

Economic and Social Commission for Western Asia

# Financing for Food Systems Transformations: Climate Finance Flows to Arab States under a Changing Climate

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Director, ACCCP; Cluster Lead, Climate Change and Natural Resource Sustainability Cluster, ESCWA

Food Systems Transformation Progress Review – Beirut, 6 March 2024



UNITED NATIONS

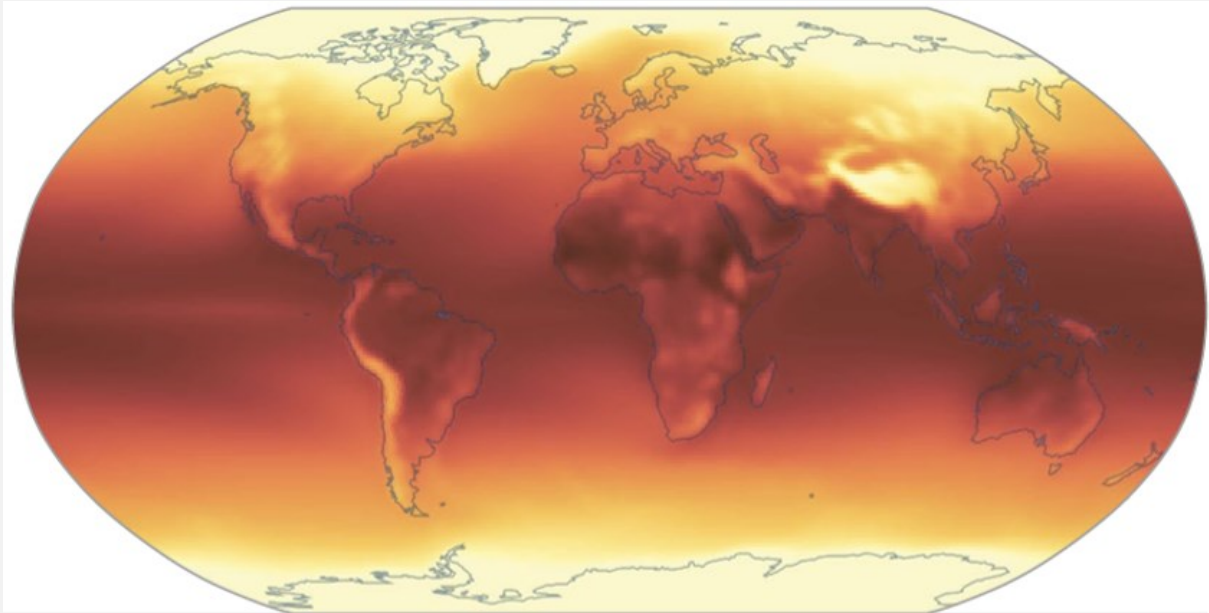
الاستشفا  
ESCWA

Shared Prosperity **Dignified Life**

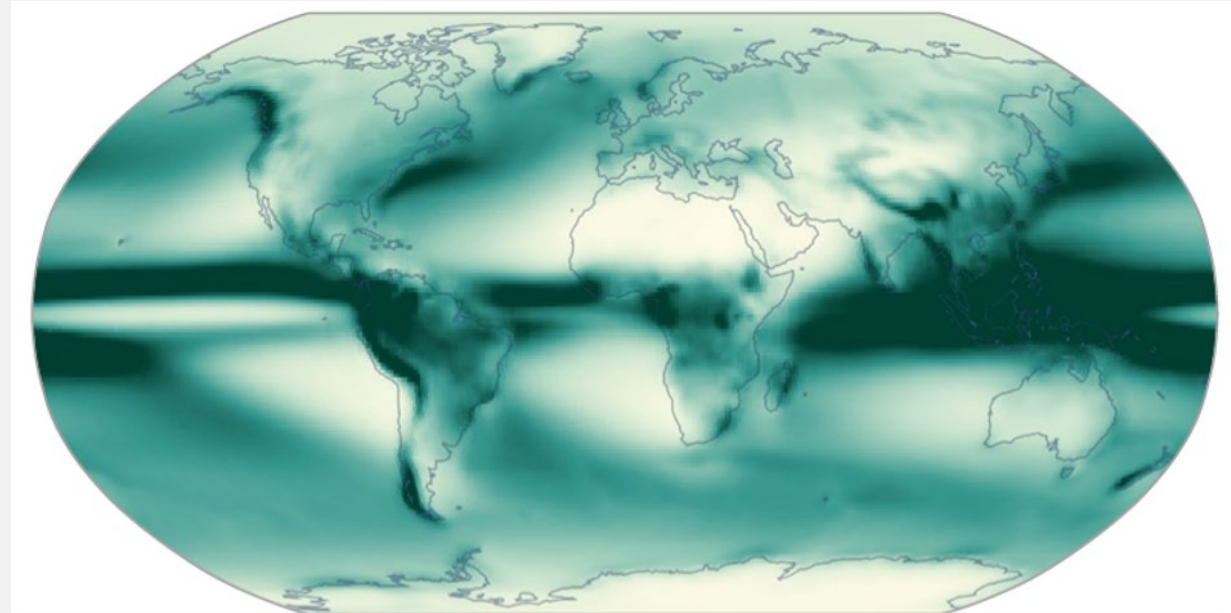
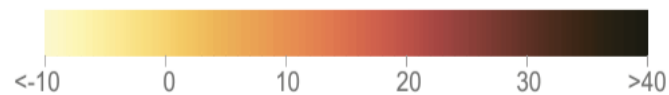


# IPCC WGII Sixth Assessment Report: Climate Change 2022

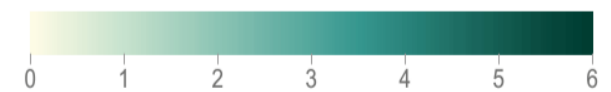
## *Part II on Impacts, Adaptation and Vulnerability*



