Overview of the Regional Initiative to Assess the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region

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Mandates

- **Arab Ministerial Declaration on Climate Change** - adopted by Council of Arab Ministers Responsible for the Environment (CAMRE) (Cairo, Dec. 2007)

- **ESCWA 25th Ministerial Session Resolution on Climate Change** - called for preparation of an assessment of socio-economic vulnerability caused by climate change impacts on water resources (Sana’a, May 2008)

- **Arab Summit for Economic and Social Development** - accepted the preparation of project to assess impacts of climate change on water (Jan 2009)

- **UN-LAS 9th Sectoral Meeting on Climate Change** - called for UN-LAS joint action on the preparation of vulnerability studies that should include the consideration of socio-economic climate change impacts related to water, land, drought, desertification, biodiversity, health and agriculture (Cairo, June 2009)

- **Arab Ministerial Water Council (AMWC)** - approved IWRM project brief submitted by LAS & ACSAD called “Assessment of Climate Change Impacts on Available Water Resources in the Arab Region” as an IWRM project that is based on Regional Initiative concept note (Cairo, July 2010)

- **Regional Coordination Mechanism/Thematic Working Group on Climate Change** - Regional Initiative adopted & reported on as an inter-agency activity (Nov 2010)

- **AMWC** - Received briefing by ACSAD on Regional Initiative & its components as means to implement the “Assessment of Climate Change Impacts on Available Water Resources in the Arab Region” as an IWRM project that supports follow-up on the Arab Water Security Strategy (Cairo, June 2011)
Conclusions and Recommendations:

- Inter-agency UN-LAS process would prepare assessment in consultation with Arab States

- Project would consist of 4 pillars
  1) Baseline review
  2) Impact Analysis and Vulnerability Assessment
  3) Awareness Rising and Information Dissemination
  4) Capacity Building and Institutional Strengthening

- Formation of Core Group for preparation of a project document
  - LAS Secretariat, ACSAD, AOAD
  - ESCWA, UNEP/ROWA, ISDR
  - Country Representatives (Maghreb / Mashreq)

Follow-up:

- Concept Note prepared and circulated for comment (Nov 2009 – March 2010)
- Concept Note circulated to potential donors (March 2010 – October 2010)
- Concept Note re-titled Regional Initiative with EGM2 (November 2010)
**Scope**

- Assessment would focus on freshwater resource
- Impacts & vulnerability of non-conventional water resources would be considered
- Impacts & implications of sea level rise may be considered, but not extensively
- Data availability & choice of indicators will influence the analysis

**Geographic Coverage**

- Would cover full Arab region: Arab region defined as the 22 countries that are members of the League of Arab States
- Need to define boundaries of the “Arab Domain”:
  - How to deal with shared water resources outside of the Arab region
  - At what scale of analysis will be conducted: sub-regional, national, sub-national, etc.
EGM 2: Expert Group Meeting on the Development of a Vulnerability Assessment for the Arab Region to Assess Climate Change Impacts on the Water Resources Sector
UN-ESCWA, LAS (Beirut, November 2010)

Conclusions and Recommendations:

1) **Baseline review**
   - Reference to CORDEX as basis for collecting/managing climate data & information
   - Include data on shared water basins, extreme events, traditional knowledge & consider remote sensing

2) **Impact Analysis and Vulnerability Assessment**
   - Limit scope of Regional Initiative to impact assessment, vulnerability assessment and associated pillars, and clarify approach for assessing vulnerability given different definitions
   - Pursue integrated climate change assessment with clear timelines, avoidance of biases, consideration of water quantity and quality, consideration of regional specificities
   - Delineate Arab Domain for regional climate modeling to cover entire Arab region, including headwaters of shared rivers that flow into Arab Region

3) **Awareness Rising and Information Dissemination**
   - Improve coordination between climate change initiatives underway in Arab Region
   - Make available outputs of regional climate model component to support other research efforts

4) **Capacity Building and Institutional Strengthening**
   - Increase understanding & expertise in climate change monitoring, forecasting & projection
   - Encourage multi-disciplinary participation & exchange on preparation of integrated assessment
Regional Initiative for the Assessment of the Impact of Climate Change on Water Resources and Socio-Economic Vulnerability in the Arab Region

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 in the region.

- The outcomes of the assessment would 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.
Background & Objectives

EGM 3: Expert Group Meeting on Assessing Climate Change Impacts on Water Resources and Socio-Economic Development
UN-ESCWA, LAS, UNEP/ROWA (Beirut, July 2011)

Objectives:

- Exchange information on current climate change modelling activities in the region
- Select the emissions scenarios that will be used for generating climate change projections
- Discuss the delineation of the Arab Domain for regional climate downscaling to the Arab region
- Define criteria for developing a regional knowledge management platform for meteorological and hydrological information based on experiences gained at the national level

Side meetings:

- Reconstitute Core Group for *implementation* of Regional Initiative
- RCM/TWG meeting for coordination, monitoring and reporting on inter-agency (UN-LAS) activities on climate change, including Regional Initiative
Regional Initiative Pillars

