Economic and Social Commission for Western Asia

Inter-generational Effects of Climate Change

Carol Chouchani Cherfane Cluster Lead, Climate Change and Natural Resource Sustainability Cluster 12th Workshop on Voluntary National Reviews in the Arab Region | Online | 3 March 2025







Climate Change across Sustainable Development Commitments

2030 Agenda for Sustainable Development



Take urgent action to combat climate change and its impacts

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2 Integrate climate change measures into national policies, strategies and planning

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

13.a mobilizing finance

13.b capacity building

The Pact for the Future

Climate change is one of the greatest challenges of our time with adverse impacts that are disproportionately felt by developing countries, especially those that are particularly vulnerable to the adverse effects of climate change. We commit to accelerate meeting our obligations under the United Nations Framework Convention on Climate Change and the Paris Agreement.

Climate change, biodiversity loss, desertification and sand and dust storms, pollution and other environmental challenges pose serious risks to our natural environment and our prospects for development.

Declaration on Future Generations

Principle: Urgently address the causes and adverse impacts of climate change

Commitment: affirm the importance of accelerating action to address climate change and its adverse impacts, based on the principle of common but differentiated responsibilities and respective capabilities in the light of different national circumstances, noting the importance for some of the concept of "climate justice"

^{*} Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

WMO confirms 2024 as warmest year on record at about 1.55°C above preindustrial level



Source: https://wmo.int/news/media-centre/wmo-confirms-2024-warmest-year-record-about-155degc-above-pre-industrial-level

Climate Change is happening Today

2024 Change in mean annual temperature (compared to 1991-2020 average)



Source: ESCWA

For Present & Future Generations, Climate Change is not just about the climate

Adaptation

Mitigation

Finance





Q

Shared Prosperity Dignified L MILD NO. DW le finisti ESCWA

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













UN @ environment

giz content

ACCWaM



german

cooperation CENTRONE ZIGNAMERICASET



Mashreg Domain

Request Data

DATA PORTALS

www.riccar.org



Arab Domain



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



Climate scenarios used by in the IPCC AR5 (2014) and the RICCAR Arab Climate Change Assessment Report (2017)



Graph adapted from: Meinshausen et al.,2010

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



Temperature (°C)

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

Average



www.riccar.org





Water Availability Vulnerability

> End-Century RCP 8.5







Water Availability for Crops Vulnerability

End-Century RCP 8.5







Water Availability for People: Agricultural Employment Vulnerability

> End-Century RCP 8.5







IPCC Sixth Assessment Report (AR6, 2021) Climate Scenarios





Figure 2 from: Riahi, K. et al, 2017. The shared socioeconomic pathways and their energy, land use, and greenhouse gas emissions implications: an overview. *Global environmental change*, 42, 153-168.

Mashreq Domain



- Regional climate modeling projections for new Mashreq Domain, well suited for Iraq
- 10 km² grid scale resolution
- 2 scenarios aligned with AR6 Report scenarios:
 - SSP5-RCP8.5 (SSP5-8.5) released in 2022
 - SSP2-RCP4.5 (SSP2-4.5) released in 2023
- Each scenario ensemble includes six projections based on six CMIP6 global climate models through mid-century
- Can inform adaptation interventions, net-zero target, and next round of National Determined Contributions







Mashreq Domain Data Portal





Download About



https://gis.riccar.org

Change in annual temperature (Mashreq Domain)



1993

RICCAR



SSP5-8.5









2041 - 2060





IPCC AR 6: Drought Projection

(d) Drought is exacerbating water management challenges which vary across regions with respect to anticipated water scarcity conditions by 2050.



https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/, p. 75

Change in annual temperature (Iraq averages)

any.

RICCAR





Impact of climate change on groundwater resources in the Dibdibba Aquifer System - Groundwater Modeling

- A calibrated mathematical groundwater model for the period 2015-2017 for Dibdibba Aquifer was used to assess the impact of climate change on the groundwater for the projection period 2018-2070:
 - The results show a <u>decline of the groundwater table</u> over the entire aquifer area by <u>14 m in the northern part</u> reaching up to <u>18 m in the southern part</u>, based on the six climate models applied.



