


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

Workshop on Applying the Climate Change Vulnerability Assessment
Methodology in the Arab Region
11 May 2014 – Beirut, Lebanon

*Carol Chouchani Cherfane, Secretary, RICCAR Vulnerability Assessment Working Group;
Chief, Water Resources Section, ESCWA*

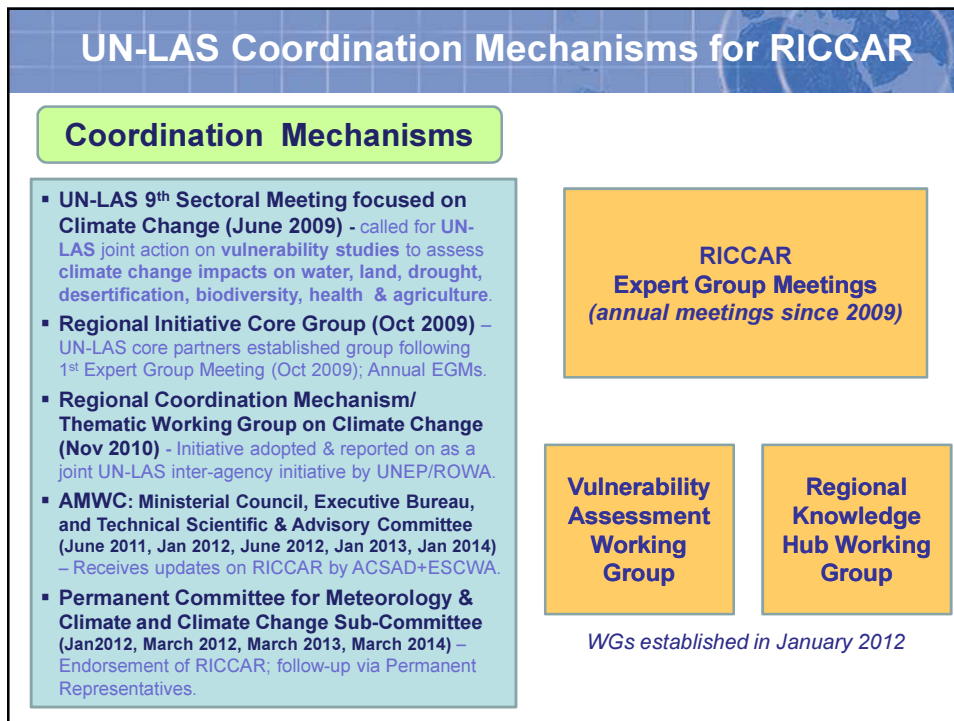
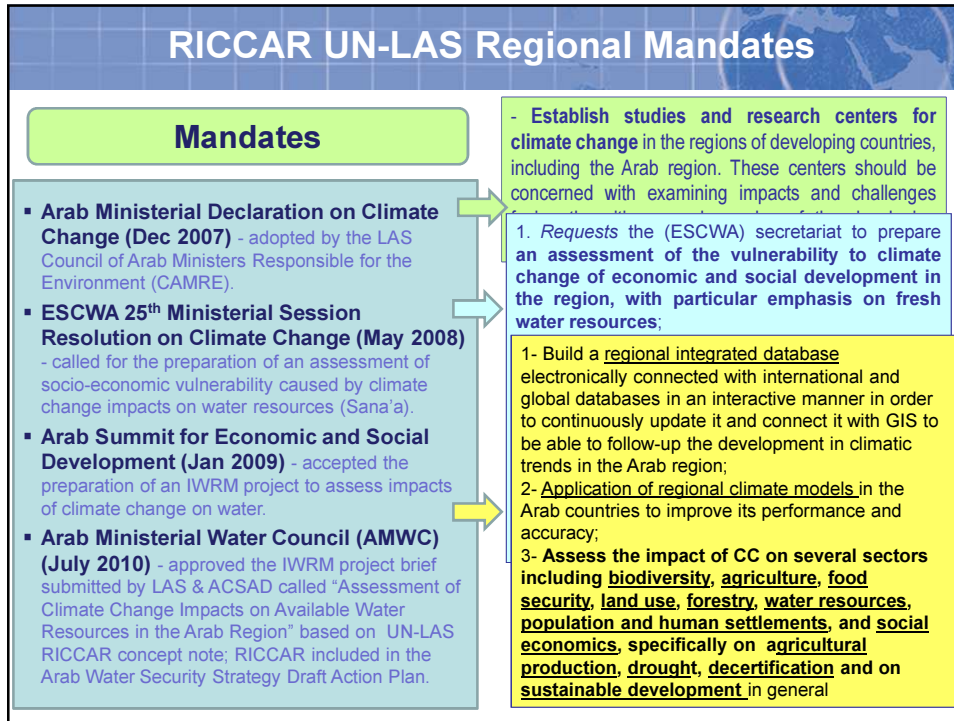