**Observed mean temperature (°C)**  
Period 1995–2014

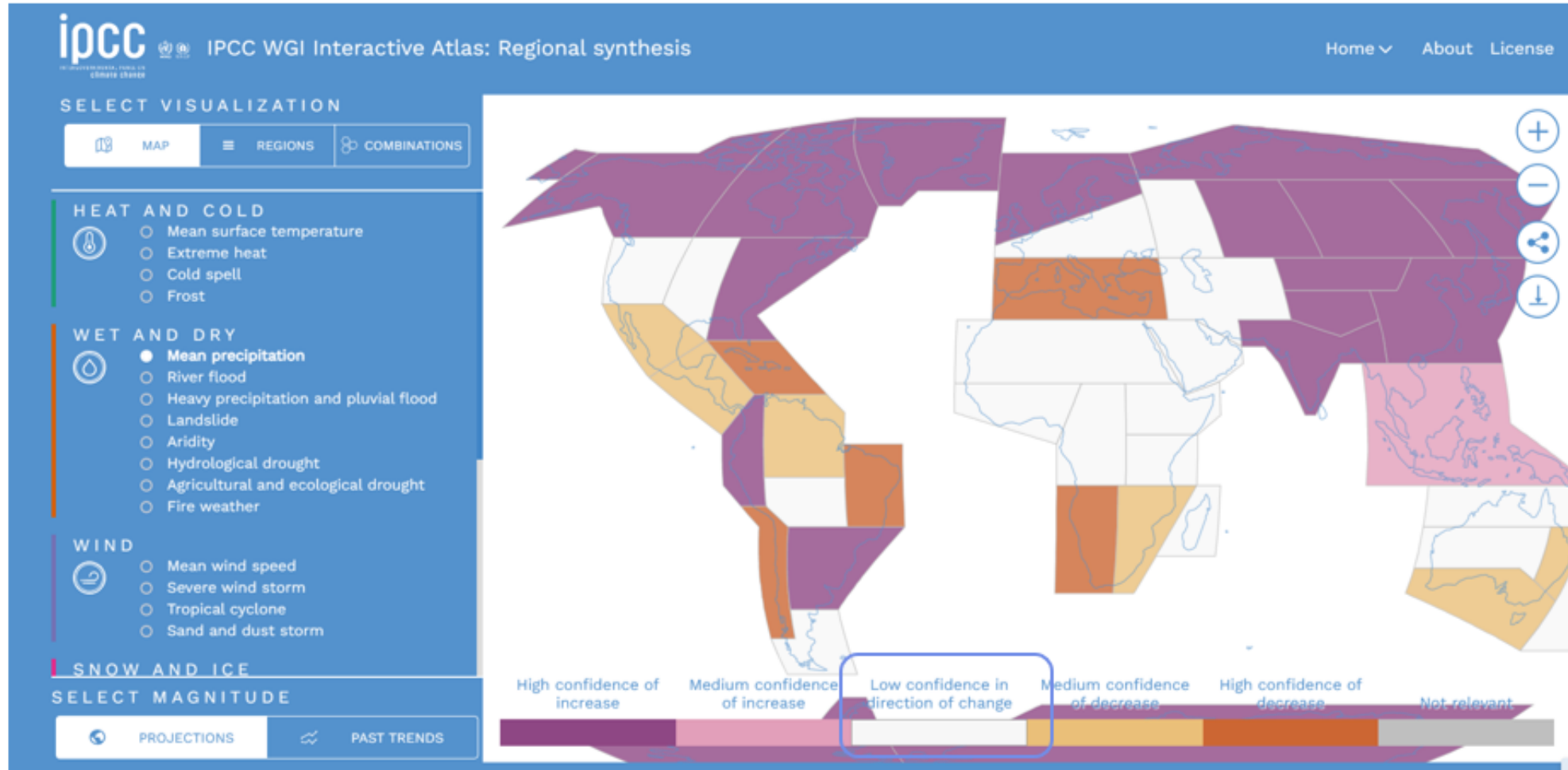


**Observed total Precipitation (mm/day)**  
Period 1995–2014  
CMIP6 - Annual (34 models)



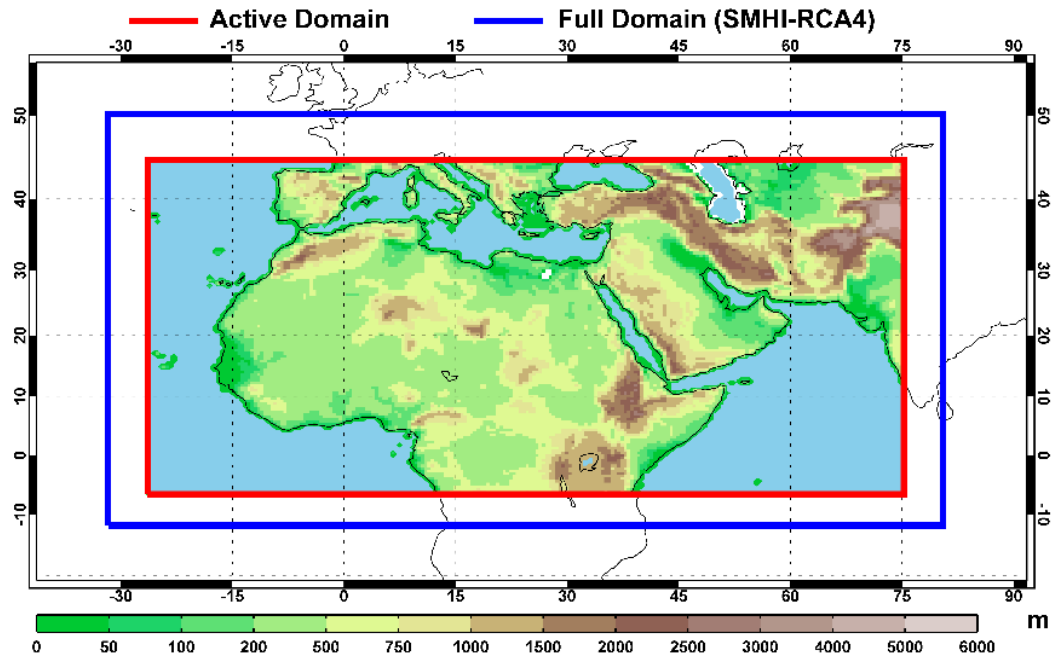
# IPCC regional synthesis based on global assessments: informative, but insufficient for Arab States

RICCAR was launched in 2010 based on first declaration of the **Council of Arab Ministers of Environment (CAMRE)** on climate change. It is overseen by **Arab Ministerial Water Council (LAS)** & **Arab Centre for Climate Change Policies (ESCWA)** to inform science-based policy action on climate change in and among Arab States.

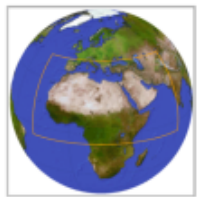


# Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region

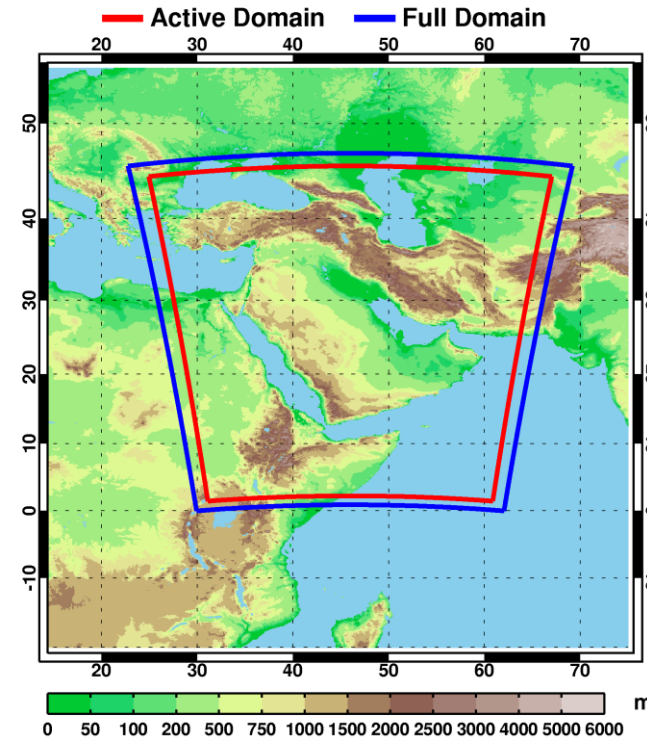
CORDEX-MENA/Arab Domain | 0.44° (50 km)



- 50 km<sup>2</sup> grid scale resolution
- RCP 8.5 & RP 4.5 ensembles
- Bias-corrected RCM projections
- Regional Hydro Modelling projections



RICCAR Mashreq Domain | 10km | MSH-10  
HCLIM-ALADIN (SMHI)



- 10 km<sup>2</sup> grid scale resolution
- SSP5-RCP 8.5
- **SSP2-RCP 4.5**
- Each ensemble has 6 projections based on six CMIP6 GCMs
- All projections are **bias-corrected** to support hydrological analysis
- Open access to datafiles & maps







Shared Prosperity Dignified Life



# 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.



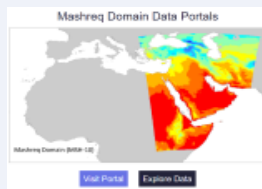
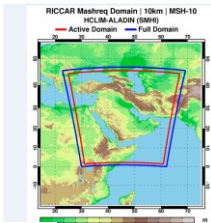
Request Data

## KNOWLEDGE NODES

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

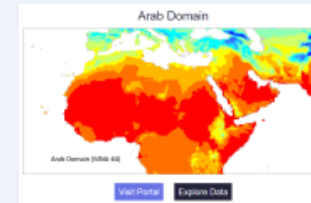
## PARTNERSHIPS

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

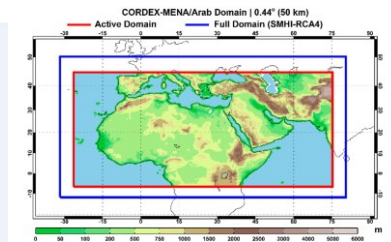


Mashreq Domain

DATA PORTALS  
[www.riccar.org](http://www.riccar.org)

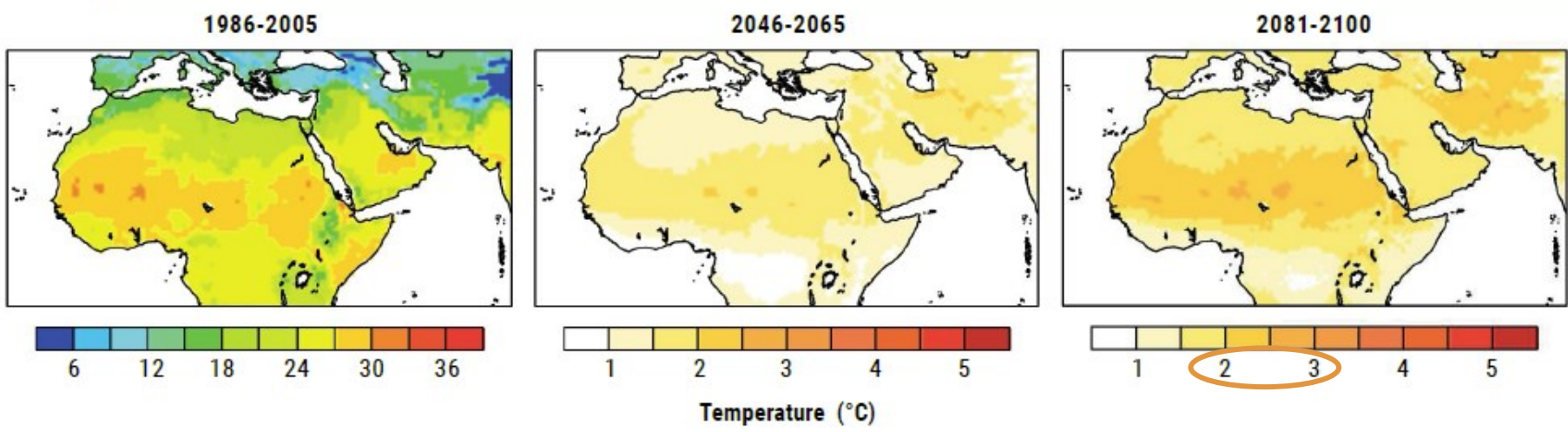


Arab Domain

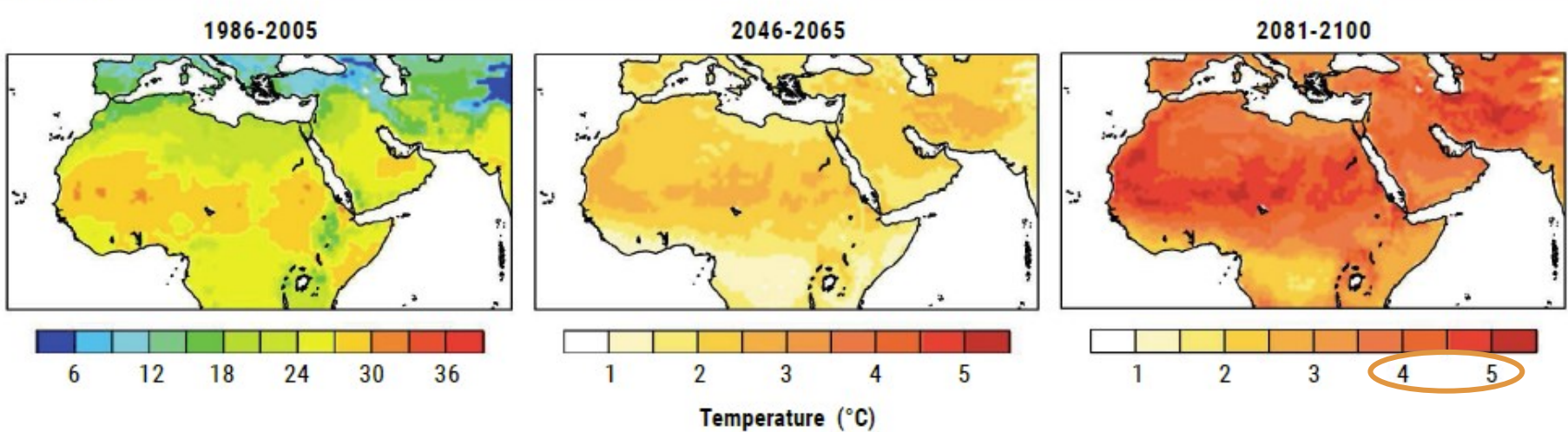


# Mean Temperature is projected to increase 2.6°C by mid-century and up to 4.8°C by end-century compared to reference period (1986-2005)

