The Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR)

**Establishing an Arab Domain under CORDEX**

The Coordinated Regional Climate Downscaling Experiment (CORDEX) is a World Climate Research Program (WCRP) initiative that supports research on climate change projections conducted at the Arab regional level. This effort was led by SMHI in consultation with other RICCAR partners.

For more information, see:

**Vulnerability Assessment Working Group**

The VA-WG is tasked with supporting the development and preparation of the vulnerability assessment component of the RICCAR integrated assessment. The working group is comprised of 10 experts representing:
- Arab Governments: Egypt (Vice-Chair), Libya, Palestine, Tunisia
- UN organizations: ESCWA (Secretary), UNISDR, United Nations University (UNU-INWEH)
- LAS organizations and Arab research centres: ACSAD, Centre for Environment (CECCR) – Saudi Arabia, Arab University of Science and Technology (AUB)/AWARENET, Arabian Gulf University (AGU), and the League of Arab States
- Global and regional expert institutions: GIZ, International Center for Biosaline Agriculture (ICBA), University of Alexandria

**Regional Knowledge Hub Working Group**

The RKH-WG is tasked with preparing the terms of reference of the regional knowledge hub and defining the selection criteria for identifying a host institution. The working group is comprised of 10 experts representing:
- Arab Governments: Lebanon, Palestine, Yemen
- UN organizations: ESCWA (Secretary), UNEP/ROWA (Chair), UNESCO/Cairo Office, World Health Organization
- LAS organizations and Arab research centres: ACSAD, the American University of Beirut (AUB)/AWARENET, Arabian Gulf University (AGU), and the League of Arab States
- Global expert institution: GIZ

**Adaptation to Climate Change in the Water Sector in the MENA Region**

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) programme entitled “Adaptation to Climate Change in the Water Sector in the MENA Region (RICCAR)” is implemented in partnership with the League of Arab States, ACSAD and ESCWA with funding provided by the Federal Ministry for Economic Cooperation and Development of Germany (BMZ). Under this programme, GIZ is supporting RICCAR in the development of the:
- Regional knowledge hub
- Vulnerability assessment component of the integrated assessment
- Integrated assessment mapping tool for identifying and illustrating vulnerability hotspots

Two working groups were established at the fourth RICCAR Expert Group Meeting held in July 2012 to support the implementation of these activities. The working groups are financially and technically supported by GIZ through an implementation agreement with ESCWA and a contract with adelphi consult GmbH.

For more information, visit the RICCAR website: www.escwa.un.org/RICCAR

Contributing Research Institutes

- • Climate Service Center – Germany
- • King Abdullah University Center of Excellence for Climate Change Research (ACCWaM) – Saudi Arabia
- • King Abdulaziz University Center of Excellence for Climate Change Research (CECCR) – Saudi Arabia
- • King Abdullah University of Science and Technology (KAUST) – Saudi Arabia

**RICCAR Partners**

- ESCWA
- UNISDR
- UNEP
- WMO
- ACSAD
- GIZ
- UNSD
- giz

**Regional Initiative Partners**

- • Arab Integrated Water Resources Management Network (AWARENET)
- • AWARENET members are providing technical expertise to support the impact assessment and vulnerability assessment components of the regional initiative.

**For more information, visit the RICCAR website:** www.escwa.un.org/riccar

**For more information, see:**
- • Establishing an Arab Domain under CORDEX
- • Adaptation to Climate Change in the Water Sector in the MENA Region

**Vulnerability in the Arab Region**

Water Resources and Socio-Economic Impact of Climate Change on the Arab Region and Europe (RICCAR)

Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR)
Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR)

RICCAR is a collaborative regional initiative that assesses the impact of climate change on freshwater resources in the Arab Region through a consultative and integrated approach, identifying the socio-economic and environmental vulnerability caused by climate change on water resources in the Arab Region.

Mandate
Arab Countries called for the preparation of the assessment through various declarations and resolutions upon which United Nations-League of Arab States (UN-LAS) coordination is based.

Objectives
- To assess the impact of climate change on freshwater resources through an integrated regional initiative that seeks to identify socio-economic and environmental vulnerability caused by the impact of climate change on water resources based on regional specificities.

The outcomes of the assessment aim to provide a common platform for addressing and responding to climate change impacts on water resources in the Arab Region by serving as the basis for dialogue, priority setting and policy formulation on climate change adaptation at the regional and national levels.

Integrated Assessment Pathways
- Selecting Representative Concentration Pathways (RCPs) and reviewing available Global Climate Models (GCMs) and climate data.
- Implementing an ensemble of Regional Climate Models (RCMs) over an Arab Domain for the dynamic downscaling climate projections.
- Interfacing Regional Hydrological Models (RHM) with RCM outputs to analyze climate change impacts on water resources.
- Selecting an socio-economic and environmental Vulnerability Assessment (VA) based on impact assessment findings.
- Preventing an Integrated Mapping (IM) display of the findings to facilitate regional policy analysis and dialogue.

Integrated Assessment Methodology
- The methodology combines climate change impact assessment and vulnerability assessment tools. The five stages of analysis include:
  1. Defining an integrated regional initiative that seeks to identify socio-economic and environmental vulnerability caused by the impact of climate change on water resources.
  2. Selecting Representative Concentration Pathways (RCPs) and reviewing available Global Climate Models (GCMs) and climate data.
  3. Implementing an ensemble of Regional Climate Models (RCMs) over an Arab Domain for the dynamic downscaling climate projections.
  4. Interfacing Regional Hydrological Models (RHM) with RCM outputs to analyze climate change impacts on water resources.
  5. Selecting an socio-economic and environmental Vulnerability Assessment (VA) based on impact assessment findings.
  6. Preventing an Integrated Mapping (IM) display of the findings to facilitate regional policy analysis and dialogue.

The project is an integral part of RICCAR and is implemented by the following partners:
- National Water Ministries (LAW) - Arab Central for the Studies of Arid Zones and Dry Lands (ACSAD) - The Arab Countries for Climate Change Adaptation by Applying Integrated Water Resources Management Tools (ACAWIRT)
- United Nations Economic and Social Commission for Western Asia (ESCWA)

Project Partners
- National Water Ministries (LAW)
- Arab Central for the Studies of Arid Zones and Dry Lands (ACSAD)
- The Arab Countries for Climate Change Adaptation by Applying Integrated Water Resources Management Tools (ACAWIRT)
- United Nations Economic and Social Commission for Western Asia (ESCWA)
- United Nations Office for Disaster Risk Reduction (UNISDR)
- Mediterranean Marine Environment Protection Organization (GRECO)
- ESCWA, UNEP/ROWA, WHO)
- FAO
- Friday the 13th – an NGO that focuses on examining water use and availability in the agricultural sector in light of different pressures, including climate change.

Linking Assessment to Adaptation
RICCAR is informing other efforts aimed at improving regional capacity for climate change adaptation and mitigation. These include the following:
- United Nations Development Account project “Developing the Capacities of the Arab Countries for Climate Change Adaptation by Applying Integrated Water Resources Management Tools” that is preparing a climate change adaptation framework for the Arab Countries (ACAWIRT).
- United Nations Economic and Social Commission for Western Asia (ESCWA), UNEP/ROWA, WHO)
- FAO
- Friday the 13th – an NGO that focuses on examining water use and availability in the agricultural sector in light of different pressures, including climate change.

Funding for this four-year project is provided by SIDA and through in-kind contributions by the project partners.