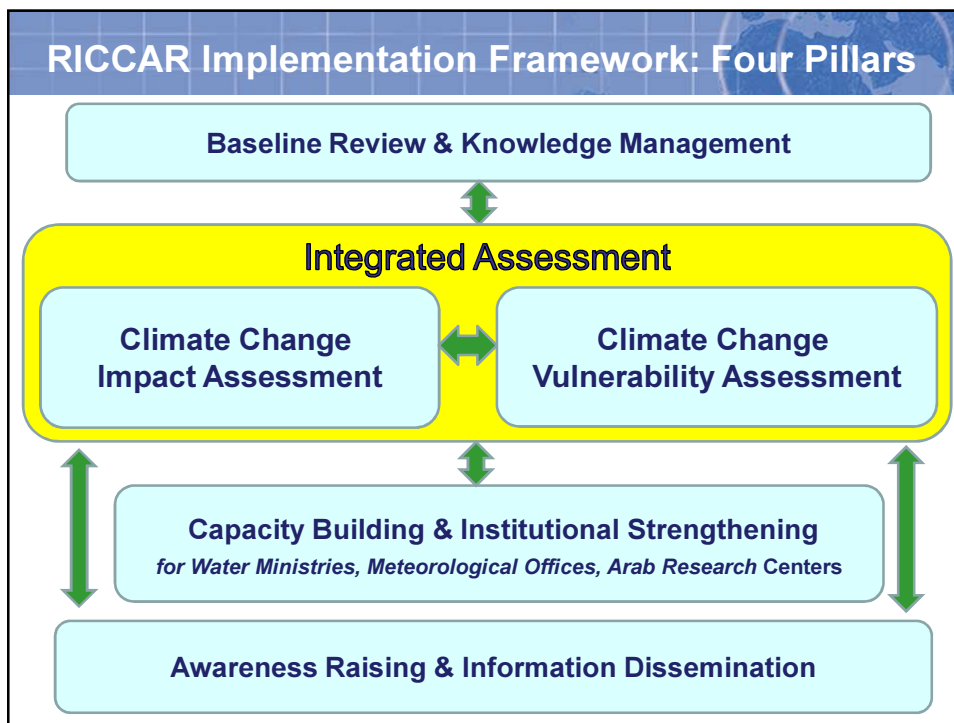
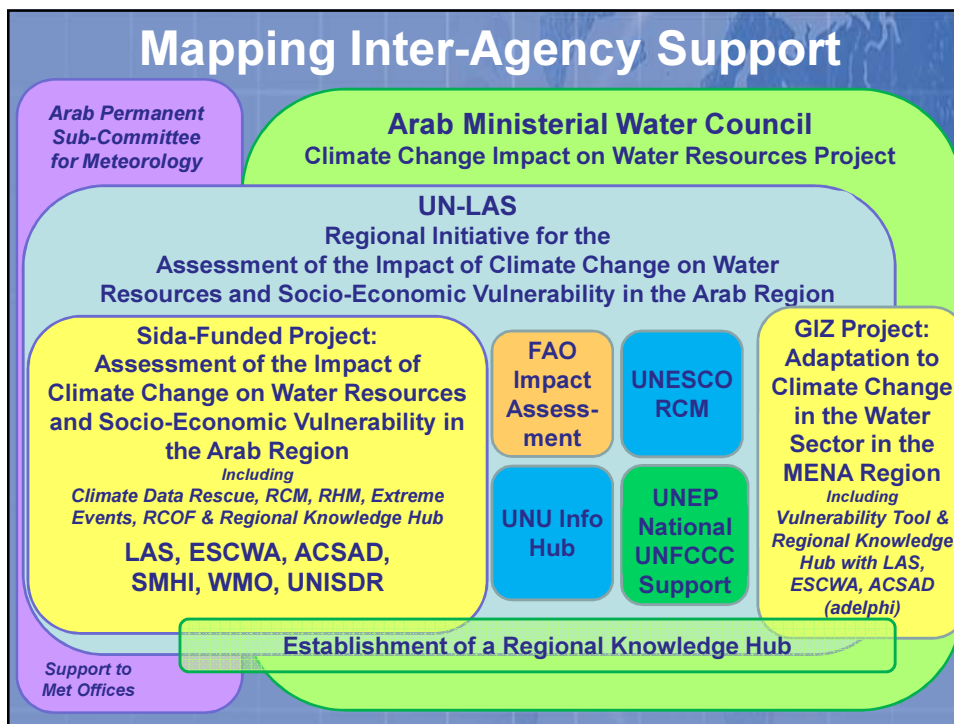
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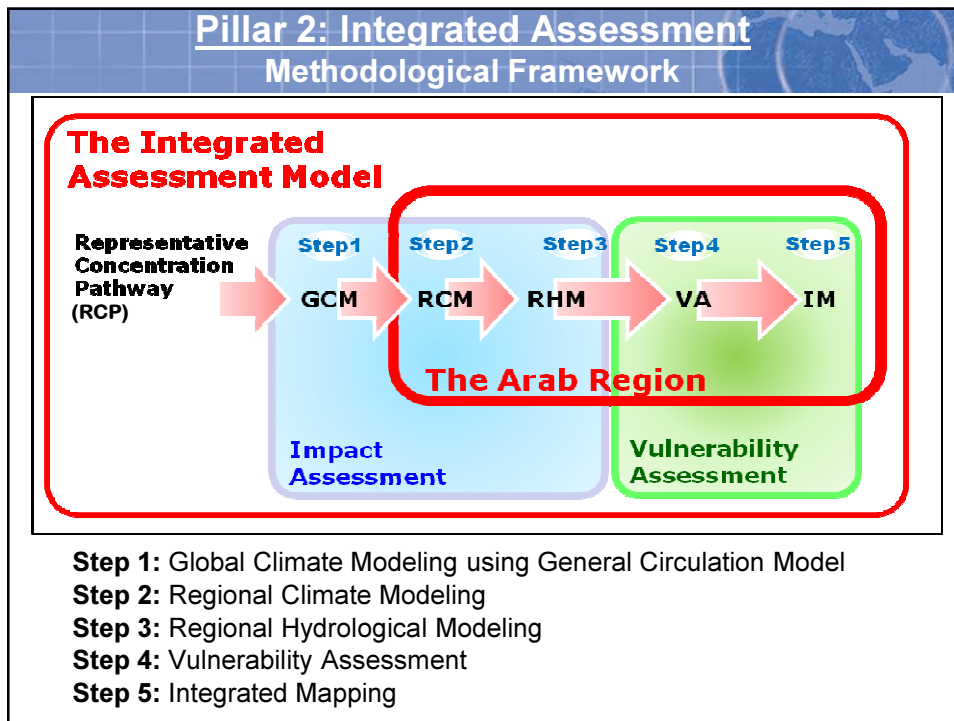
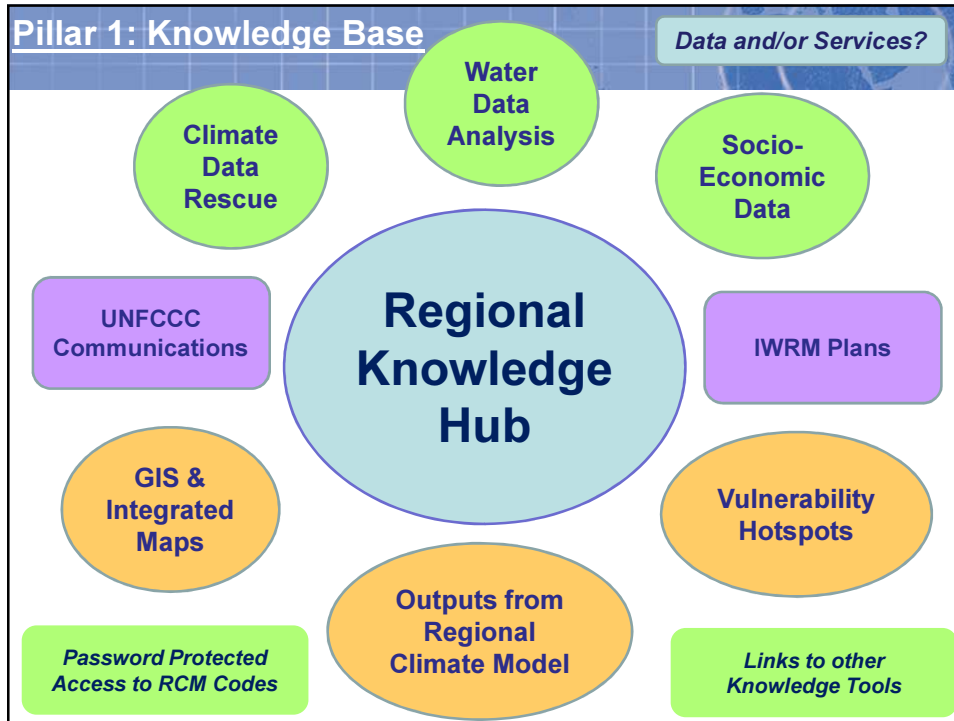
Objective