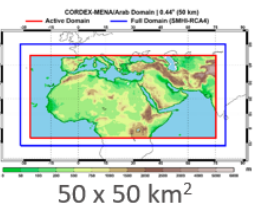
## RCP 4.5



## RCP 8.5



Moderate Emissions Reduction Scenario



Business-as-Usual Emissions Scenario

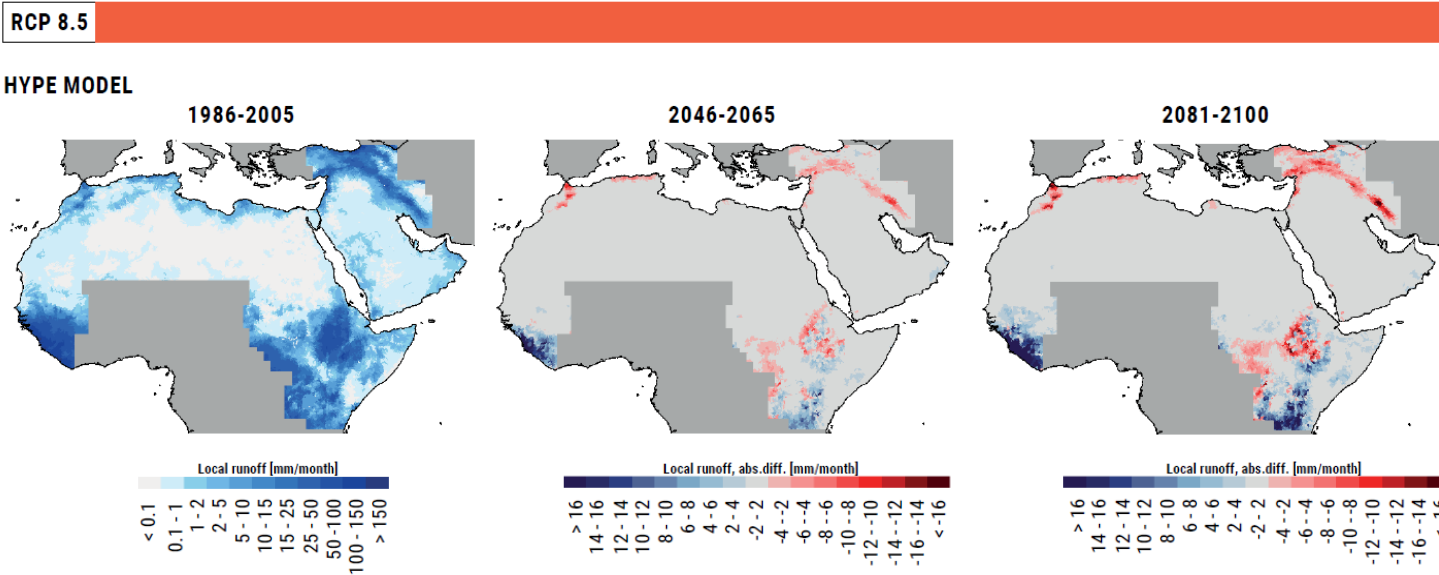
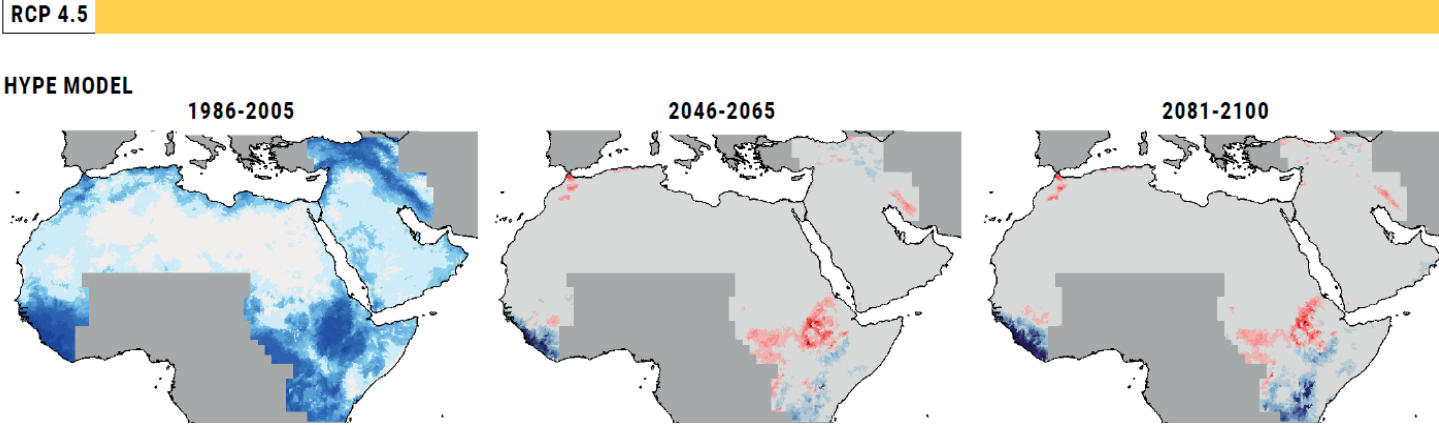
Average Temperature in the Arab Region is *already* 0.8°C higher than the reference period at the start of this century





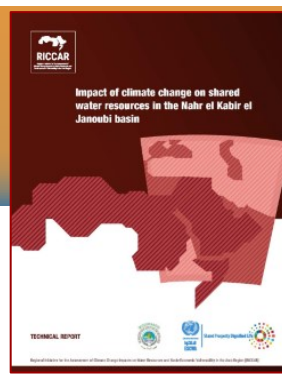
# Arab region is one of the world's most water-stressed

## Mean change in annual run-off

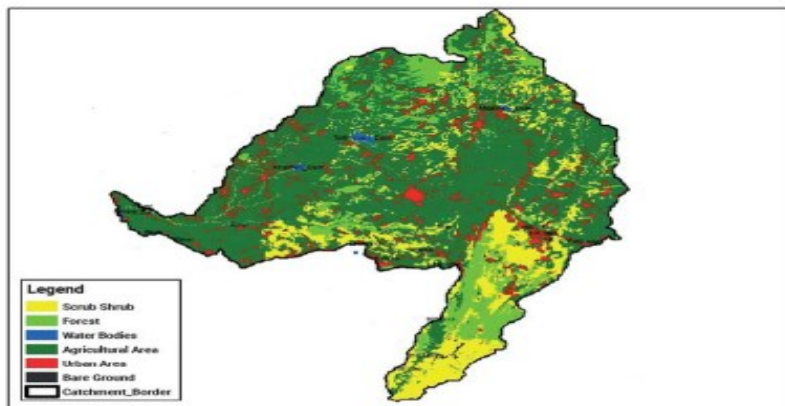


- 12 Arab States face absolute water scarcity (below 500 m<sup>3</sup> per person per year)
- Climate change will reduce runoff and groundwater recharge in large parts of the region.
- Staple crops productivity projected to decline
  - Wheat in Yemen projected to decrease 7.6% by mid-century

# Nahr el Kabir el Janoubi basin: Lebanon and Syria

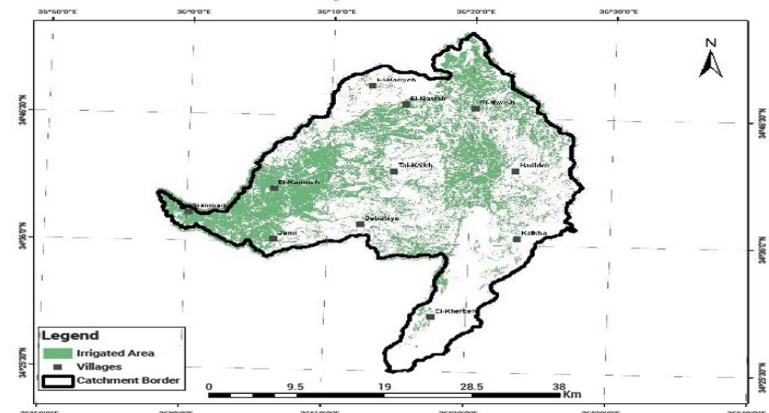


Land use/land cover



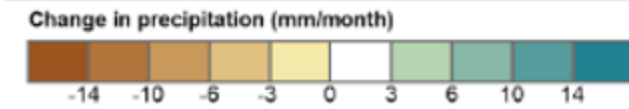
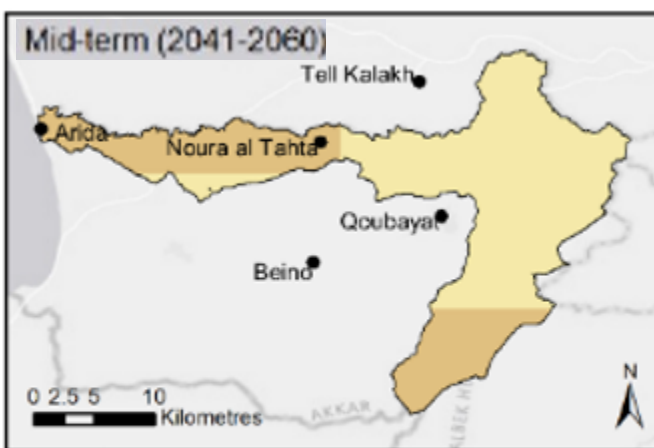
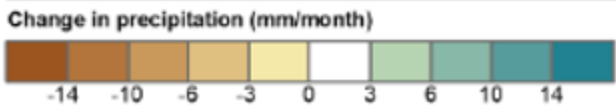
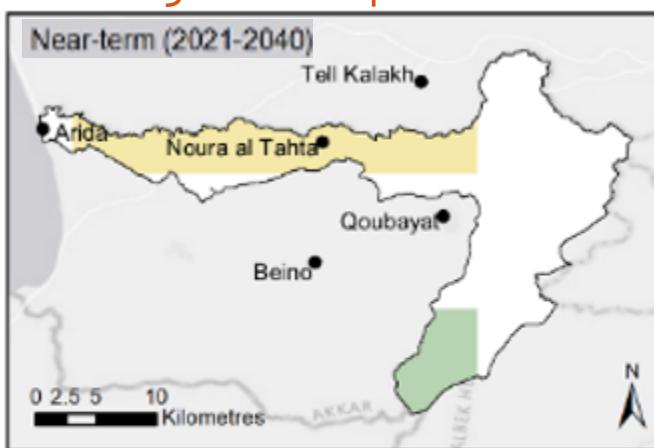
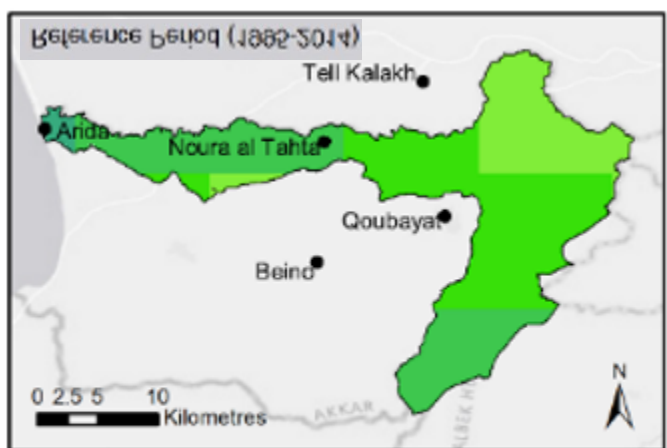
Source: Prepared by ACSAD, 2021.

