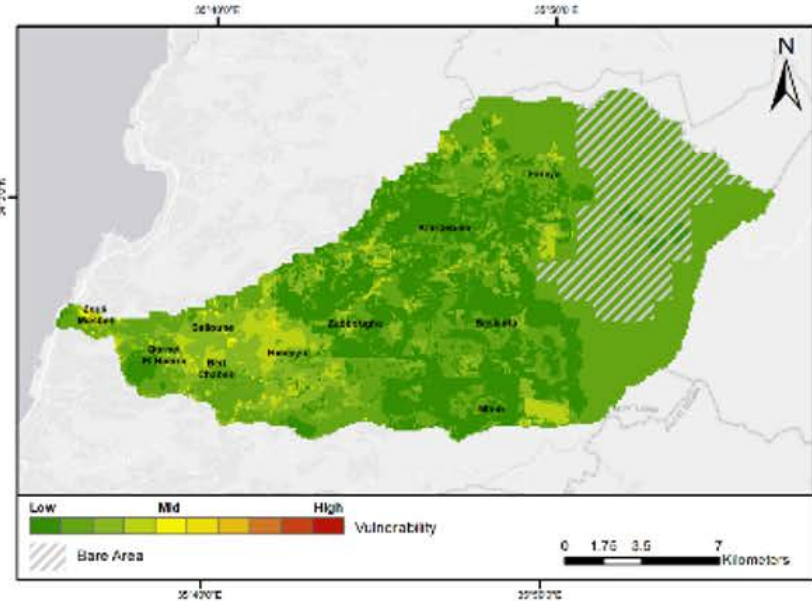


Vulnerability Assessments help to identify priority needs and where to target investments & assistance

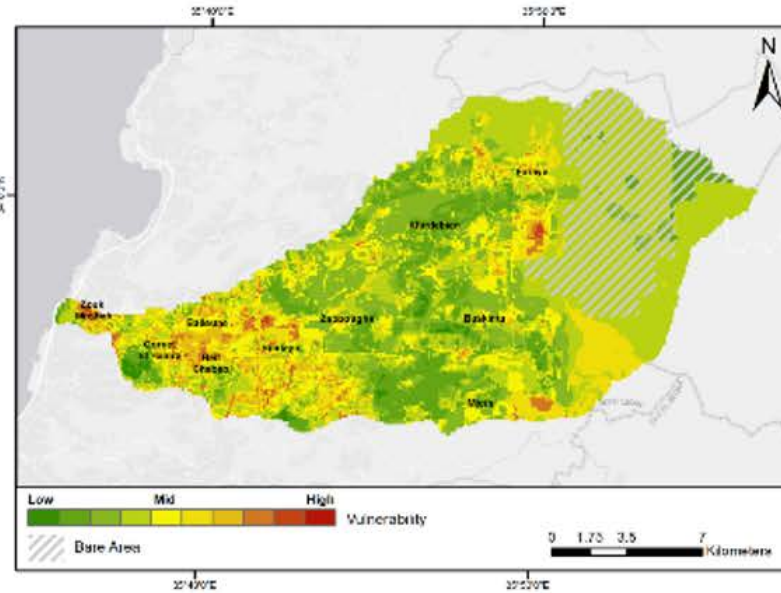
<https://www.unescwa.org/publications/vulnerability-assessment-water-sector-climate-change-jordan>