Baseline Review and Knowledge Management

Integrated Assessment

Climate Change Impact Assessment
Climate Change Vulnerability Assessment

Capacity Building & Institutional Strengthening
Water Ministries, Meteorological Organizations, Arab Research Centers

Awareness Raising and Information Dissemination
Water Ministries, Meteorological Organizations, Arab Research Centers
Regional Initiative Implementation Partnerships

- Regular Expert Group Meetings
- Regional Initiative Core Group Coordination
- Regional Coordination Mechanism / TWG-CC (UN-LAS)
- Regular Reporting to AMWC & its Technical Scientific & Advisory Committee

**SIDA**
Swedish International Development Cooperation Agency

**Project Partners:**
ESCWA, LAS
ACSAD, WMO, SMHI

**Project Supports:**
Regional Initiative Pillars 1, 2, 3, 4

**Project Budget:**
US$ 3 million

**UNESCO**
Cairo Office

**Project Partners:**
Government of Egypt, Hadley Center (UK)

**Project Supports:**
Regional Initiative Pillar 2

**Project Budget:**
RCM run for 9 months

**UNEP/ROWA**
Project Support: Pillars 1, 3, 4 tbc
(UNFCCC Reports, Networking)

**UNU, UNISDR**
Project Support: Pillar 1, 4 tbc
(Knowledge Management)

**IDRC–ACSAD Project**
Project Support: Pillar 2, 3 tbc
(Vulnerability Assessment)

**FAO, WHO, UNDP**
Potential Contributions to Pillar 2 (VA) tbc

**Other Institutions? Other Support?**
Implementation Components

Baseline Review and Knowledge Management

• **Objective**
  – To develop a clear picture of the current state of freshwater resources and climate in the Arab Region based on a common set of indicators and methods.

• **Activities**
  – Compilation of data, identification potential information data gaps, launching of on-line regional knowledge management system.

• **Indicator of Achievement**
  – On-line accessibility to information on IWRM plans, UNFCCC National Communication Strategies, water resources and climate baseline information in the Arab Region through a regional knowledge platform.

**SIDA Project Supports:**
- Establishment of a regional knowledge hub for climate & water resources information and modeling in the Arab region
**Implementation**

Integrated Assessment
Impact Assessment & Vulnerability Assessment

- **Objective**
  - Review of existing GCMs and selection of 1-2 RCMs for application at the level of the Arab Region that can be suitably downscaled & incorporate hydrological modelling & scenario development to serve as the analytical basis for conducting the vulnerability assessment.

- **Activities**
  - Compilation of data, identification potential information data gaps, launching of on-line regional knowledge management system.

- **Indicator of Achievement**
  - On-line accessibility to information on IWRM plans, UNFCCC National Communication Strategies, water resources and climate baseline information in the Arab Region through a regional knowledge platform.

**SIDA Project Supports:**
- Identification of expected climate change impacts on water resources in the Arab Region and associated vulnerability hotspots
- Delineation of an Arab Domain and its establishment in CORDEX
- Regional climate change projections (RCM application) & hydrological modeling

**UNESCO Supports:**
- Generation of regional climate change projections (RCM application)
Integrated Climate Change Assessment
Methodological Framework

Step 1: Global Climate Modeling
Step 2: Regional Climate Modeling
Step 3: Hydrological Modeling
Step 4: Vulnerability Assessment
Step 5: Integrated Mapping
Implementation

Awareness Raising and Information Dissemination
Water Ministries, Meteorological Organizations, Arab Research Centers

- **Objective**
  - Present simplified key messages to targeted stakeholders on the findings

- **Activities**
  - Develop accessible, policy-friendly reporting and communication tools
  - Inform public and civil society stakeholders
  - Disseminate accessible and actionable information for policy-makers about the impacts of climate change on water resources and the associated effects on regional vulnerability.

- **Indicator of Achievement**
  - Issuance of policy documents and briefs for disseminating findings and provide policy-makers with actionable information

**SIDA Project Supports:**
- Increased awareness and access to information about climate change impacts on water resources in the Arab region
Implementation

Capacity Building and Institutional Strengthening
Water Ministries, Meteorological Organizations, Arab Research Centers

• **Objective**
  – Institutional strengthening and capacity building in knowledge management, modelling, impact analysis, and vulnerability assessment, with focus given to working through existing networks on climate change to enhance capacity in these areas.

• **Activities**
  – Strengthen national and regional coordination mechanisms for information sharing on IWRM, water resource quality and quantity, and climate change
  – Provide on-the-job training activities for national experts and staff and assist Arab countries to use available diagnostic tools and downscaling options based on agreed approaches;
  – Coordinate regional activities through ministerial councils and national climate change focal points, who would in turn coordinate with national counterparts.

• **Indicator of Achievement**
  – Formal coordination framework and support to regional centers for monitoring and follow-up.

**SIDA Project Supports:**
- Establishment of a Regional Climate Outlook Forum involving a pilot number of Arab Meteorological Institutes to support climate monitoring, data collection, the preparation of seasonal forecasts, and data verification for climate projections
- Workshops & consultations with Arab water ministries on regional climate & hydro models
## Implementation Plan Structure

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Thank you!

For additional information, please visit the meeting website at: www.escwa.un.org