Irrigated area



Source: Prepared by ACSAD, 2021.

Change in Precipitation

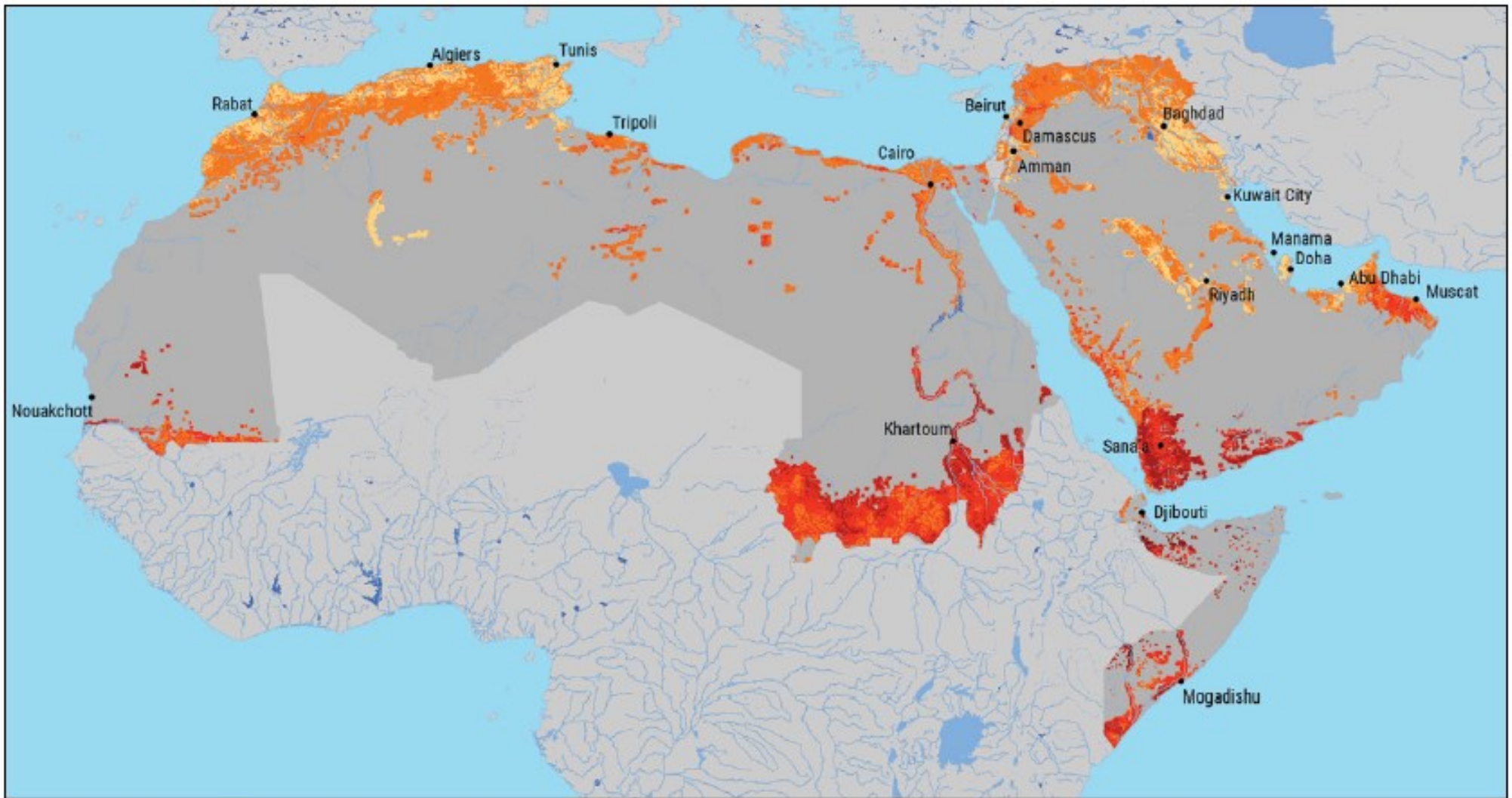






## Water Availability for Crops Vulnerability

**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



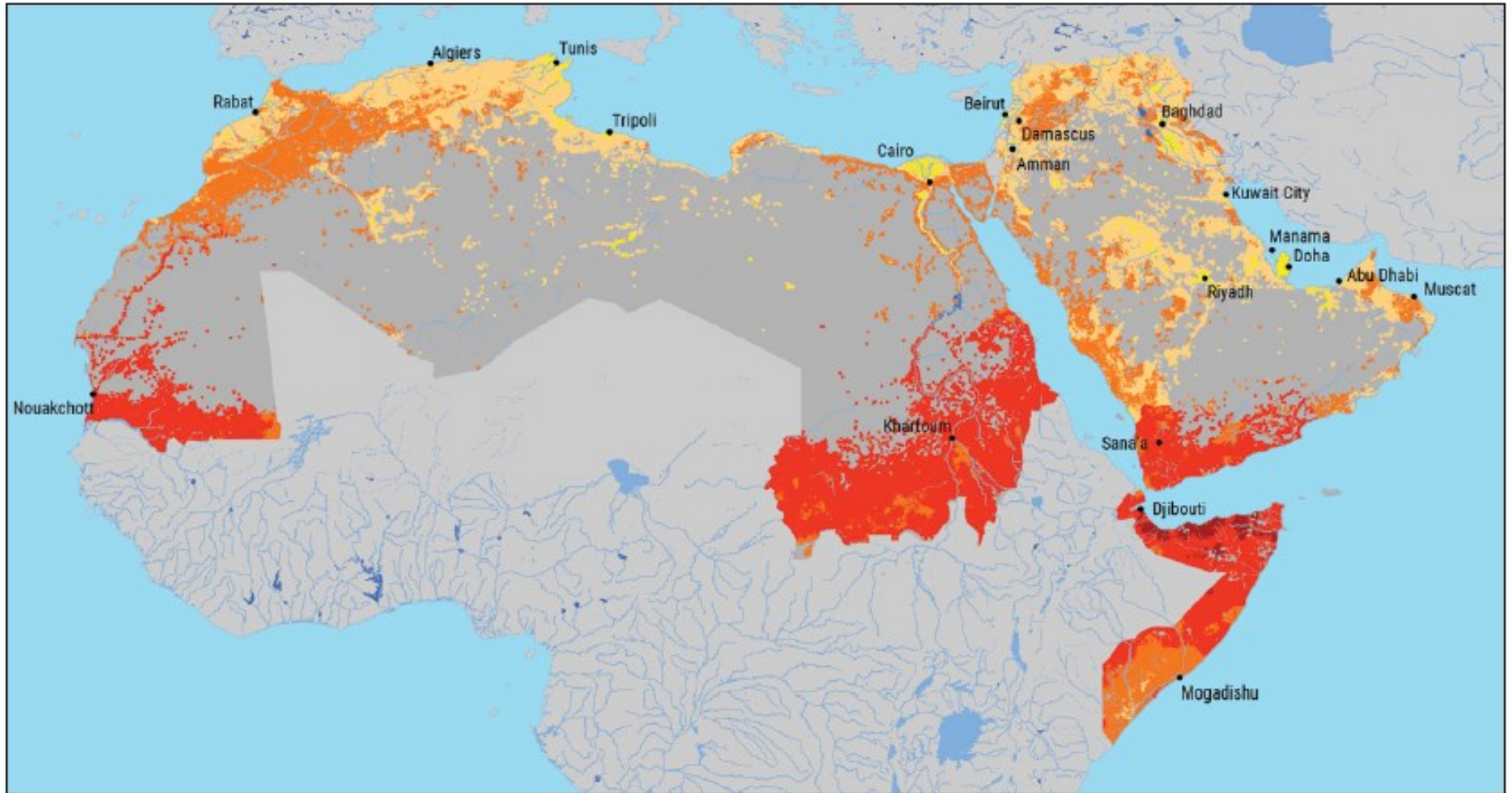
Low Vulnerability

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

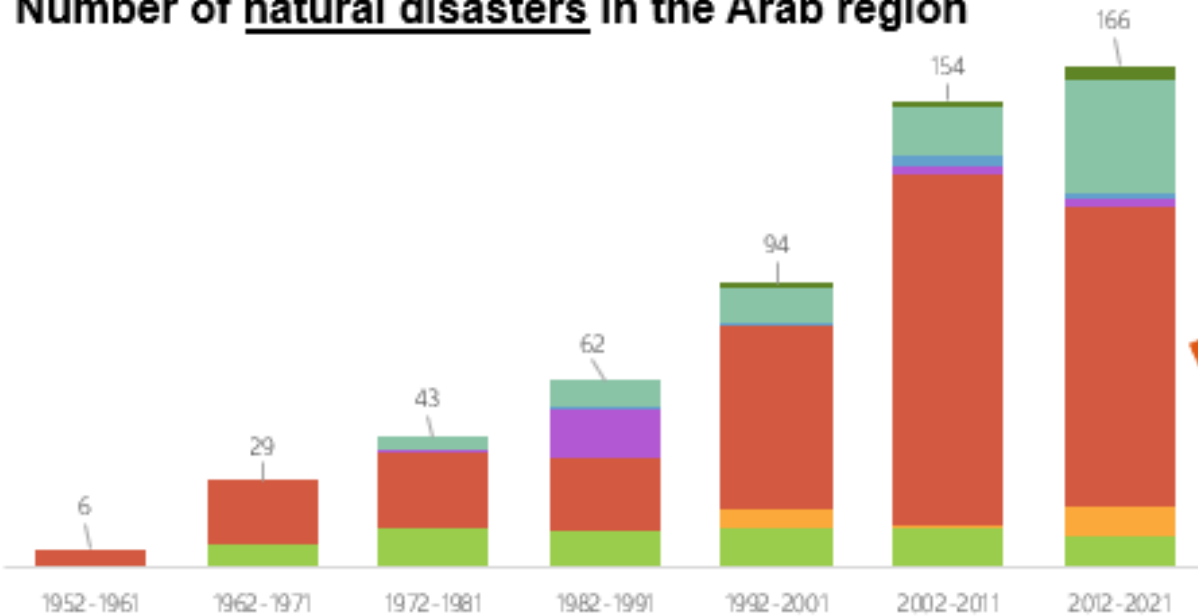
High Vulnerability



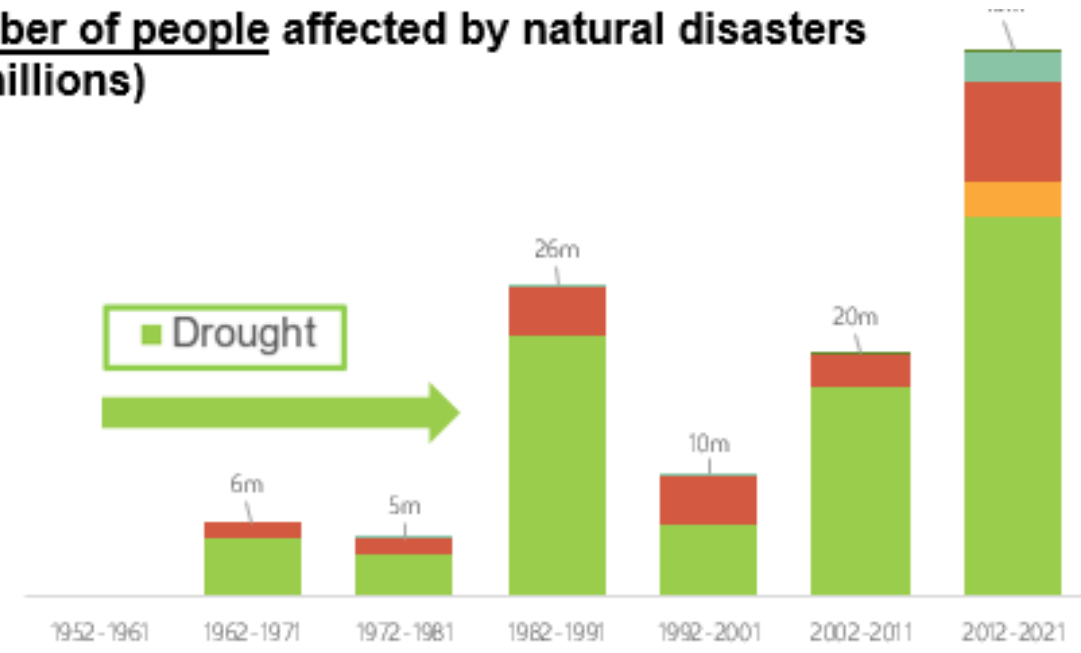


# Natural Disasters affecting People in the Arab Region: Water-related Disasters are the Most Prevalent

Number of natural disasters in the Arab region



Number of people affected by natural disasters (in millions)



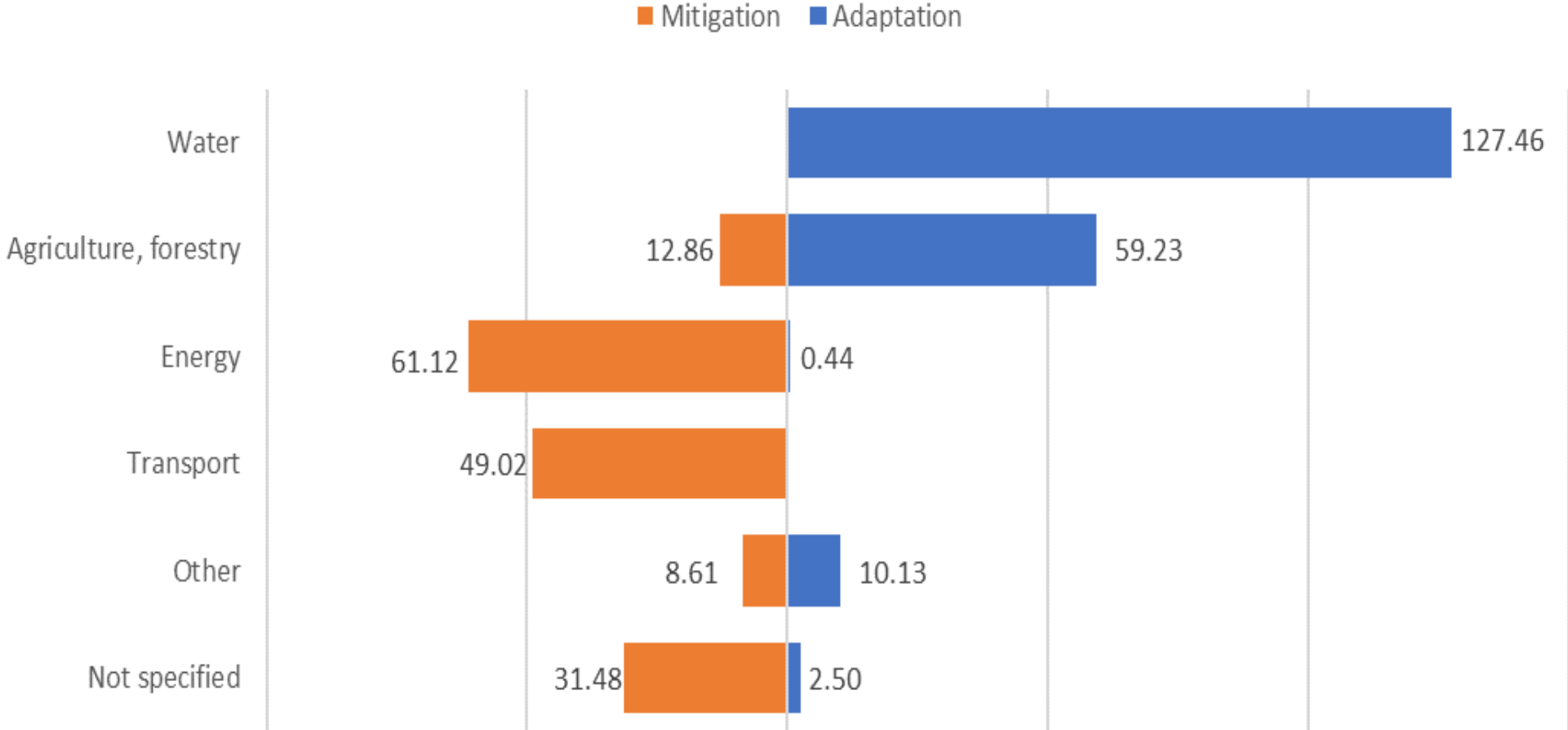
Frequency at Regional Scale

Implications for People





# Articulated climate finance needs of Arab States costed by theme and sector (in USD billion)



**NDC Updates due by  
February 2025**

# Mitigation Finance dwarfs Adaptation Finance: Adaptation Finance Insufficient

Climate finance flows to Arab States by country and purpose (2010–2020)  