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

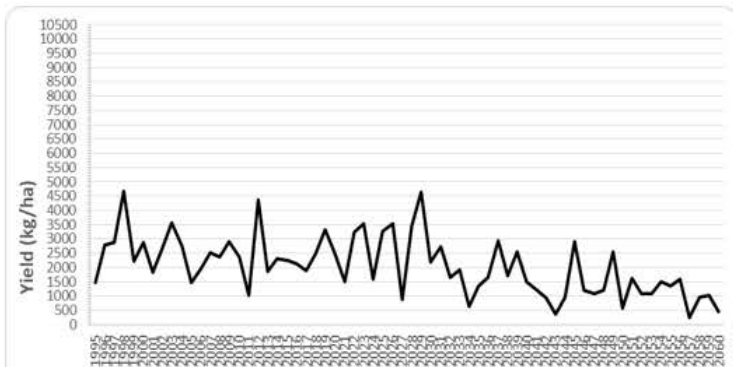
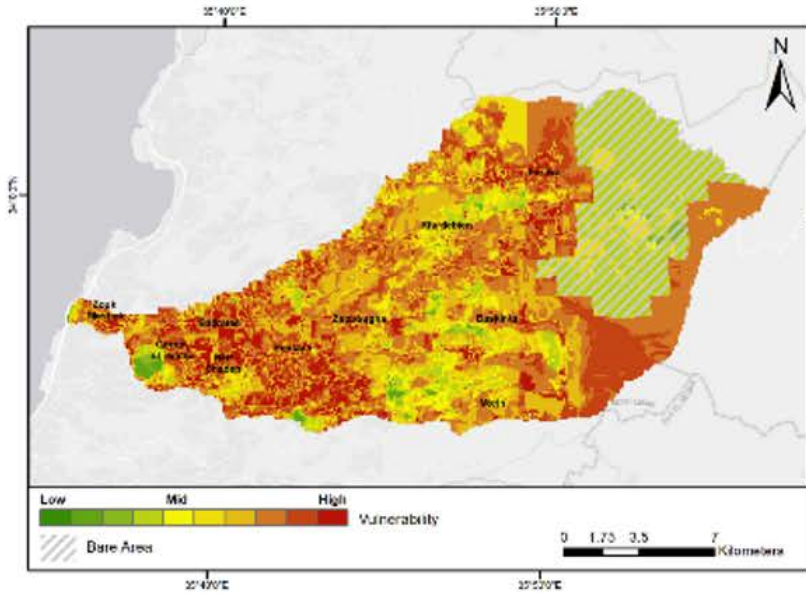
Reference Period (1995-2014)



Near term (2021-2040)



Mid-term (2041-2060)



Climate Impact on Apple Production

Investment Interventions

Enhancing Agriculture Sector Resilience

Estimated Budget

\$15,750,000

Estimated Duration

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





<https://unfccc.int/NDCREG>

NDC Registry.

In accordance with Article 4, paragraph 12 of the Paris Agreement, NDCs communicated by Parties shall be recorded in a public registry maintained by the secretariat.



Credit: Axel Fassio/CIFOR

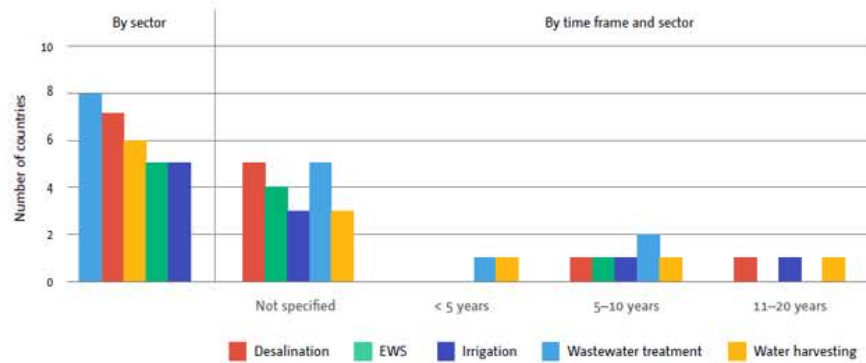
Showing 15 of 195 results

Country Reports with Emission Reduction Commitments & Several NDCs include Adaptation Communications, with Priority Actions & Project Lists for Conditional & Unconditional Implementation based on Funding Availability

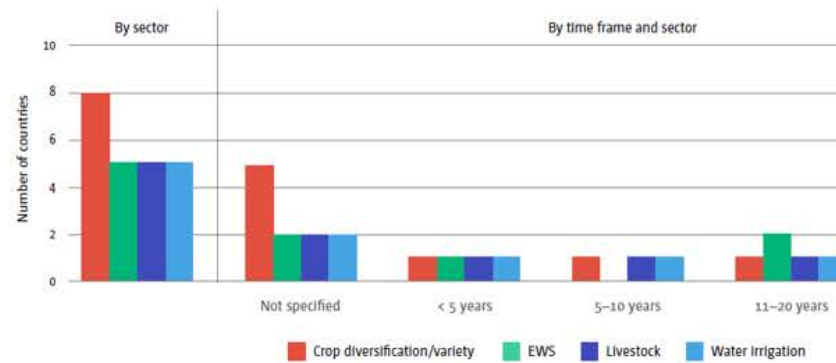
Several New Net Zero Emission Targets by mid-century

