Assessing Climate Change Impacts on Freshwater Resources through the RICCAR Initiative

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### Freshwater Scarcity in the Arab Region

<table>
<thead>
<tr>
<th>Water Category</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water self-sufficiency &gt;1,700 m³/person/year (Mauritania)</td>
<td>4,540,068</td>
</tr>
<tr>
<td>Water stress 1,000-1,700 m³/person/year (Comoros, Iraq, Somalia)</td>
<td>55,354,025</td>
</tr>
<tr>
<td>Water scarcity 500-1,000 m³/person/year (Egypt, Lebanon, Morocco, the Syrian Arab Republic, the Sudan)</td>
<td>201,456,988</td>
</tr>
<tr>
<td>Water absolute scarcity &lt;500 m³/person/year (Algeria, Bahrain, Jordan, Kuwait, Libya, Oman, the State of Palestine, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates, Yemen)</td>
<td>160,394,220</td>
</tr>
</tbody>
</table>

86% of the population in the Arab Region is affected by freshwater scarcity.
Temperature in the Arab region is increasing and is expected to continue to increase until the end of the century.

**RCP 4.5**

**Moderate Scenario**

1986-2005

2046-2065

2081-2100

**RCP 8.5**

**Extreme Scenario**

1986-2005

2046-2065

2081-2100
Water Availability Vulnerability

RCP 4.5

2046-2065

2081-2100

RCP 8.5

2046-2065

2081-2100
Climate Impacts on Shared Water Resources

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Subdomain Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH</td>
<td>Ethiopian Highlands (Blue Nile Headwaters)</td>
</tr>
<tr>
<td>TU</td>
<td>Upper Tigris (Tigris River Headwaters)</td>
</tr>
<tr>
<td>EU</td>
<td>Upper Euphrates (Euphrates River Headwaters)</td>
</tr>
<tr>
<td>MR</td>
<td>Medjerda River</td>
</tr>
<tr>
<td>JR</td>
<td>Jordan River</td>
</tr>
<tr>
<td>SR</td>
<td>Senegal River Headwaters</td>
</tr>
</tbody>
</table>

### Euphrates River

(1986-2005) : (2081-2100)

<table>
<thead>
<tr>
<th>Variable</th>
<th>RCP4.5</th>
<th>RCP8.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp.</td>
<td>2.3 °C</td>
<td>4.8 °C</td>
</tr>
<tr>
<td>Precip.</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Runoff</td>
<td>-2%</td>
<td>-12%</td>
</tr>
</tbody>
</table>
Livelihoods & Food Security are being dramatically affected by climate change – and regional vulnerability is increasing.

Water Available for Crops: Vulnerability

Under the extreme scenario 84% of croplands project high vulnerability by end century.
Regional Knowledge Hub (RKH)

WEBSITE

- Provides access to all RICCAR reports and technical materials prepared by the implementing partners;
- Informs on training tools, activities and events;
- Offers assistance tools for submitting inquires and requests for support.

Launched in June 2018
www.riccar.org

DATA PORTAL

- Visualization of RICCAR maps;
- Access to RICCAR data repository;
- Search functionality and research tools for generating maps, downloading datasets, and exporting outputs in different formats;
- Links to other databases through a common platform.

Launched in April 2019
https://rkh.apps.fao.org/home/
RICCAR findings used to inform:


- **Lebanon – Ministry of Environment**: Lebanon’s Third National Communication to the UNFCCC submitted in 2016.

- **Lebanon / Tunisia / Sudan – Ministries of Agriculture**: Using RICCAR data and integrated vulnerability assessment tools for assessing climate change impacts on water resources and agricultural sector.


- **Basin-level analyses**: The Collaborative Programme on the Euphrates and Tigris builds on RICCAR’s regional climate modelling and hydrological modelling outputs to support more detailed analyses at the basin level.

- **Egypt (MWRI), Kuwait (KISR), Morocco (groundwater)**: Using RICCAR modelling outputs to inform national/sub-national studies.
The Arab Centre for Climate Change Policies (ACCCP) was established pursuant to resolution 329 (XXX) adopted at the 30th ESCWA Ministerial Session (Beirut, 28 June 2018)

The ACCCP aims to strengthen the capacity of Arab States to better understand and address the implications of climate change for sustainable development in the Arab region.
Thank you!

www.unescwa.org
www.unescwa.org/our-work/climate-change
www.riccar.org