Economic and Social Commission for Western Asia

Climate Change and Food Systems in the Arab Region

Climate Change and Natural Resource Sustainability Cluster

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Shared Prosperity Dignified Life

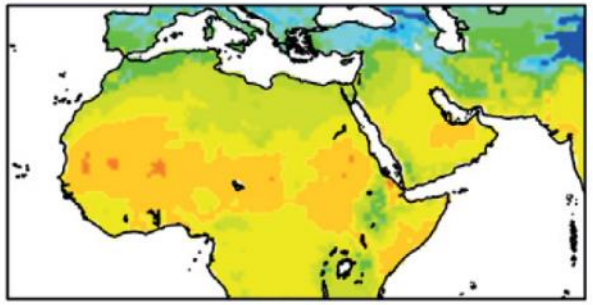
RICCAR

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

Average Mean Annual Temperatures may increase by more than 5° C in Arab States

Reference Period

1986-2005

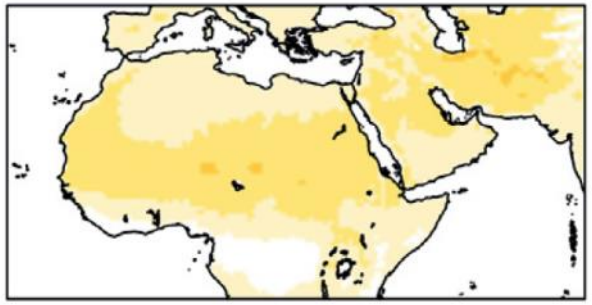


6 12 18 24 30 36

Mean Temperature (°C)

Moderate Scenario (RCP 4.5)

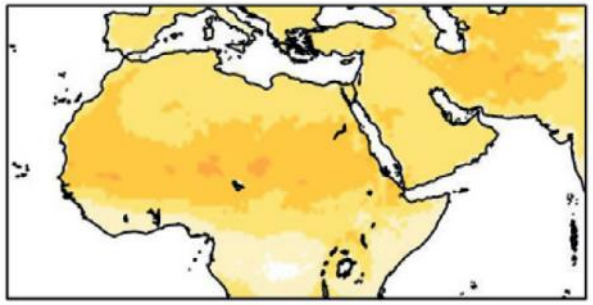
2046-2065



1 2 3 4 5

Change in Temperature (°C)

2081-2100



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Change in Temperature (°C)

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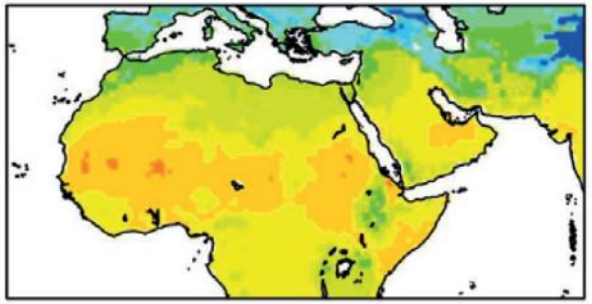

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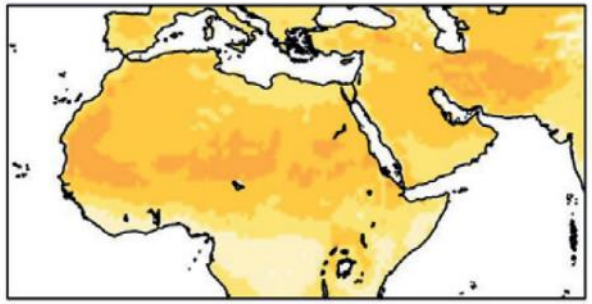
Mean Temperature (°C)

Extreme Scenario (RCP 8.5)

2046-2065



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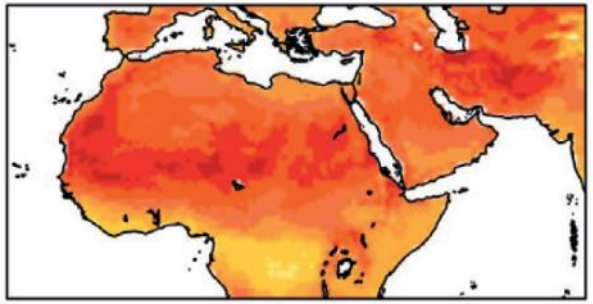
Change in Temperature (°C)

2081-2100



1 2 3 4 5

Change in Temperature (°C)