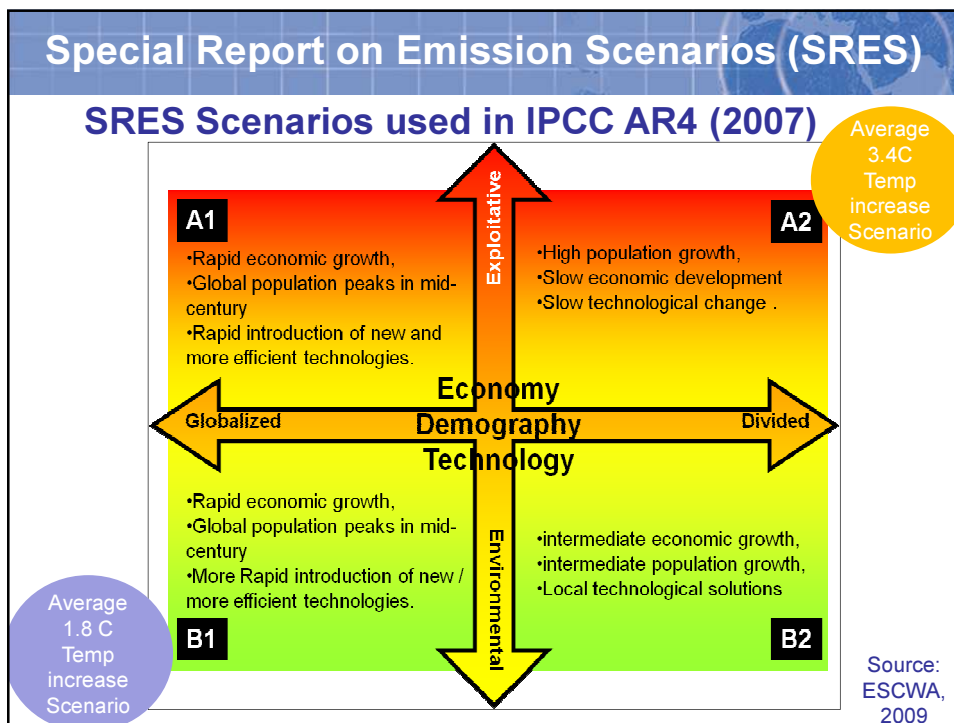
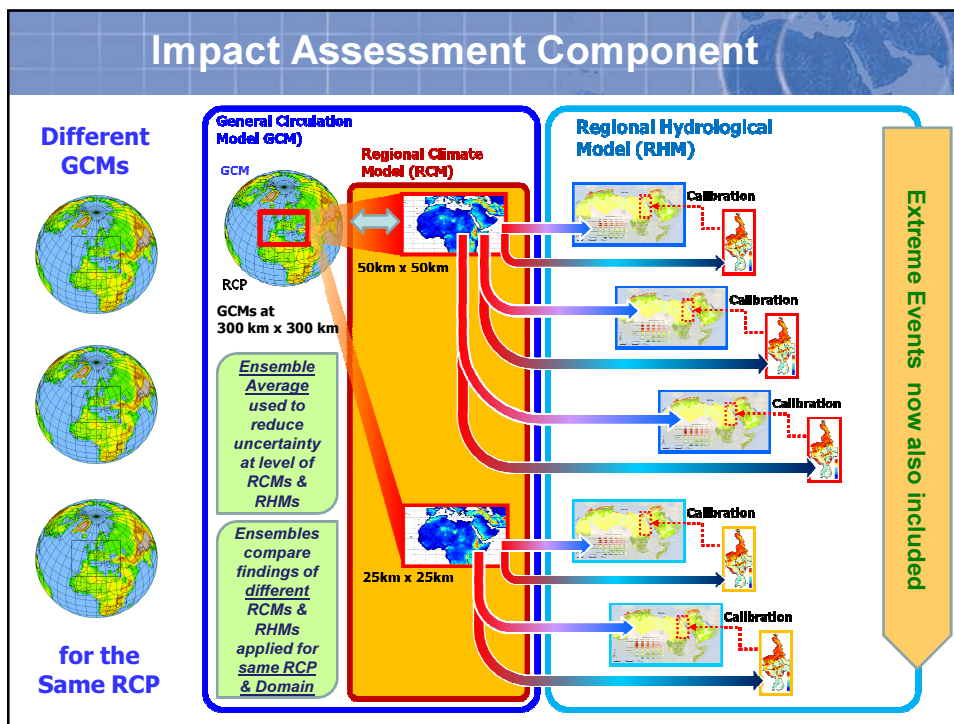
- **To assess the impact of climate change on freshwater resources in the Arab Region through a consultative and integrated regional initiative that seeks to identify the socio-economic and environmental vulnerability caused by climate change impacts on water resources based on regional specificities.**

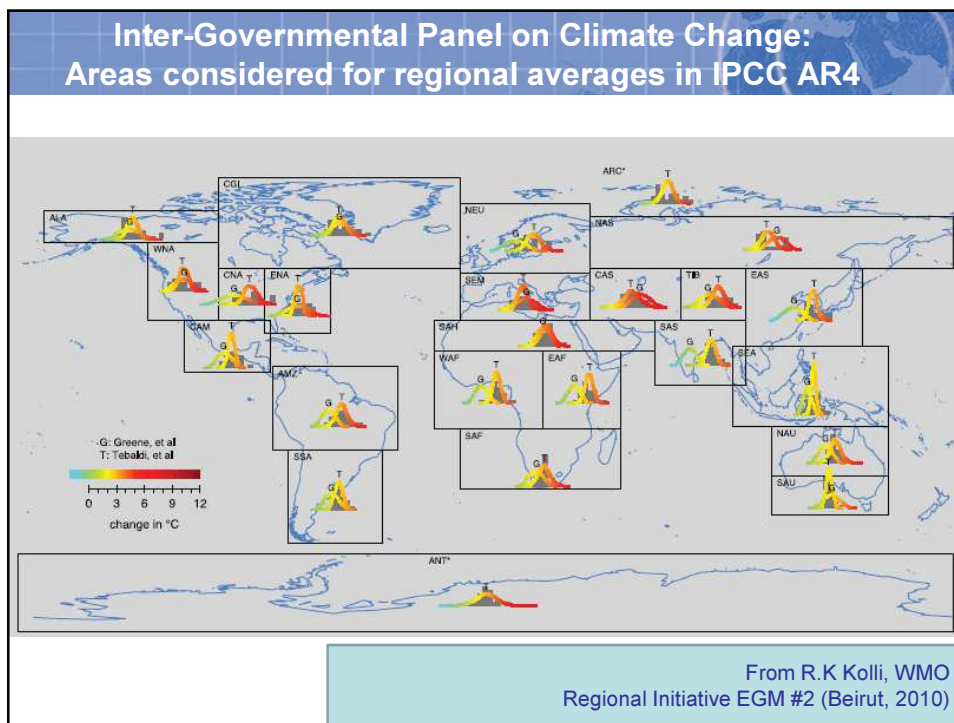
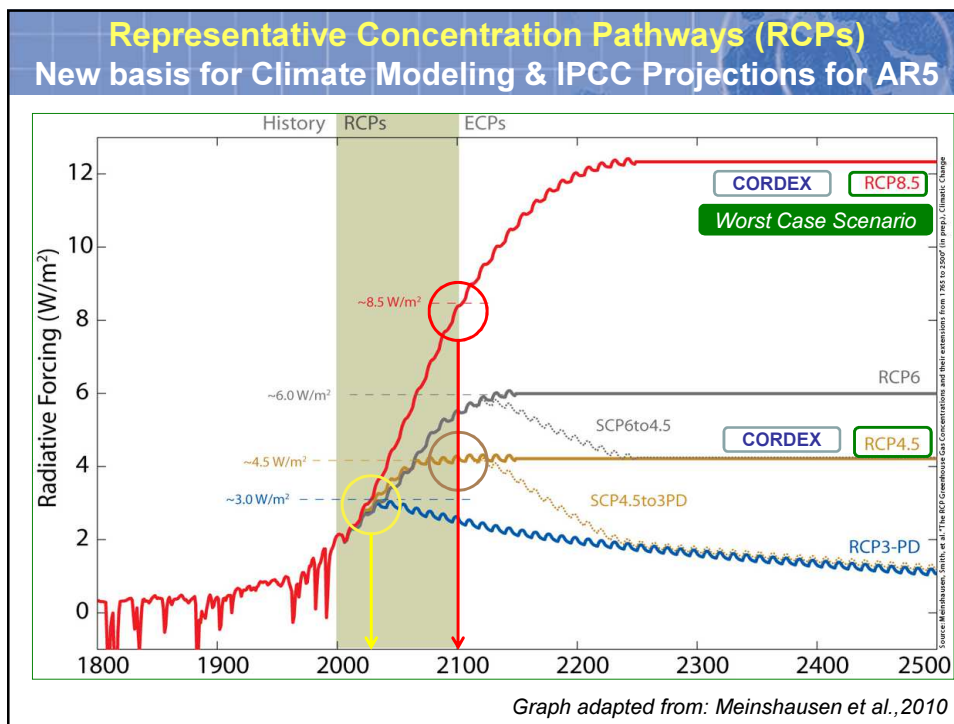
*The Regional Initiative aims to provide a **common platform** for addressing and responding to climate change impacts on freshwater resources in the Arab region by serving as the basis for **dialogue, priority setting and policy formulation on climate change adaptation at the regional level.***