Mapping of climate finance priority actions per sector of Arab States based on their Nationally Determined Contributions (NDCs)

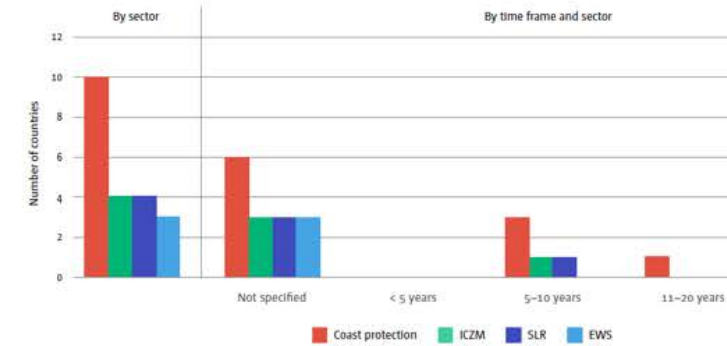
Water needs by subsector and time frame



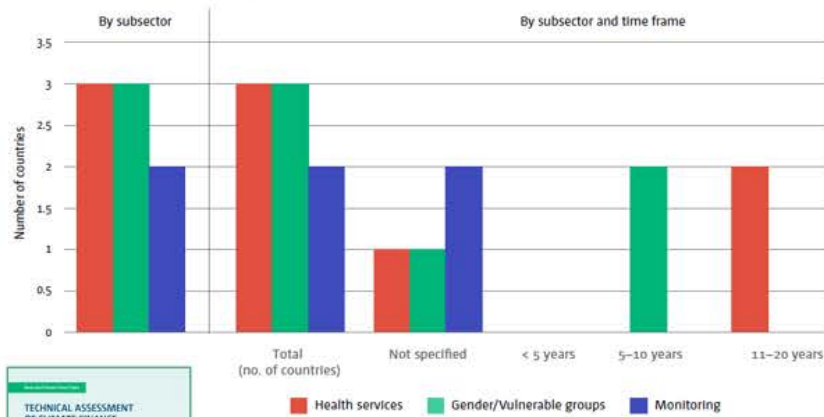
Agriculture needs by subsector and time frame



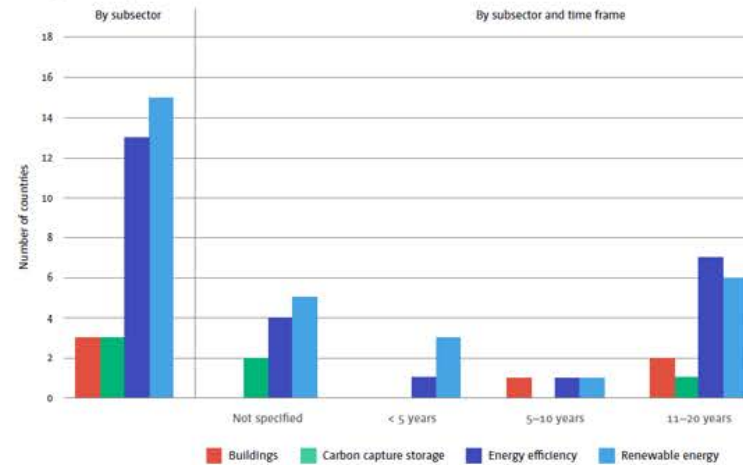
Coastal zone needs by subsector and time frame



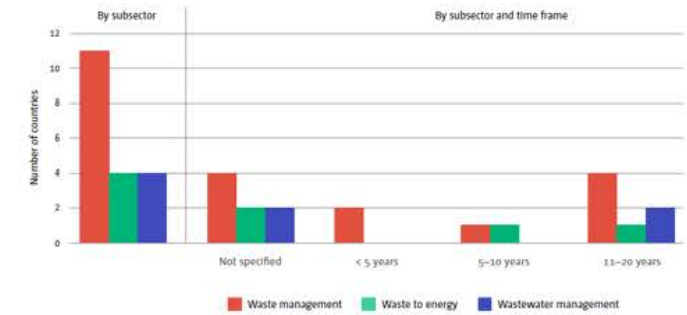
Health needs by subsector and time frame