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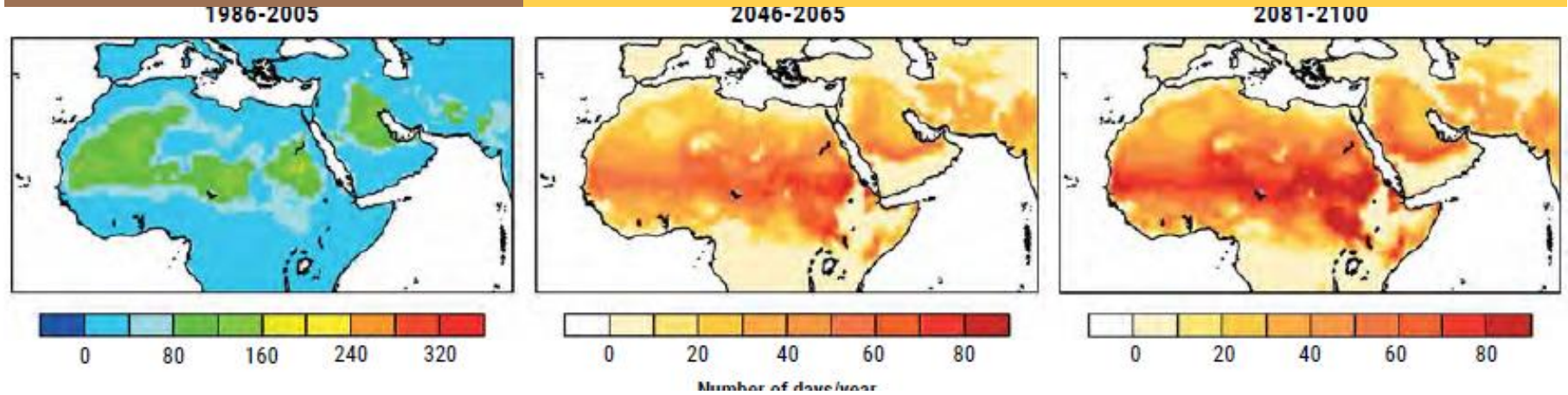
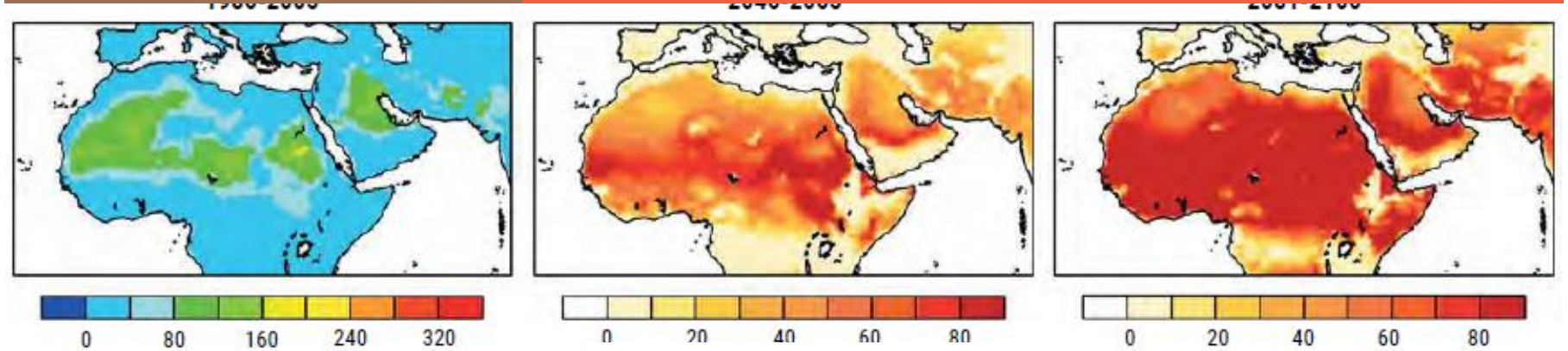
Dramatic increases in the number of "Very Hot Days" > 40°C per year

Reference Period | Moderate Scenario (RCP 4.5)



Increase in Number of Days/year

Reference Period | Extreme Scenario (RCP 8.5)