(In 2020 millions of US\$)

Flows to mitigation summed

**\$24.84** billion

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

**\$7.75**  
billion  
over the period  
2010–2020



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

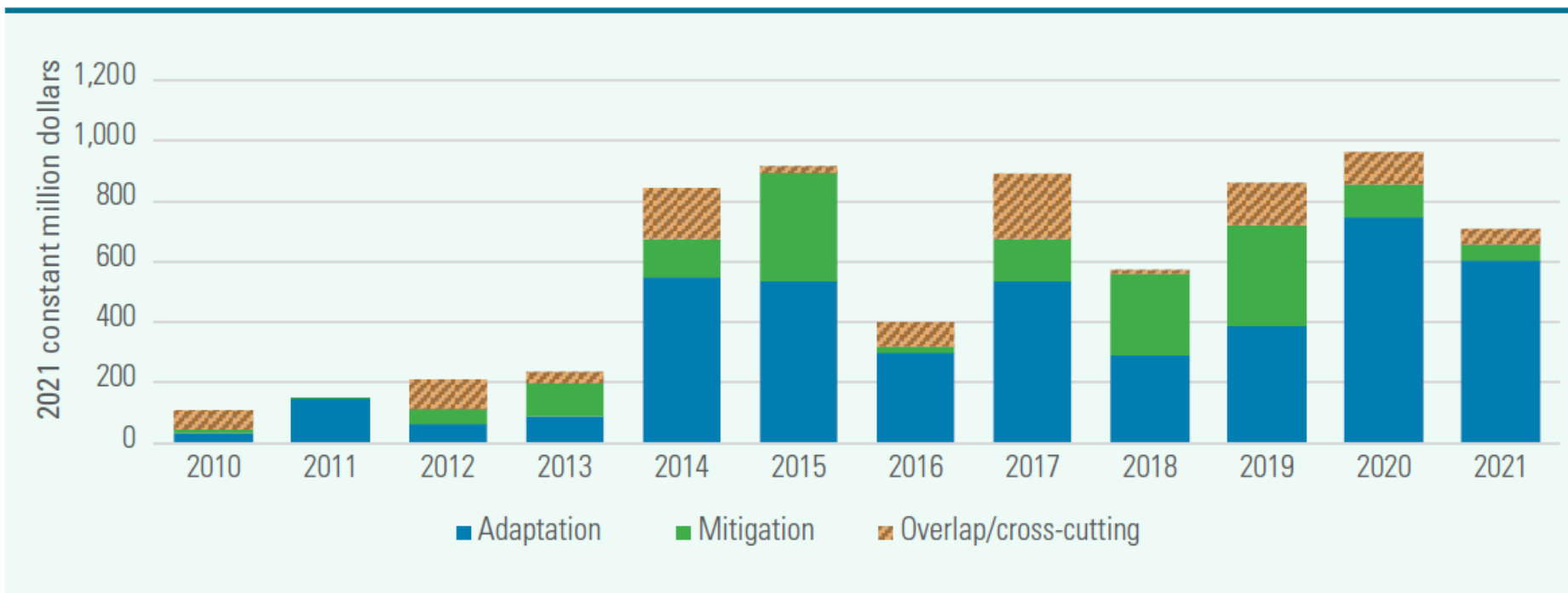
Note: Figure 5 evaluates bilateral and multilateral climate finance flows to the Arab region based on reporting to OECD, from the recipient's perspective. It includes commitments with climate marked as a principal objective (Rio tag) and includes climate components reported by multilateral development 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.



# Silver lining in the Arab Region: Support for water-related adaptation increasing



Figure 1. Climate-related development finance for the water sector and agricultural water resources in the Arab region by purpose



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.