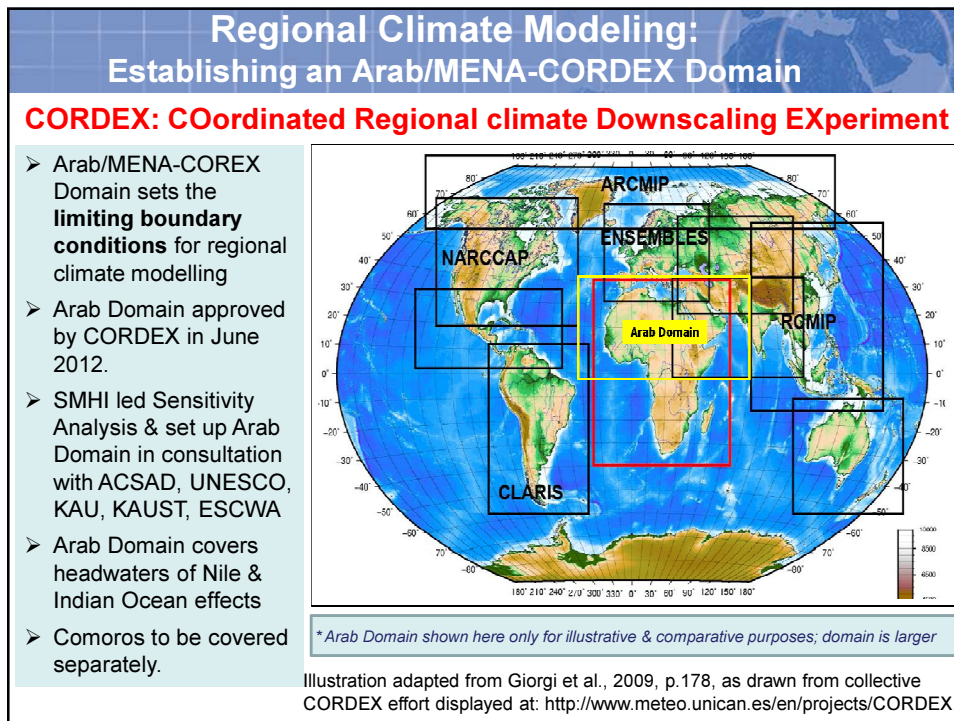
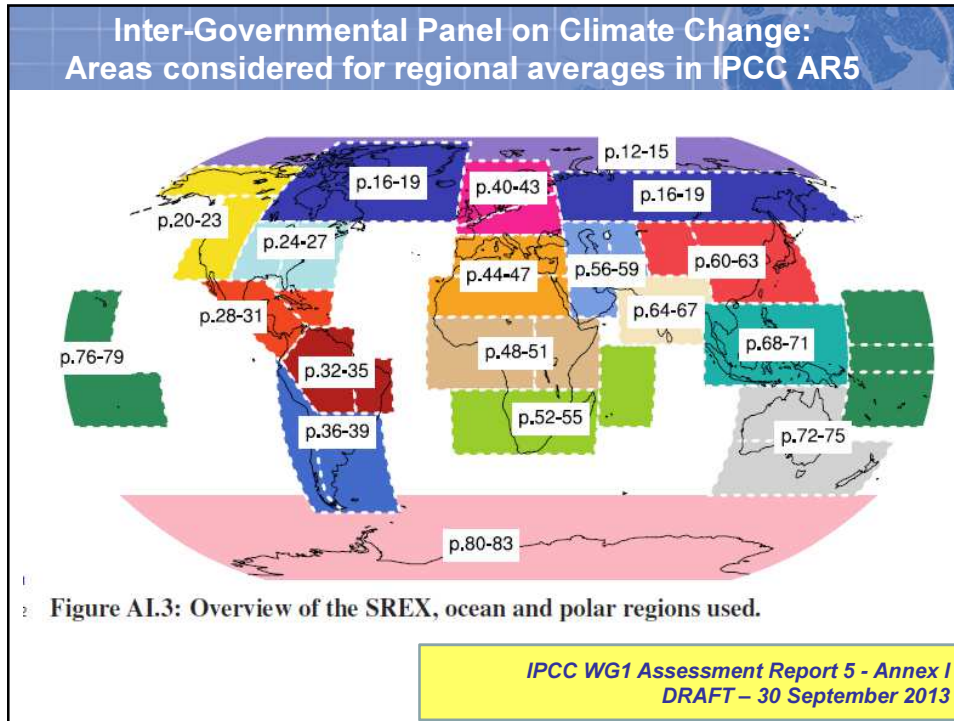