Increase in Number of Days/year

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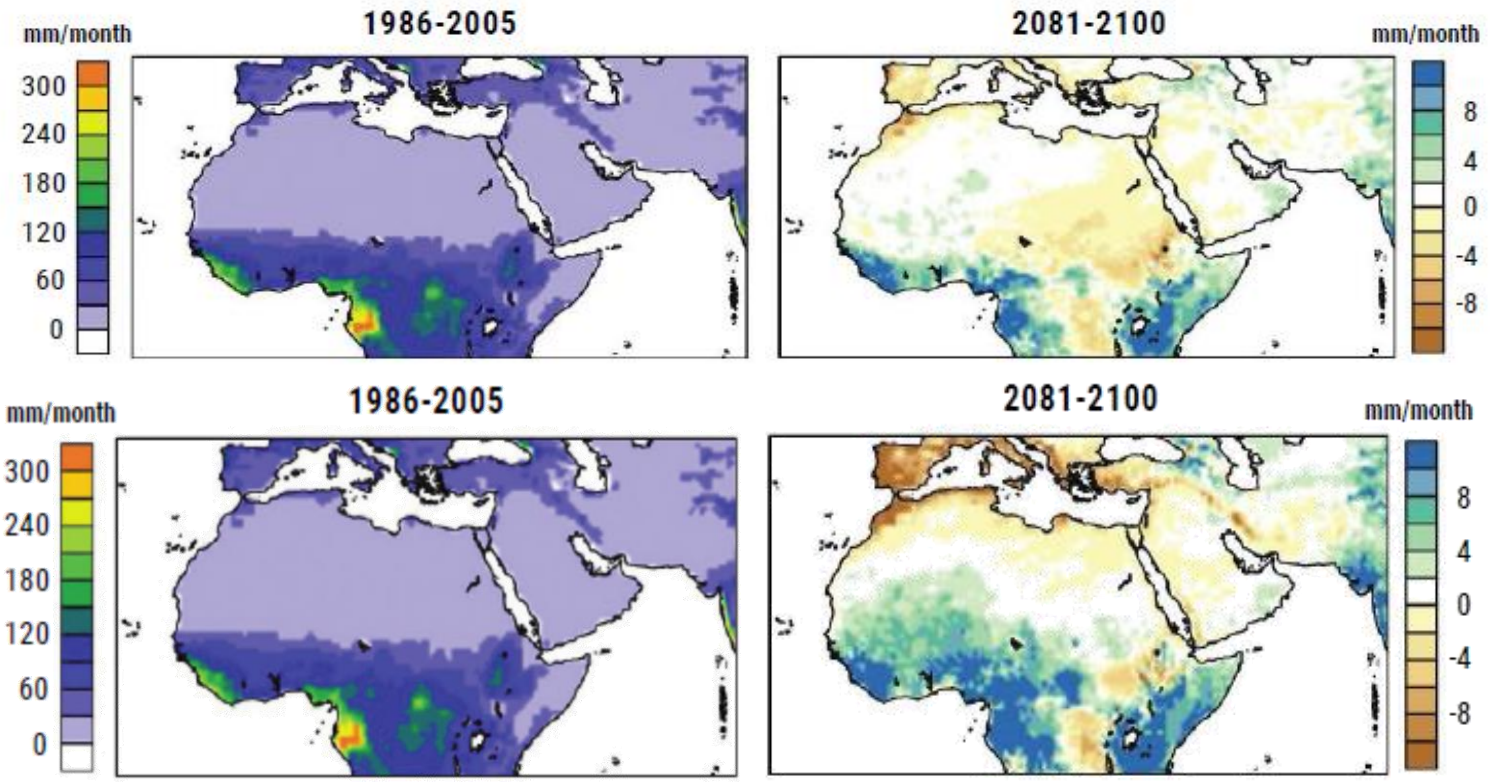
Changes in the average monthly precipitation for end of century



•Both scenarios show a reduction of the average monthly precipitation reaching 8-10 mm in the coastal areas of the domain, mainly around the Atlas Mountains in the West and upper Euphrates and Tigris river basins in the East.