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

Reference Period (1995-2014)





Mid-term (2041-2060)





Climate Impact on Apple Production

				BICHARD
Investment Intervention	Estimated Budget	Estimated Duration		
Enhancing Agriculture Sector Resilience	\$15,750,000	3 years	E E E E E E E E E E E E E E E E E E E	الاسّلوا ESCWA
Improving Industrial Water Use	\$1,470,000	1.5 years	THE LEGGUE OF ARAB STATES	A
Livelihood Diversification through Sustainable Tourism	\$810,000	1.5 years		F
Reforestation and Risk Reduction of Forest Fires	\$1,630,000	3 years		Sweden

Sverige

Decade on Pact for the Sand and Dust Storm Analysis **Combating SDS Future** 2025-2034 Storm detection using Lake Hammar Evaluation of remote sensing environmental factors 04/01/2019 8/01/202 **Contributes to** Sawa Lake discussions on **Extreme Climate Events** 7 Sep 2015

Evaluation of weather phenomena during storm







Ensure access to affordable, reliable, sustainable and modern energy





Mitigation about reducing emission of all Greenhouse Gases, but carbon is a major one





Net Emissions Profile of Arab States



Source: UNFCCC, ESCWA & LAS, Regional Dataset from 2016

Renewable Energy still a small share of total energy consumption in Arab Region, although best source of energy over generations

Figure 5. Total final energy consumption breakdown by source in the Arab region, 2020 (Percentage)



Public Climate Finance Flows to Arab States (2010-2020) Do Not Meet Articulated Needs





https://www.unescwa.org/publications/climate-finance-needs-flows-arab-region

Total climate finance increasing, but mitigation (\$ 31.1 billion) is **2.5 times greater** than flows for adaptation (\$ 12.5 billion), 2010-2022



Source: Compiled by ECWA based on the OECD database entitled "Climate-related development finance at the activity level: Recipient perspective 2000-2022". It includes commitments with climate marked as a <u>principal objective</u> (Rio tag) as well as climate components reported by multilateral development banks. Flows with climate marked as a significant objective are not included. Numbers are in 2022 constant million dollars.

High Levels of **Debt Finance** covering climate action in Arab region



Note: This chart evaluates bilateral and multilateral climate finance flows to the Arab region based on reporting to the OECD, from the recipient 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. The Green Climate Fund reports all flows to the OECD with a "significant" objective and is therefore not included in this graph. Source: Developed by ESCWA based on OECD Climate Finance Data (OECD, 2023).

Forthcoming in ESCWA/IsDB, Mainstreaming Climate Action into National Development Planning in the Arab Region (2024)

Over the period 2010-2021,
loans totalled US\$ 35 billion,
while only US\$ 6 billion in grants
were received

• Climate finance loans exceeded grants by almost 6 times

- Overall debt in Arab region exceeded USD 1.4 trillion in 2020
- Reduces fiscal space available to governments for climate action
- Increasing financial risks due to debt burden



Climate Commitments for Planning Forward based on National Priorities & Needs

Country	Updated/ New NDC	Submission Date	NDC timeframe	
Bahrain	Yes	Oct 2021	Targets set for 2025, 2030 & 2035	
Comoros	Yes	Nov 2021	2021-2030	
Egypt	Yes	Jun 2023	2015-2030	
Iraq	Yes	Oct 2021	Not specified	
Jordan	Yes	Oct 2021	2020-2030	
Kuwait	Yes	Oct 2021	2021-2035	
Lebanon	Yes	Mar 2021	2020-2030	
Mauritania	Yes	Oct 2021	2021-2030	
Morocco	Yes	Jun 2021	2020-2030	
Oman	Updated	Nov 2023	2021-2030	
Palestine	Yes	Oct 2021	Targets for 2030, 2035 & 2040	
Qatar	Yes	Aug 2021	2021 - 2030	
Saudi Arabia	Yes	Oct 2021	2020 - 2030	
Somalia	Yes	July 2021	2021 - 2030	
Sudan	Yes	Sep 2022	2021 - 2030	
Tunisia	Updated	Feb 2025	Not specified	
UAE	Updated	July 2023	2019 - 2030	

17 Arab States submitted an updated/new Nationally Determined Contribution (NDC)

NDC Registry

Important to connect NDCs with VNRs and National Development Planning

Of Arab NCDs:

- All include mitigation targets, with some referencing net zero
- All reference water action for adaptation
- All but 1 examine water as distinct from agriculture
- 2 identify adaptation/mitigation co-benefits in the water sector

An initial or first NDC was submitted by:

Algeria (2016); Djibouti (2016); Libya (in progress);
Syria (2018); Yemen (2015)

Regional Initiatives for Mobilising Climate Finance in the Arab Region

Needs-based Climate Finance Strategy for Arab States

- Technical Annex (2022) informed consultations
- Strategy under review for adoption by CAMRE (2024, tbc)
- 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



www.unescwa.org/debt-swap







Thank you



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www.unescwa.org/acccp www.riccar.org https://gis.riccar.org