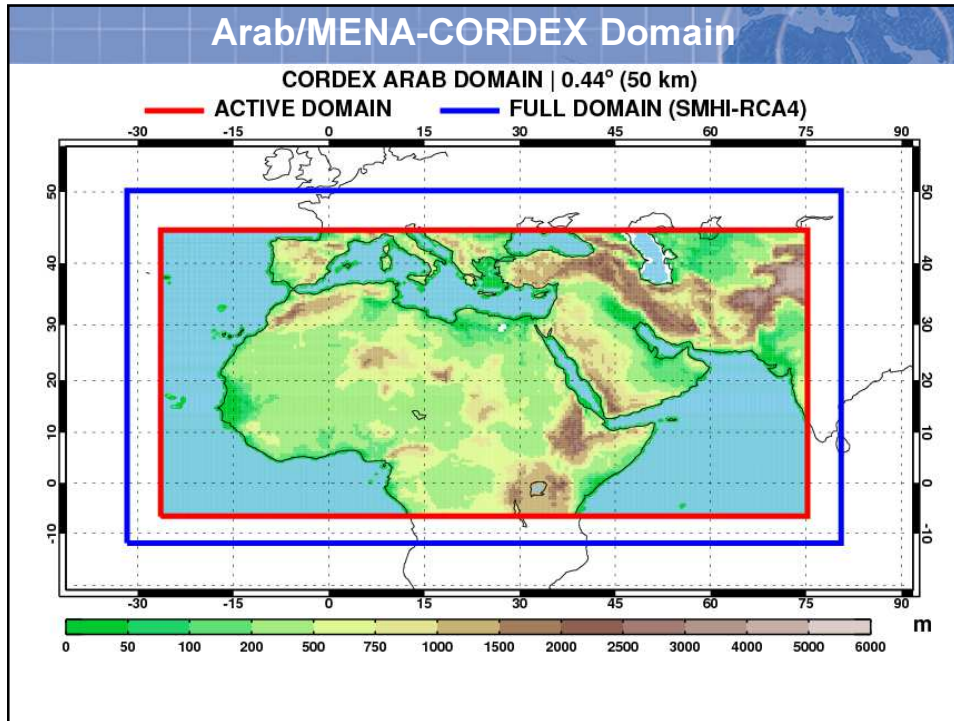












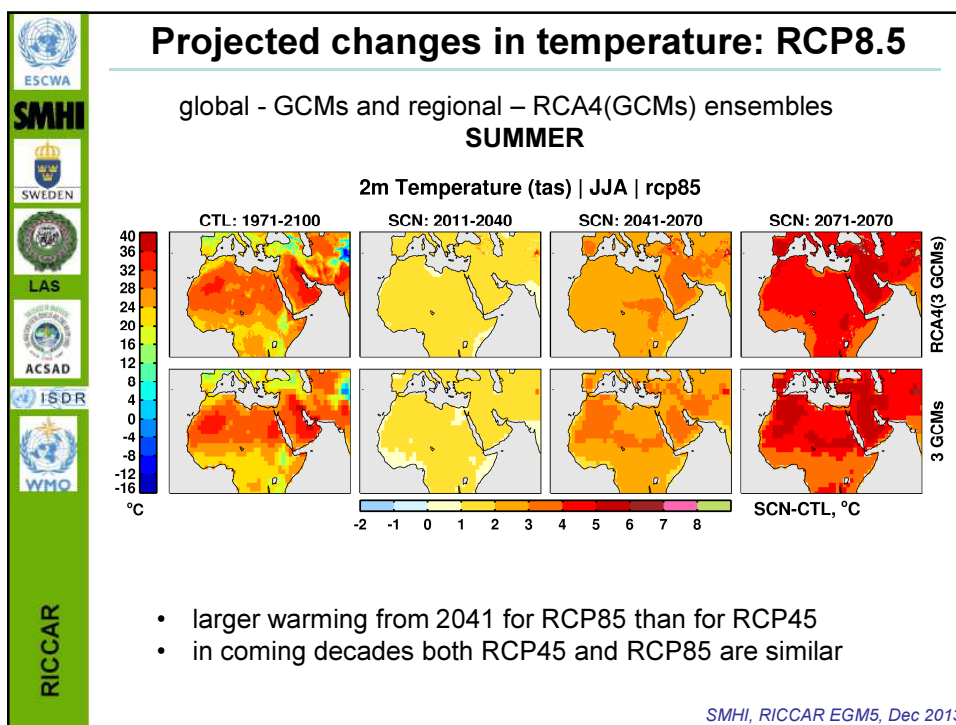
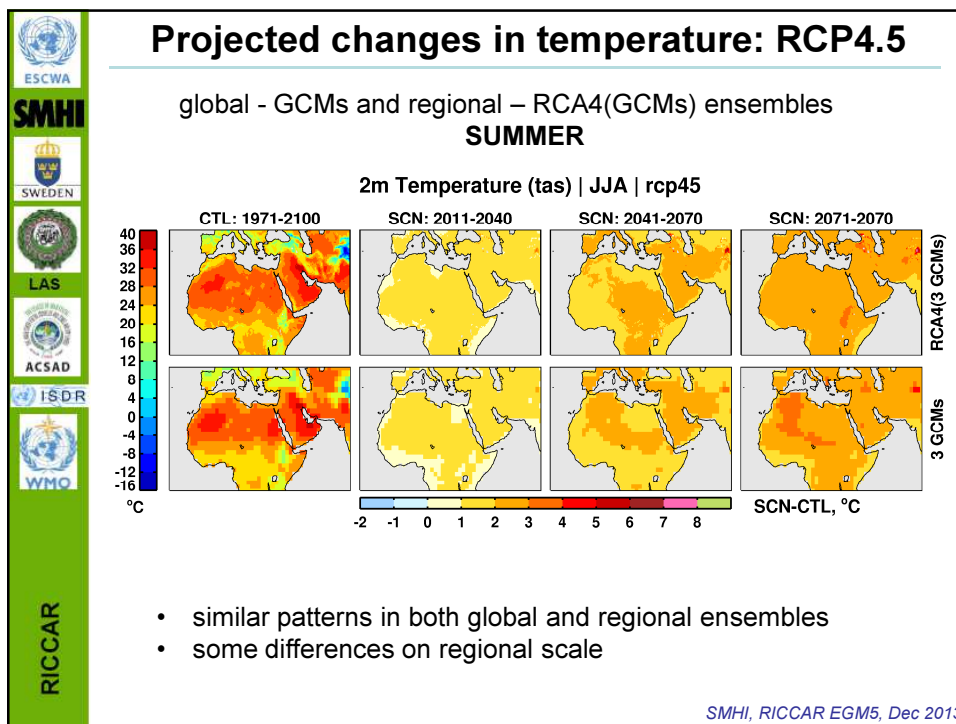
CORDEX-MENA/Arab Ensemble Matrix