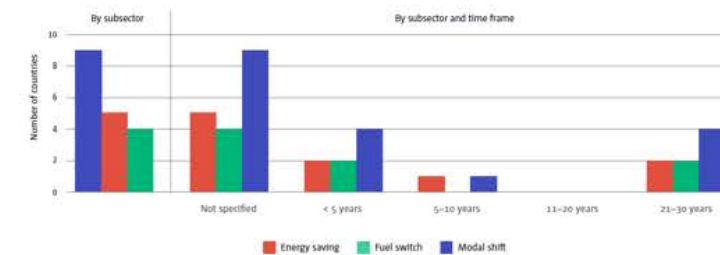
Energy needs by subsector and time frame



Waste needs by subsector and time frame



Transport needs by subsector and time frame



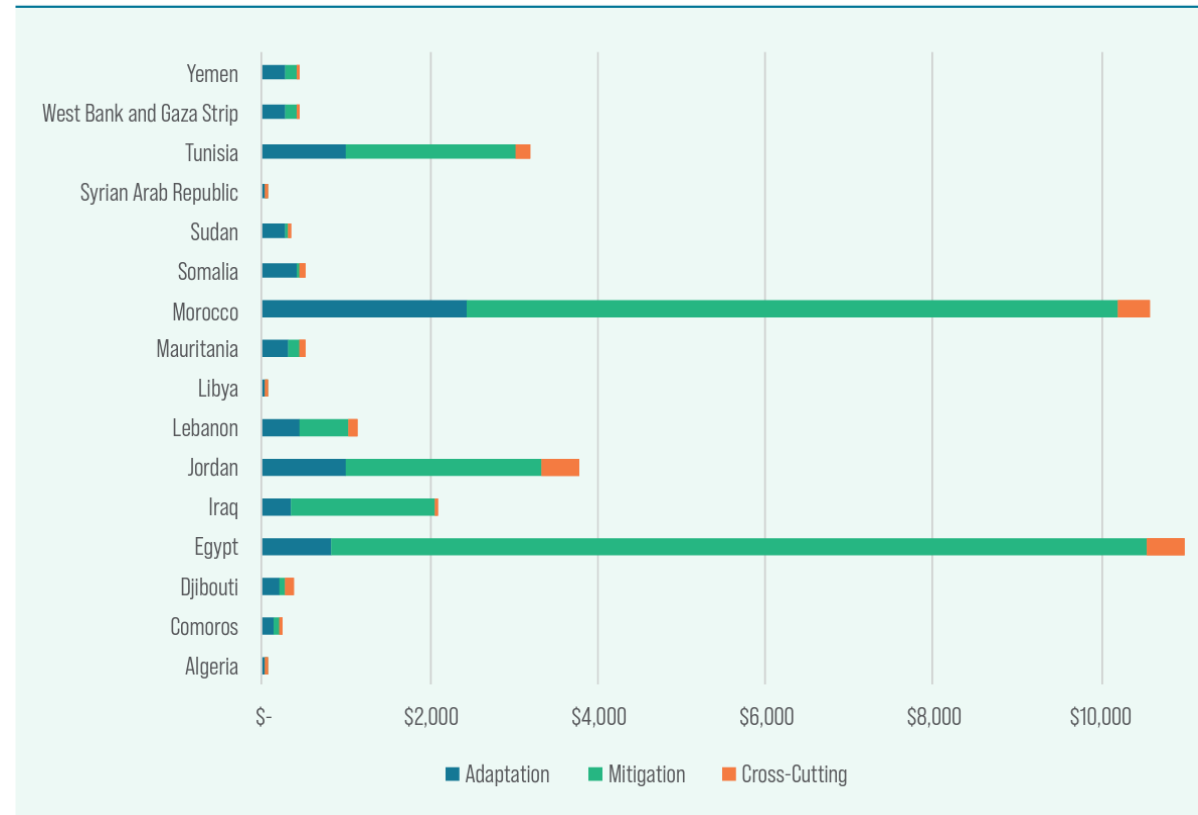
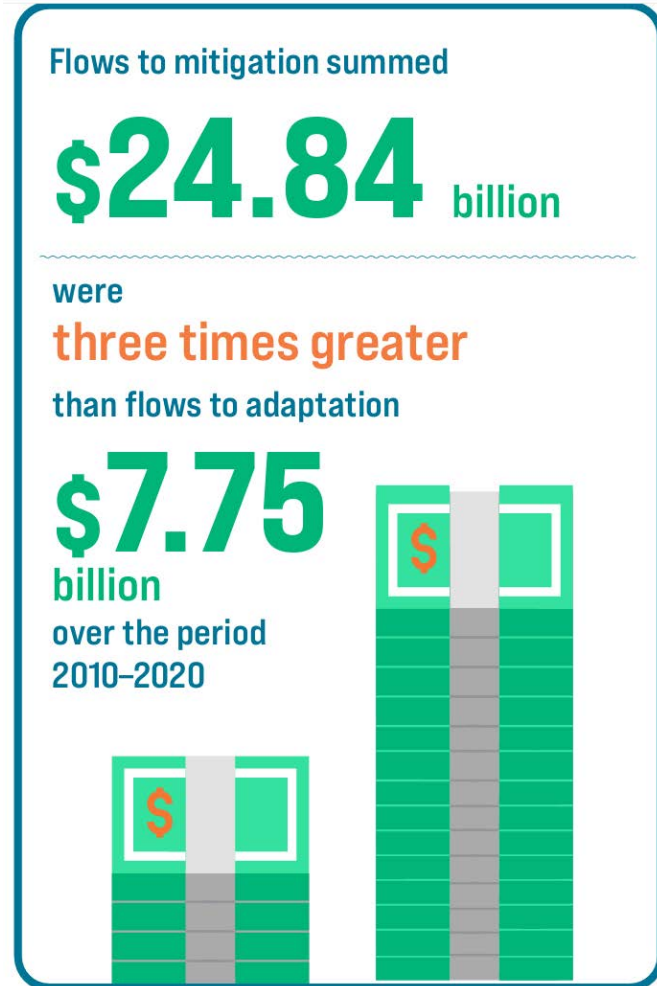
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Public Climate Finance Flows Skewed towards Mitigation rather than Adaptation and Resilience