Over the period 2010–2021

**62%** of all  
climate finance

for the water sector  
and agricultural  
water resources  
supported  
adaptation  
projects



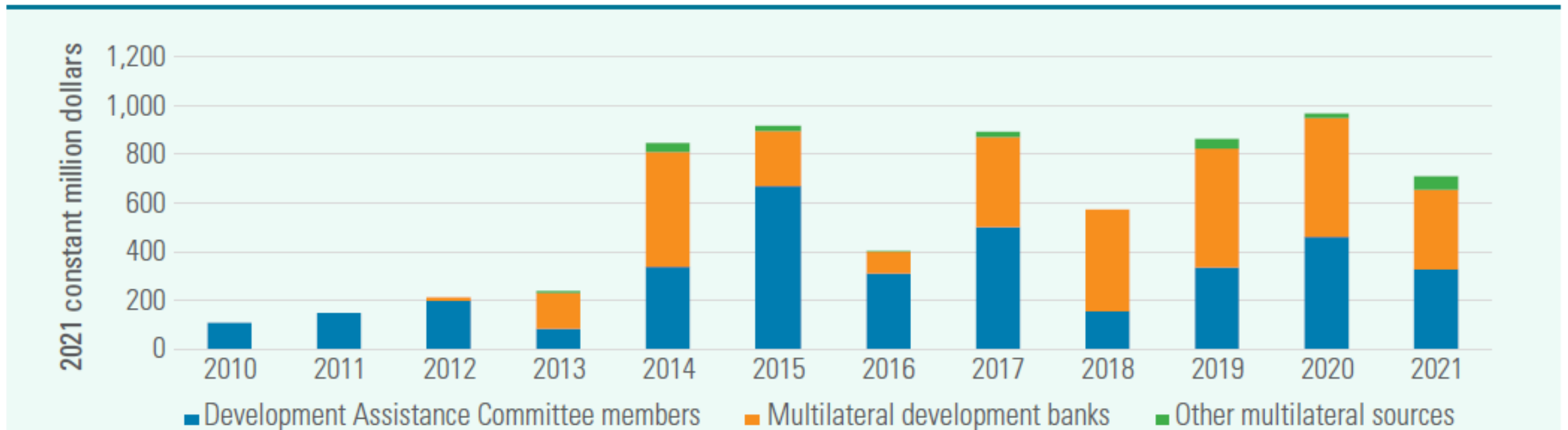
- **Co-benefits** of water-related climate action represent **almost 15%**



# MDBs allocating more finance for water & agricultural water resources



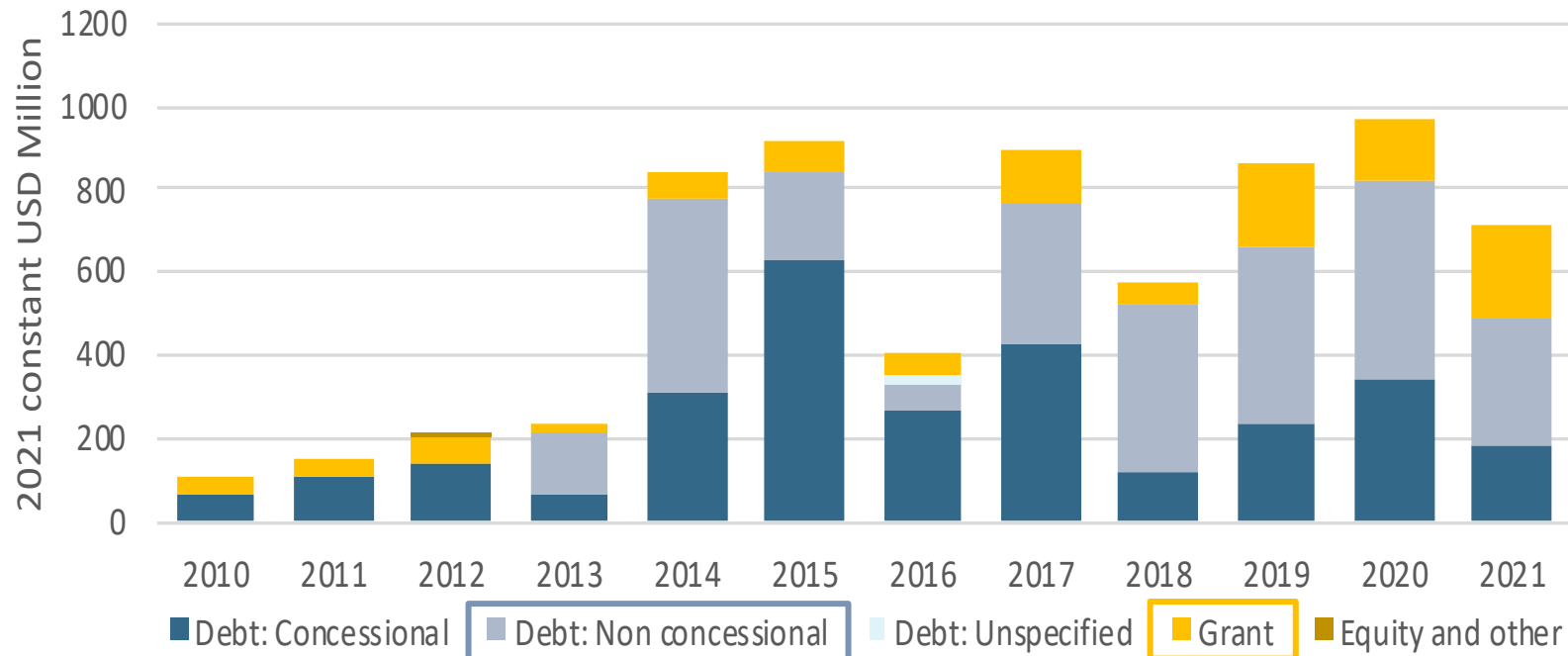
Figure 5. Climate-related development finance for the water sector and agricultural water resources by provider



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.

# However...too much debt financing for Arab States

Climate-related development finance for the water sector and agricultural water resources



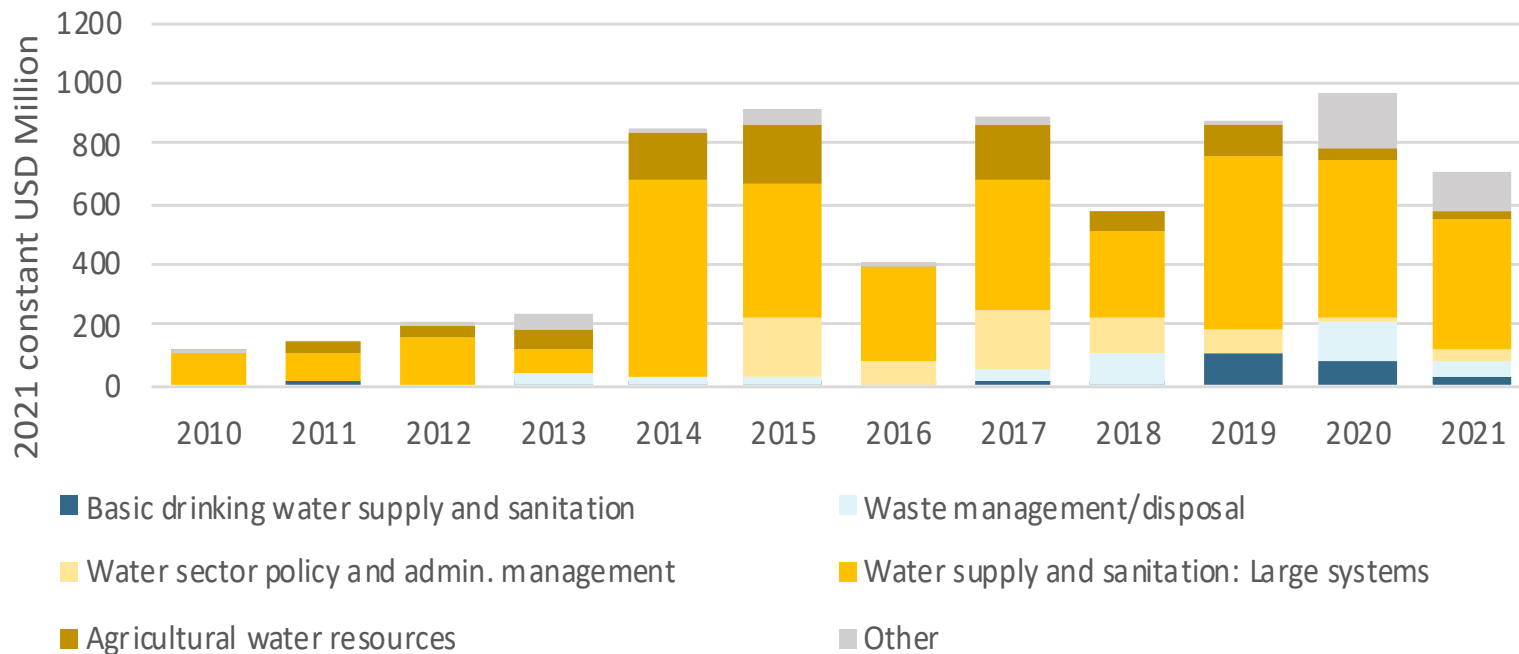
- **Excessive debt financing:** 81% of all water-related climate finance between 2010-2021 was debt-based, despite historically high gross public debt of \$1.4 trillion in 2020 in the Arab region
- Shift towards **non-concessional debt** in recent years
- Very little grant financing, although improved in recent years

Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2021". 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. The water sector and agricultural water resources are defined as OECD sector 140: 1.4. Water Supply & Sanitation and subsector 31140: Agricultural Water Resources. Numbers are in 2021 constant USD million.