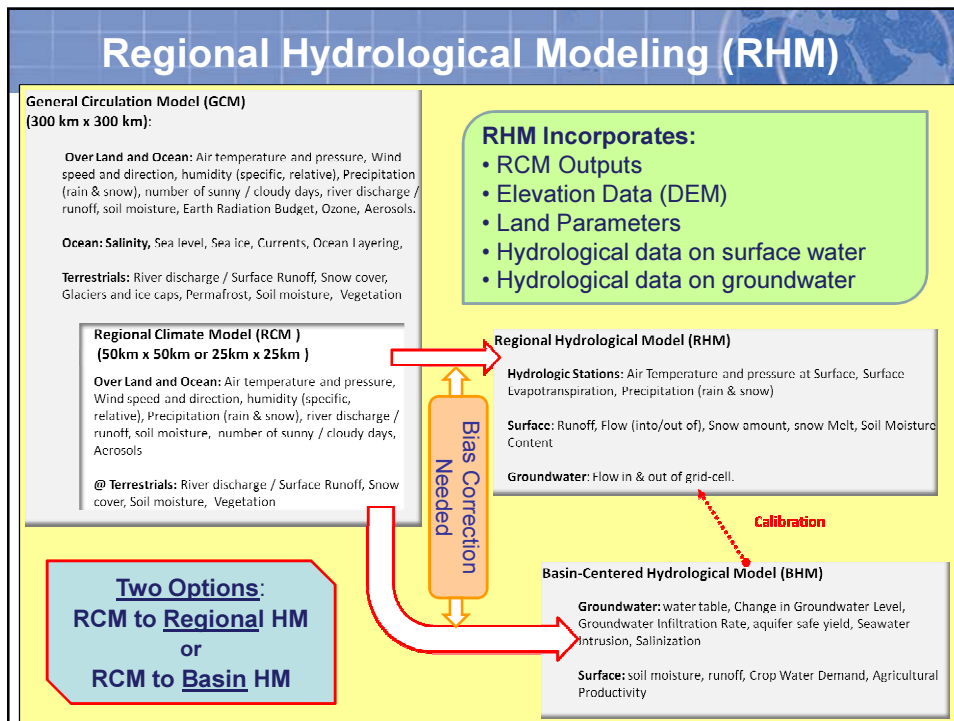
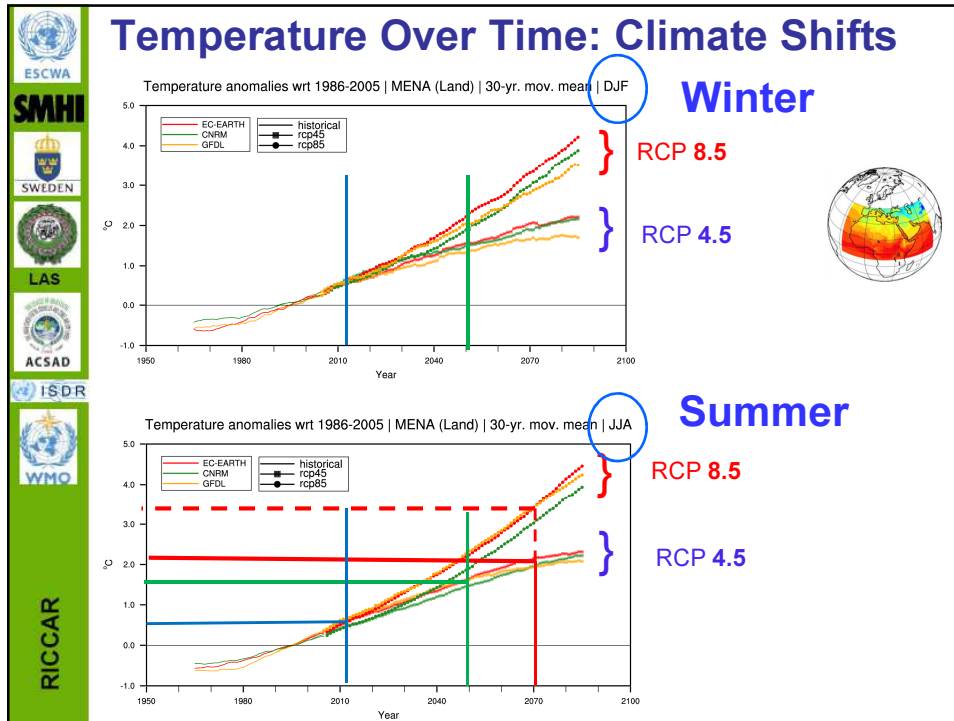
RCM (Institute)	GCM	Historical 1950-2005	RCP2.6 2006-2100	RCP4.5 2006-2100	RCP8.5 2006-2100
RCA4 (SMHI)	EC-Earth 50km	✓	✓	✓	✓
RCA4 (SMHI)	EC-Earth 25km	✓			✓
RCA4 (SMHI)	CNRM 50km	✓		✓	✓
RCA4 (SMHI)	GFDL-ESM 50km	✓		✓	✓
RCA4 (SMHI)	GFDL-ESM 25km	✓			✓
na (Kaust)	GFDL-ESM-1 25km	✓		✓	✓
na (Kaust)	GFDL-ESM-2 25km	✓		✓	✓
Remo (CSC)	MPI-ESM 50km	✓		✓	✓
RegCM4 (Kau)	HadGEM2 50km	✓		✓	✓
RegCM4 (Kau)	MPI-ESM 50km	✓		✓	✓
RegCM4 (Kau)	GFDL-ESM 50km	✓		✓	✓

✓ Completed
 ✓ Running
 ✓ Planned

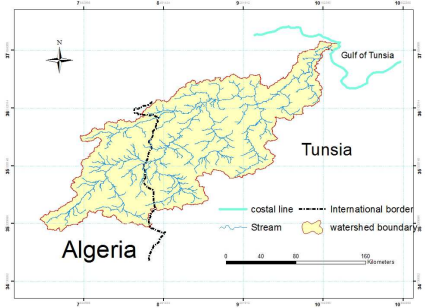
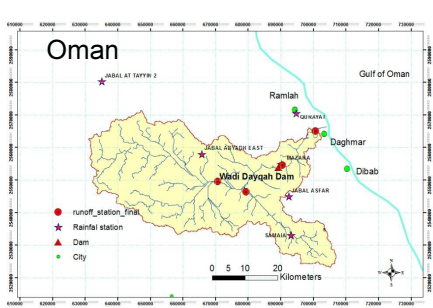
ACSDAD also running RegCM4

SMHI, RICCAR EGM5, Dec 2013





Hydrological Modeling – Test Basins

Test basins were selected from different area in the Arab region to evaluate and calibrate the selected hydro models

- Mejerda watershed – Tunisia/Algeria
- Wadi Dayqah - Sultanate of Oman
- Nahr el Kabir Al-Junoubi–Syria
- Nile River
- Euphrates River


Models:

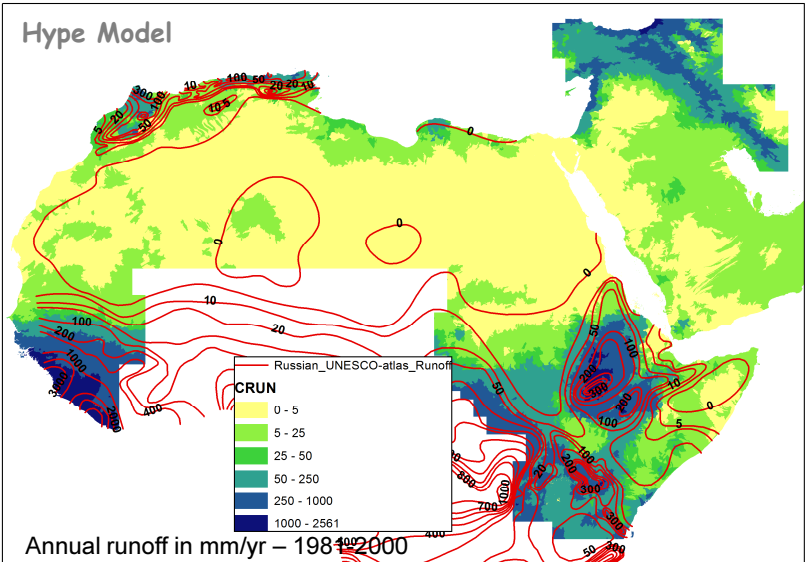
- HEC-HMS (ACSAD)
- HYPE (SMHI)
- VIC (SMHI)