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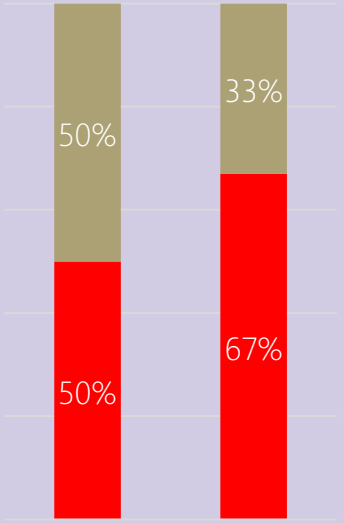
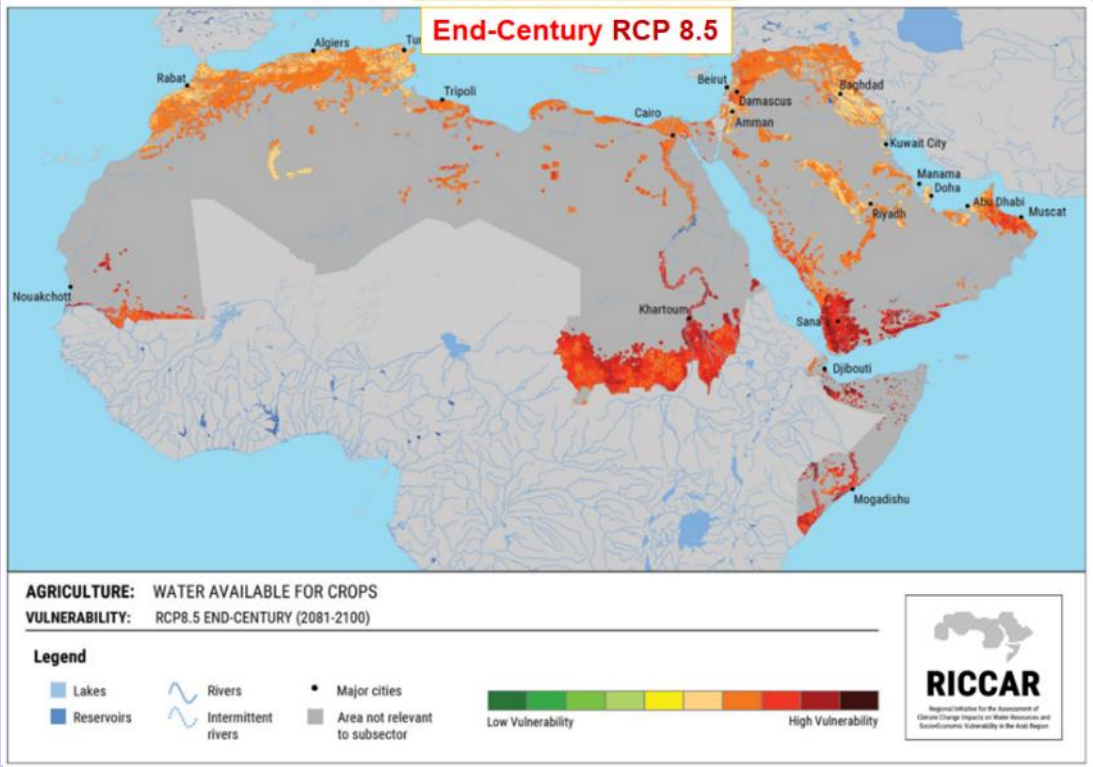
The Agriculture Sector is one of the most vulnerable sectors to climate change in the Arab region

Mid Century
(% Study Area)

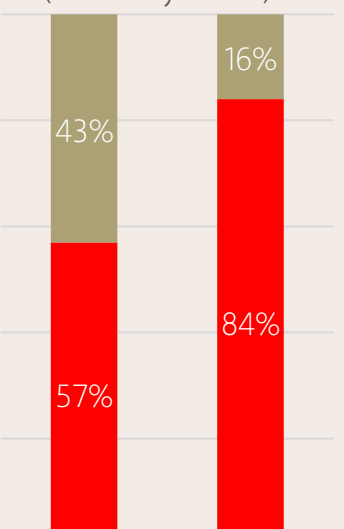


Water Available for Crops: Vulnerability



Up to 84% of Agricultural Land in the Arab Region is Highly Vulnerable to Water Availability under Climate Change

End Century



Food Systems in the Arab region

- Climate change and food systems are deeply interconnected.
- Agriculture generates 19-29% of global greenhouse gas (GHG) emissions and, it is one of the sectors most affected by climate change.
- In the Arab region, fast population growth calls for higher agricultural production, while scarce water and land resources are being used unsustainably and are strongly affected by climate change effects.
- Food systems fail to provide adequate and healthy food for the region's population:
  - 169.5 million people food insecure
  - 54.7 million people undernourished
  - 1 in 3 women suffers from anemia
  - 1 in 5 children suffers from stunting
  - 38% of people can not afford a healthy diet

Transformation towards healthier, resilient, and more sustainable food systems is vital.