# Most climate financing in the Arab Region supporting large water supply and sanitation systems

Climate-related development finance for the water sector and agricultural water resources



**Large (and often centralized) water supply and sanitation systems**

received 60% of all water-related climate finance from 2010-2021

4% directed at local basic drinking water and sanitation activities

**Smaller flows into other subsectors:**

- 14% for agricultural water resources
- 6% for waste management
- 3% for river basin development

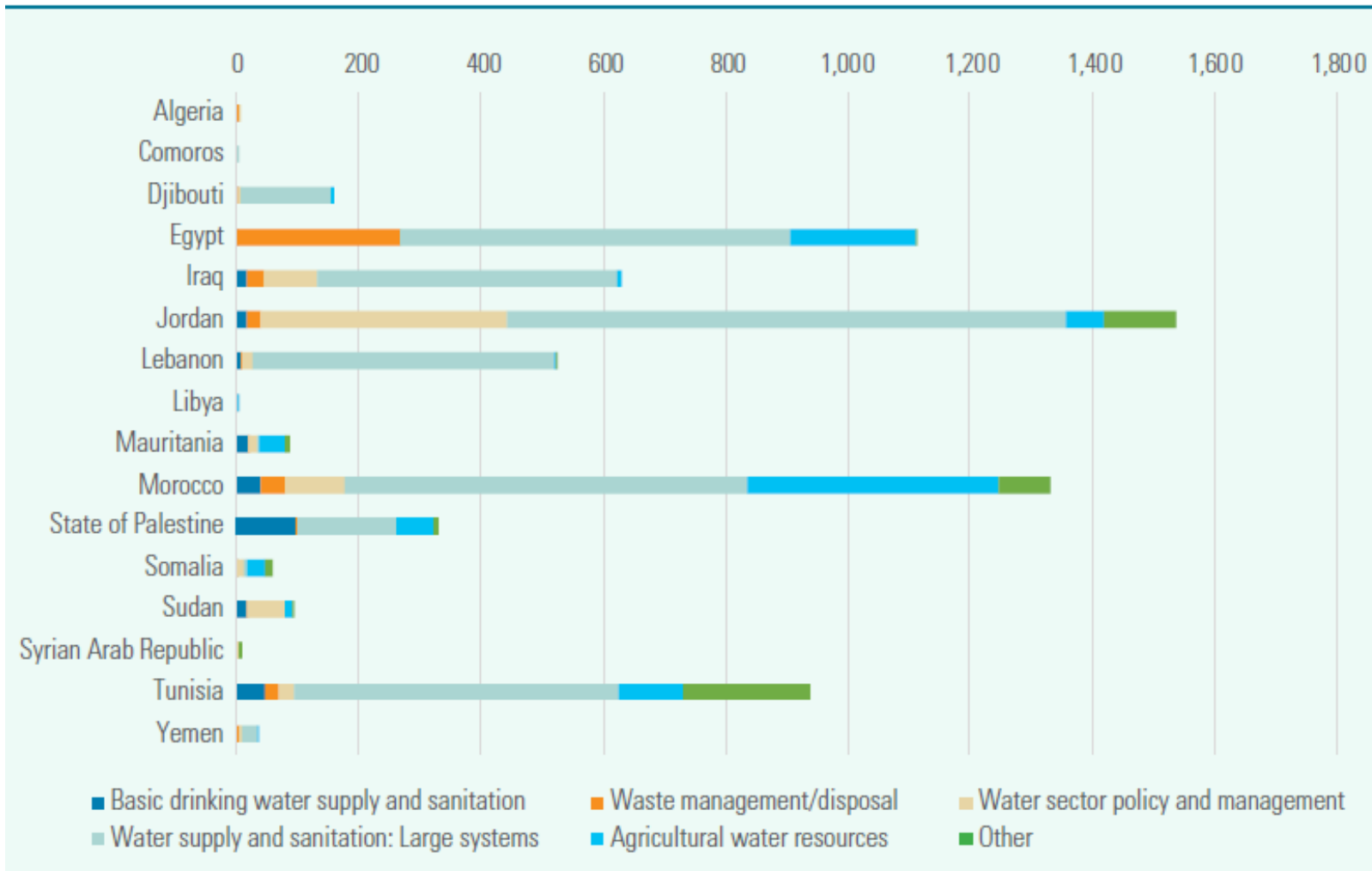
Compiled by ESCWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2021". It includes commitments with climate marked as a principal objective (Rio tag) and includes climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included. The water sector and agricultural water resources are defined as OECD sector 140: 1.4. Water Supply & Sanitation and subsector 31140: Agricultural Water Resources. Numbers are in 2021 constant USD million.





# Skewed Distribution of Climate Finance among Arab States

Figure 7. Climate-related development finance for the water sector and agricultural water resources by country, 2010–2021



- Jordan, Morocco, Egypt and Tunisia most successful in costing needs and accessing water-related public international climate finance: 72% of total between 2010-2021
- **6 Arab LDCs received only 6.5% of water-related financing**
- **Very little financing directed at conflict-affected states**



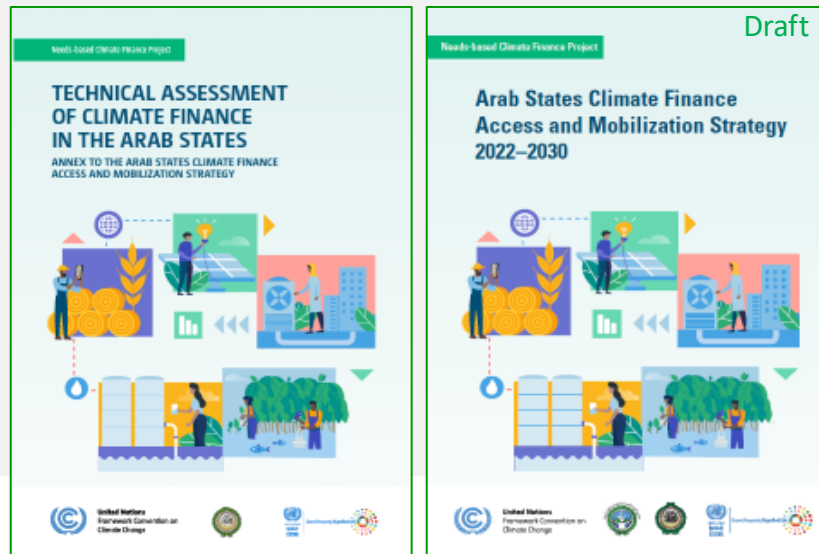
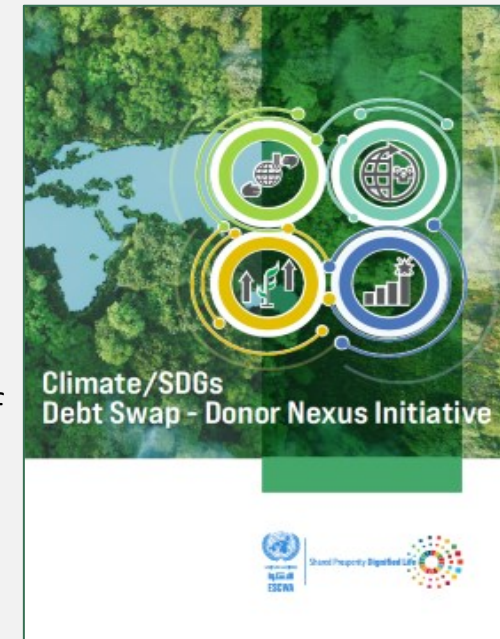
# Solutions: Arab Regional Initiatives for Mobilising Climate Finance

## 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 and **long-term** financing
- Seeks to **reduce** countries' **debt burdens**, improve climate finance, and **accelerate implementation** of the Paris Agreement and the 2030 Agenda



United Nations  
Climate Change



Shared Prosperity Dignified Life

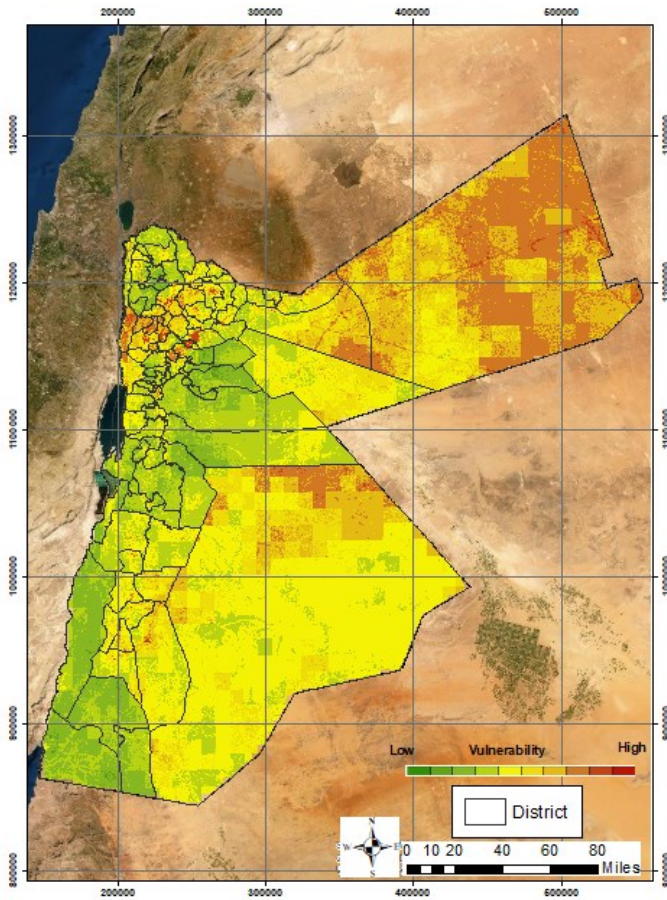


[www.unescwa.org/debt-swap](http://www.unescwa.org/debt-swap)

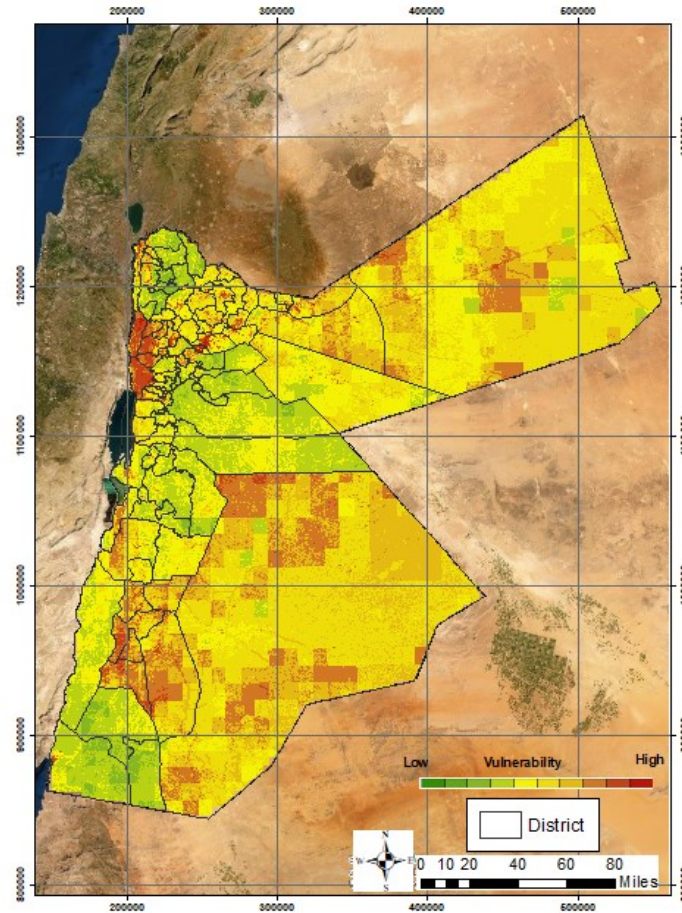


# Vulnerability Assessment of the Water Sector to Climate Change: National & District Levels in Jordan - supporting debt swap program targeting & KPIs