ACSAD, RICCAR EGM5, Dec 2013

Hydrological Modelling

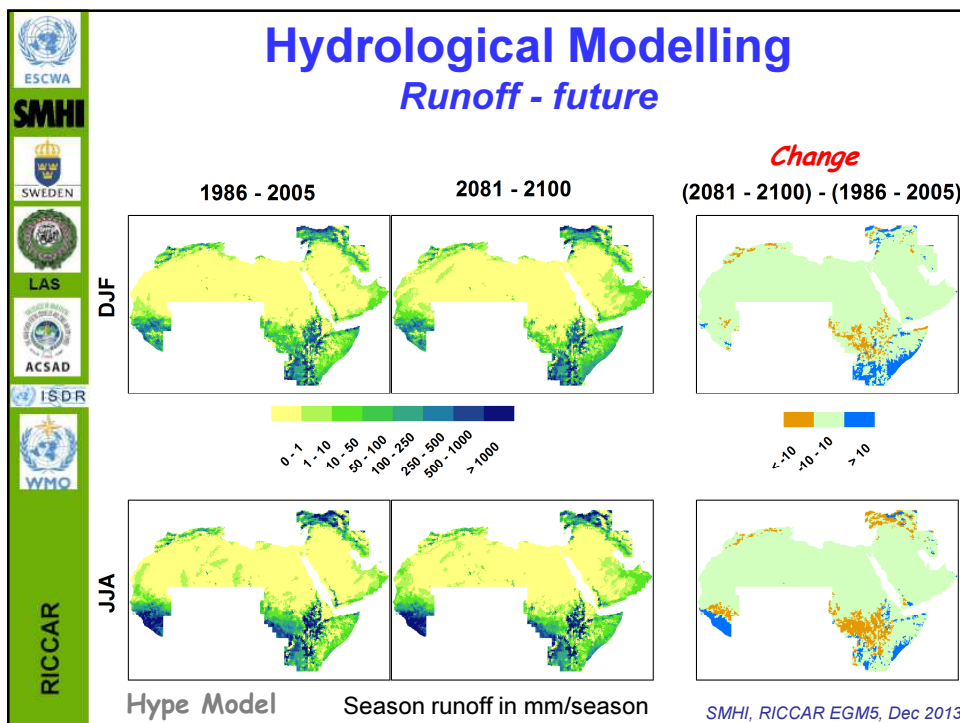
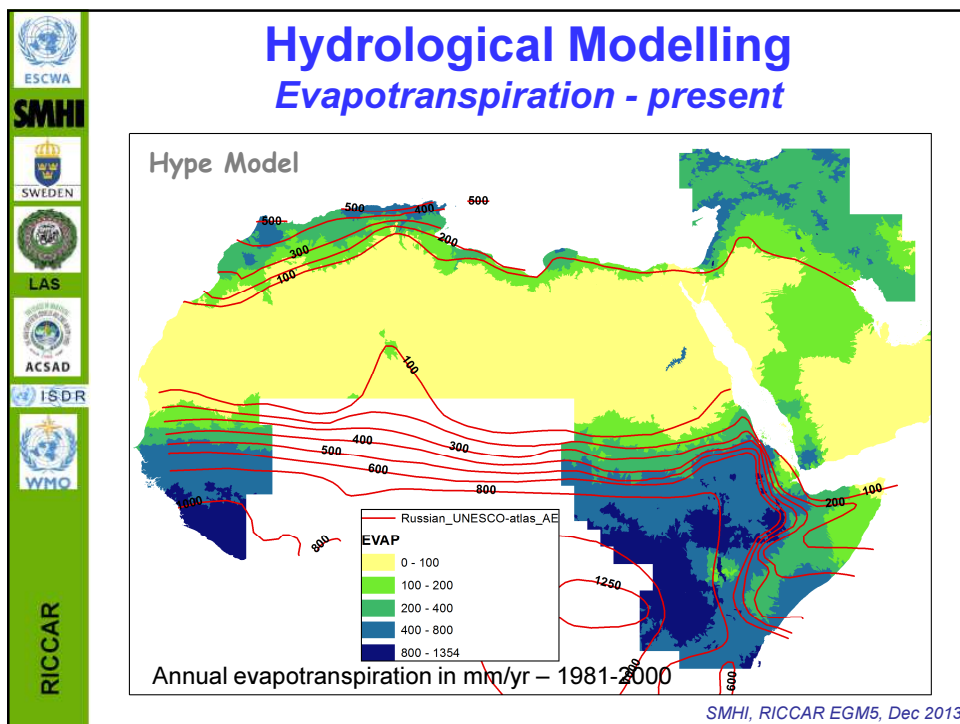
Runoff - present