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



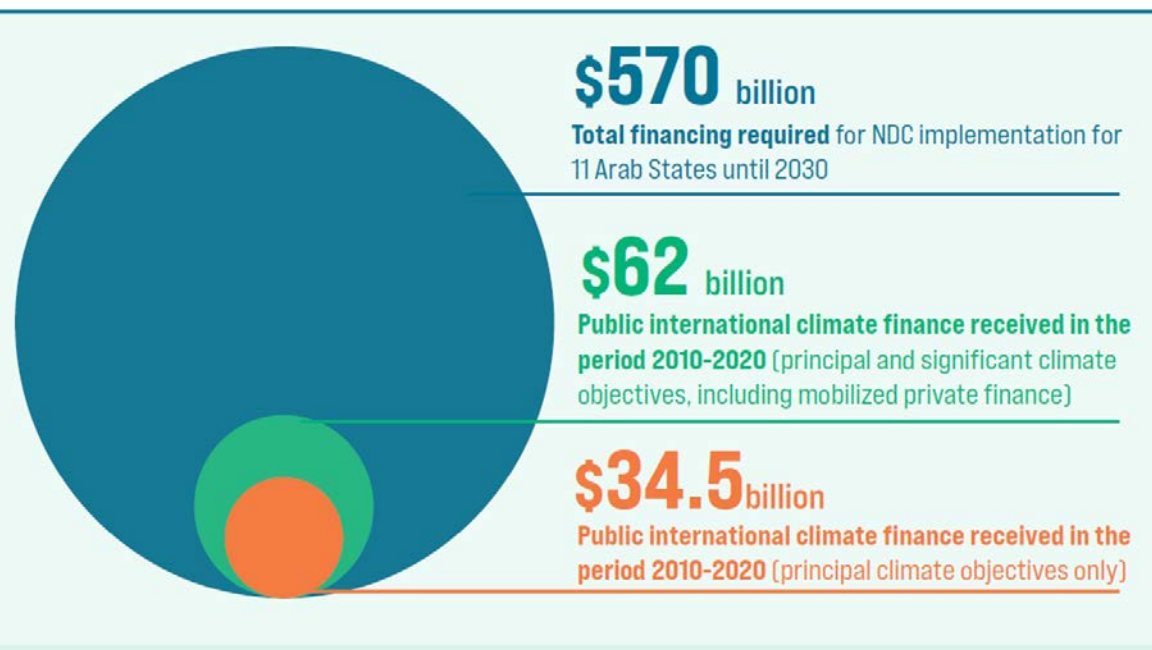
Source: Developed by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000–2020".