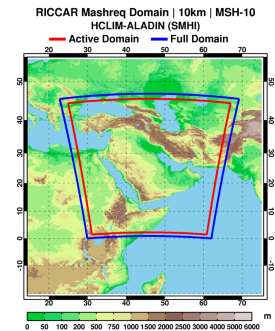
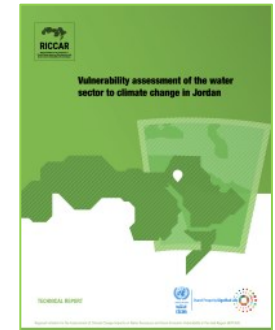
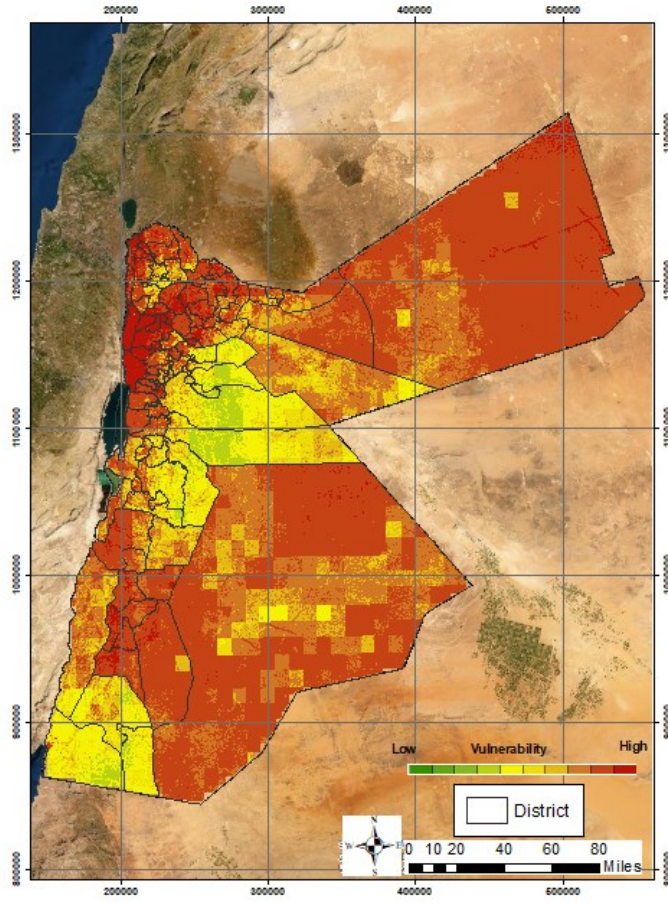
Vulnerability at reference period  
**1995-2014**



Vulnerability at near-century  
**2021-2040**



Vulnerability at mid-century  
**2041-2060**



10 x 10 k

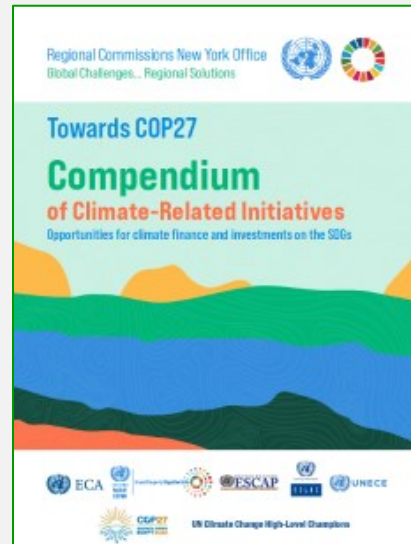
**Vulnerability Assessments help to identify priorities & target investments**



# Arab Regional Initiatives for Mobilising Climate Finance

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

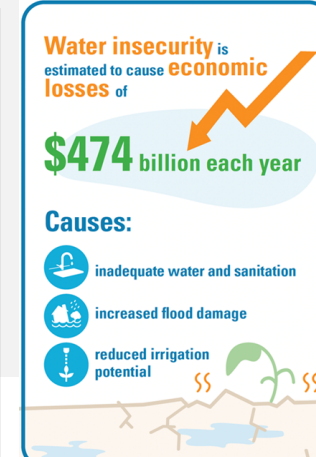
- Mobilising climate finance for country-driven projects in Arab States
- \$4.2 billion in adaptation & mitigation projects proposed by Arab States



## UN Climate Change High-Level Champions

## 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:



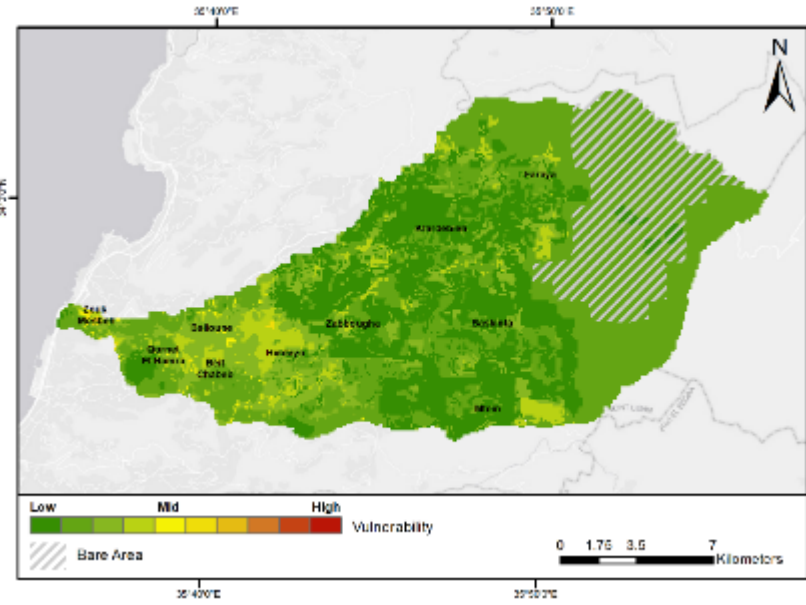
Collaborating Partners



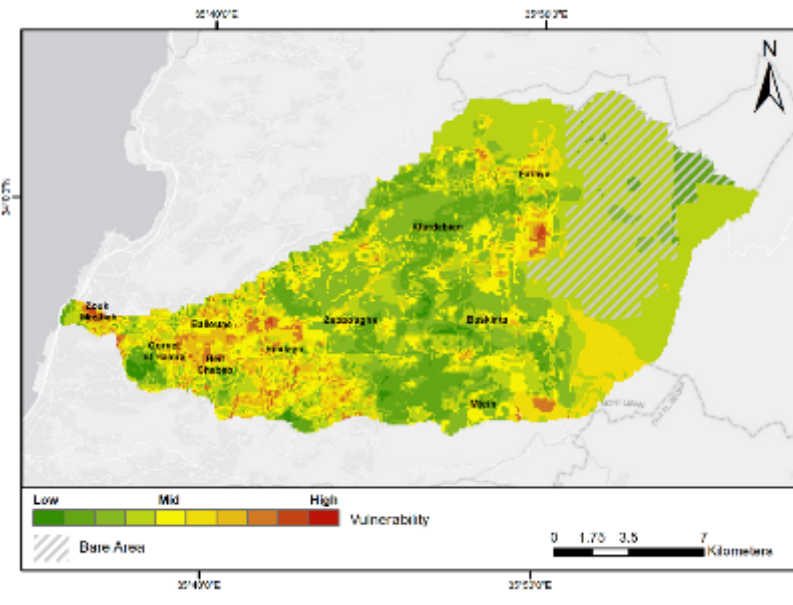
# Watershed Resilience Plans e.g., Nahr el Kalb Watershed (Lebanon)



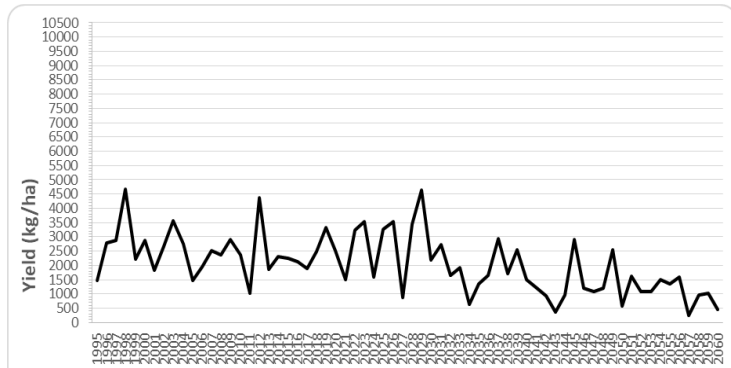
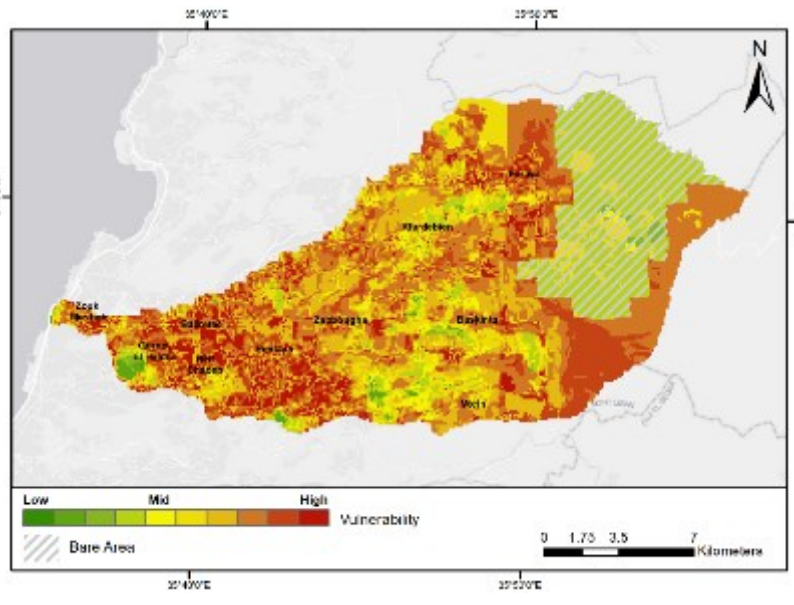
## Reference Period (1995-2014)



## Near term (2021-2040)



## Mid-term (2041-2060)



Climate Impact on Apple Production

Investment Interventions	Estimated Budget	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





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# Thank you

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[www.riccar.org](http://www.riccar.org)