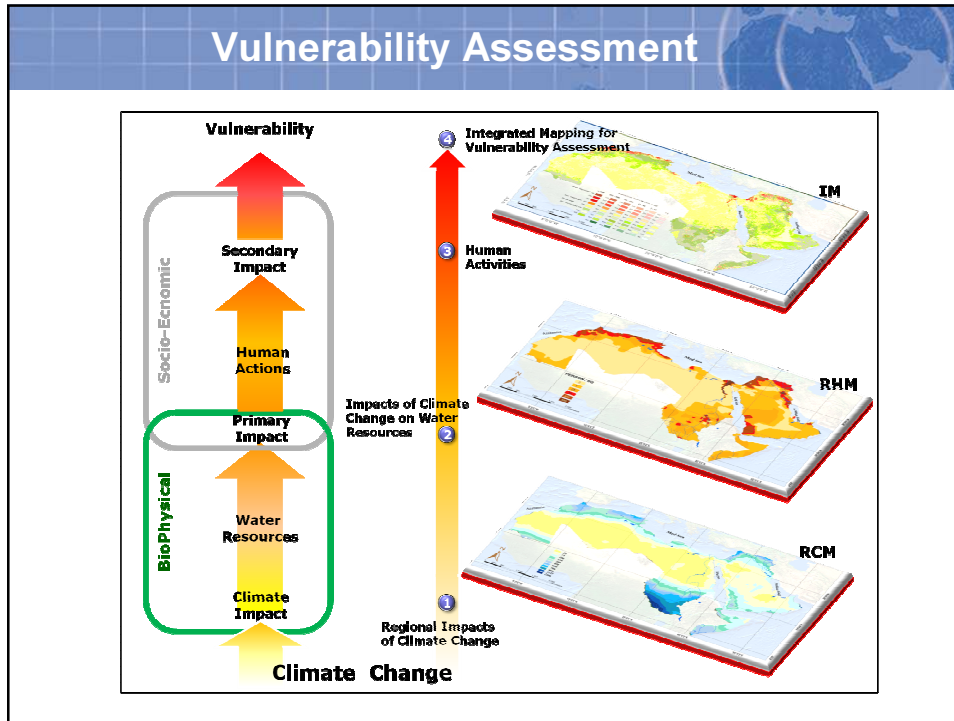




Annual runoff in mm/yr – 1980-2000

SMHI, RICCAR EGM5, Dec 2013





Extreme Events Case Studies

Flooding

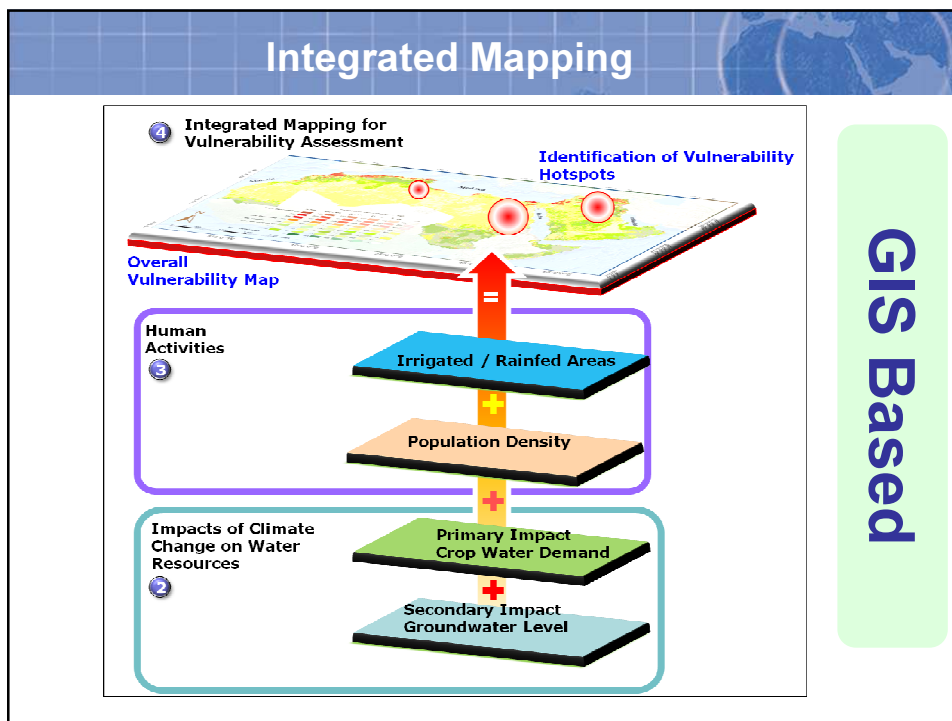
- Coastal flooding
- Wadi flooding
- Urban flooding/
stormwater drainage

Drought

- Regional/sub-regional
- Cyclical
- Duration
- Displacement

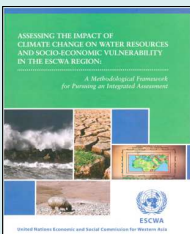
Tropical Cyclone Gonu: Oman (2007)
 Credit: H.M. Fritz et al. / *Estuarine, Coastal and Shelf Science* 86 (2010) 102–106

- *“In Ar Raqqah (Syria), many displaced farmers talk about wells running dry, and turning polluted.*
- *“My uncle’s well used to be 70 meters deep, now it’s 130 meters and now the water became salty, so we closed it down.” said Khalaf Ayed Tajim, a stocky sheep herder and farmer who heads a local collective for displaced northerners. He left his native village 60 miles from here when half of his herd died off and his fields dried up, and now lives in a concrete bunker with his 17 children, two wives, and his mother.” – “The Earth is Parched where Syrian Farms Thrived”, NYT, 13 Oct 2010*



Pillar 3: Capacity Building & Institutional Strengthening

Regional Workshops / EGMs	Participants	Lead	Date
Workshop on Projection/Prediction and Extreme Events Indices in the Arab Region	Arab Met Offices	WMO	March 2012 Casablanca
Regional Workshop on Applications and Analysis of Regional Climate Models	Arab Water Ministries (technical staff)	SMHI, ACSAD	2-4 July 2012 Beirut
Expert Group Meeting 4 on the Regional Initiative: <u>Set-up Working Groups</u>	RICCAR Partners & Arab Water Ministries	ESCWA, UNEP, LAS	5-6 July 2012 Beirut
National Workshops for Disaster Losses Inventories (Tunisia, Morocco, Yemen, Jordan)	Inter-ministerial (planning, interior, key sectors, environment)	UNISDR	September 2012 – April 2013
Regional Workshop on linking RCMs to Regional Hydrological Models	Arab Water Ministries (technical Staff)	SMIH, ACSAD, ESCWA	June 2013
Expert Group Meeting on the Preliminary Findings of the Regional Climate Models covering the Arab Domain (EGM5)	Arab Water Ministries (senior staff)	LAS, ESCWA, SMHI, ACSAD, UNISDR, WMO	December 2013 Amman
Workshop on Applying the Climate Change Vulnerability Assessment Methodology in the Arab Region	Arab Research Centers	GIZ, ESCWA, LAS	May 2014 Beirut
Scoping Workshop for an Arab Regional Climate Outlook Forum	Arab Met Offices, Arab Permanent Committee for Met	LAS, WMO, ESCWA	October 2014 Amman

Pillar 4: Awareness Raising & Information Dissemination		
Objectives	Activities Completed	Activities in Progress
<ul style="list-style-type: none"> ✓ Raise public awareness on climate change phenomenon and encourage the participation of local civil society to face it. ✓ Provide tools to present simplified key messages to targeted stakeholders on the findings. 	<ul style="list-style-type: none"> ✓ Brochure ✓ Website www.escwa.un.org/RICCAR ✓ Integrated Assessment Methodological Guidance Document Doc#: E/ESCWA/SDPD/2011/1 	<ul style="list-style-type: none"> <input type="checkbox"/> Regional Knowledge Hub <input type="checkbox"/> National Disaster Inventories (in 5 Arab countries) <input type="checkbox"/> Technical Materials <input type="checkbox"/> Policy Briefs <input type="checkbox"/> Integrated Mapping Tools <input type="checkbox"/> Study on “Regional Cooperation for Climate Change Adaptation” (ESCWA, UNEP, LAS) <p>➤ English/Arabic language accessibility on final outputs</p>

RICCAR Partnerships

Implementing Partners


ESCWA


UNEP


WMO


ACSAD


LAS


SMHI


 United Nations
 Educational, Scientific and
 Cultural Organization


giz Deutsche Gesellschaft
 für Internationale
 Zusammenarbeit (GIZ) GmbH


UNISDR
 The United Nations Office for Disaster Risk Reduction


 UNITED NATIONS
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Research Institutes supporting Climate Ensemble

- Center of Excellence for Climate Change Research/ King Abdulaziz University (CECCR/KAU) - KSA
- King Abdullah University of Science and Technology (KAUST) - KSA
- Climate Services Center (CSC) - Germany



Thank you!

Additional information on the Regional Initiative is available at:

www.escwa.un.org/RICCAR