Note: Figure 5 evaluates bilateral and multilateral climate finance flows to the Arab region based on reporting to OECD, from the recipient's perspective. 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. GCF reports all flows to OECD with a significant objective and are therefore not included in figure 5.



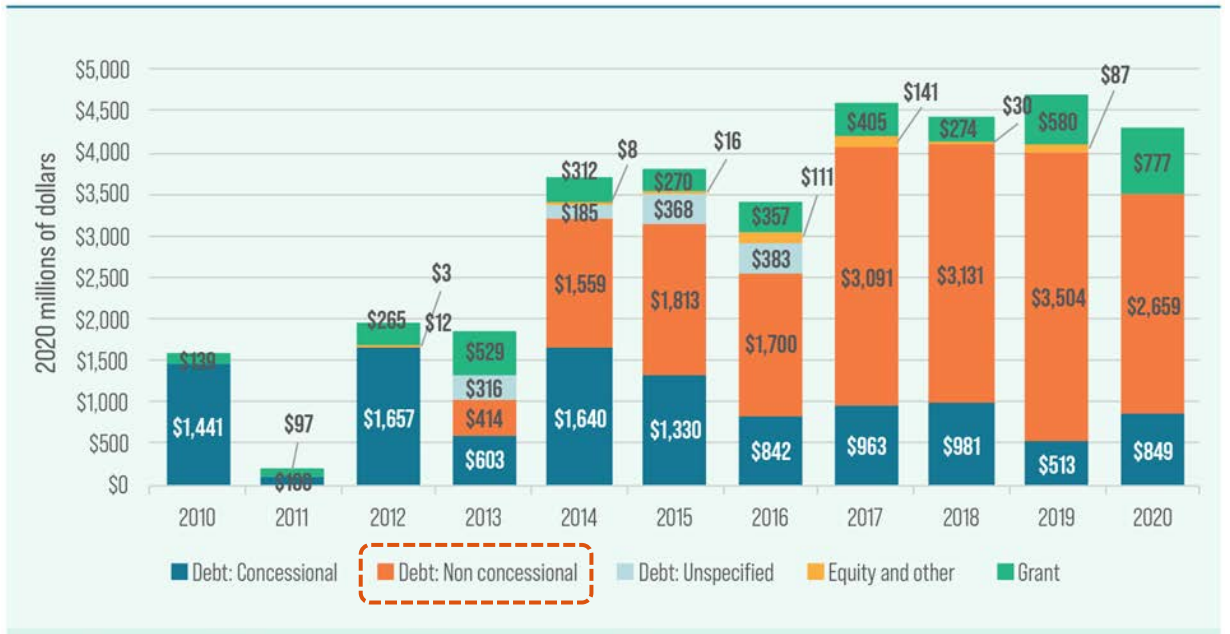
Public Climate Finance Flows to Arab States Do Not Meet Needs & is Largely Debt

Climate finance received over the past decade relative to financing needs expressed for NDC implementation over the coming decade



Source: Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2020".

Total climate finance in the Arab region 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 2000-2020".
 Note: Figure 3 evaluates bilateral and multilateral climate finance flows to the Arab region based on reporting to OECD, from the recipient's perspective. 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. GCF reports all flows to OECD with a significant objective, and are therefore not included in figure 3.



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Thank you

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