Indicator		World	Arab				Trend	Score	Food System Attribute
Code	Description	latest	2010	2015	Latest year		latest vs 2015	Latest	Latest
CORE INDICATORS									
CO1	Undernourishment (R) - %	**9.2**	10.4	n.a.	12.4	2021		0	Outcome: Poor
CO2	Food insecurity (R) - %	**29.6**	n.a.	n.a.	38.1	2021		0	Outcome: Poor
CO3	Obesity (R) - %	**13.1**	24.6	24.9	28.4	2016	🔴	0	Outcome: Poor
CO4	Child stunting (R) - %	**22.3**	23.6	20.5	19.0	2022	🟢	0	Outcome: Poor
AVAILABILITY INDICATORS									
AV1	Yield gap - %	**n.a.**	59.5	52.7	63.7	2021	🟢	3	Sustainability: Poor
AV2	Agriculture expenditure - index	**0.5**	0.2	0.2	0.2	2021	🟡	2	Resilience: Poor
AV3	Dietary energy supply - %	**124.0**	126	128	127	2021	🟡	10	Inclusivity: Strong
AV4	Import dependency (R) - %	**-1.7**	61	55	62	2019	🔴	4	Resilience: Poor
ACCESS INDICATORS									
AC1	Poverty (R) - %	**26.2**	33.0	29.8	33.9	2022	🔴	0	Inclusivity: Poor
AC2	Food expenditure (R) - %	**n.a.**	37.1	n.a.	31.5	2021		7	Inclusivity: Progressing
AC3	Logistics - index	**3.0**	2.6	n.a.	2.7	2022		5	Resilience: Progressing
AC4	Inflation (R) - %	**8.3**	6.8	5.1	17.3	2022	🔴	2	Resilience: Poor
UTILIZATION INDICATORS									
UT1	Water &/or sanitation access - %	**84.0**	n.a.	n.a.	64.2	2022		6	Inclusivity: Progressing
UT2	Starchy food (R) - %	**51.0**	47.7	56.8	56.7	2019	🟡	4	Inclusivity: Poor
UT3	Healthy diet (R) - %	**42.2**	n.a.	n.a.	38.1	2021		0	Inclusivity: Poor
UT4	Women anaemia (R) - %	**29.9**	34.0	33.0	33.3	2019	🟡	0	Inclusivity: Poor
STABILITY INDICATORS									
ST1	Food stock - (1000t)	**50016.0**	-260.1	306.9	-1850.2	2021	🔴	0	Resilience: Poor
ST2	Political stability - ranking	**n.a.**	20.0	16.9	15.8	2021	🔴	2	Resilience: Poor
ST3	Production variability (R) - 1000 International $/capita	**2.6**	13.9	10.0	13.2	2020	🔴	9	Resilience: Strong
ST4	Supply variability (R) - kcal/cap/day	**3.0**	33.3	49.5	36.6	2021	🟢	8	Resilience: Strong
AGENCY INDICATORS									
AG1	Income inequality (R) - ratio	**6.5**	3.8	3.8	3.7	2021	🟡	4	Inclusivity: Poor
AG2	Gender inequality (R) -index	**0.5**	0.5	0.5	0.5	2021	🟡	1	Inclusivity: Poor
AG3	Education inequality (R) - %	**21.7**	25.8	27.6	33.3	2021	🔴	2	Inclusivity: Poor
AG4	Voice & accountability - ranking	**n.a.**	14.8	16.5	14.6	2021	🔴	1	Inclusivity: Poor
SUSTAINABILITY INDICATORS									
SU1	Agriculture water (%) (R)	**n.a.**	173.9	223.3	217.3	2020	🟡	0	Sustainability: Poor
SU2	Land cover - index	**100.0**	80.6	100.0	101.2	2020	🟡	10	Sustainability: Strong
SU3	Agroecological footprint (R) - bio ha	**2.6**	2.4	2.6	2.2	2022	🟢	6	Sustainability: Progressing
SU4	Food waste (R) - kg/cap/yr	**121.0**	n.a.	n.a.	141.2	2021		0	Sustainability: Poor

(R) = Reversed

n.a. = Not Available

🟢 Green: positive trend
🟡 Yellow: neutral trend
🔴 Red: negative

The way forward……

- Identification of key entry points for joint food systems-climate action (investing in rainfed agriculture, tackling food waste, linking climate models to crop management models, projecting crop productivity and cropping patterns in national planning, etc.)
- From food security to a **food systems perspective**.
- Higher coherence among policies and plans (notably food systems transformation and NDCs, NAPs, and others).
- Multi-level cooperation is necessary, including national stakeholders, different countries, and regions.
- Enhance the use of data, particularly of climate projections, in policymaking (i.e. science-policy interface).
- ……..

Thank you!

Arab Center for Climate Change Policies
Climate Change & Natural Resources Sustainability Cluster
ESCWA