Review of the Methodological Framework for Conducting the Integrated Assessment

Session I

EGM on Assessing Climate Change Impacts on Water Resources and Socio-Economic Development in the Arab Region, 06-07 July 2011, UN-ESCWA, Beirut

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Integrated Assessment: Outline

Methodological Framework:

A. Context
B. Key Focus
C. Overview
D. Key Steps
E. Approach

The Integrated Assessment Model

Global Emission Scenarios → Step1 GCM → Step2 RCM → Step3 HM → Step4 VA → Step5 IM

The Arab Region

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The Context

Precipitation (1971-2000)

Hydrology is Dynamic:

– Climate no longer constant: “backward looking” do not apply anymore, and hydrological experience becomes insufficient,

– Need a clear picture of the evolution of the “future climate”: forward looking approach.


Al-Erian; W.; 2009: Geo-information : Regional Land Degradation and Drought Studies In the Arab Region, EGM: Towards Assessing the Vulnerability of Water Resources to Climate Change in the Arab Region, 26-28 October 2009 , ESCWA, Beirut, Lebanon
Key Focus

• Integrated Assessment bridges gap between:
  – Science: “understand”
    • Much of the knowledge of in climate science remains “formative”.
  – Policy Making: “decide”
    • Analyse situations and make crucial decisions in the absence of complete information, *without* waiting to secure all the facts and complete the theory.
The Integrated Assessment Model

Global Emission Scenarios → Climate Modeling → Step1 GCM → Step2 RCM → Step3 HM → Step4 VA → Step5 IM

Hydrological Modeling
Integrated Mapping

Impact Assessment
Vulnerability Assessment

The Arab Region
Methodological Framework

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

Fig. 1
Methodological Framework: Approach

GCM: General Circulation Model

1 or 2 GCM Implementations

RCM: Regional Climate Model

RHM: Regional Hydrological Model

BHM: Basin-centered Hydrological Model

Methodological Framework for Integrated Assessment

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Approach: Integrated Mapping

Methodological Framework for Integrated Assessment
The Integrated Assessment Model

- Global Emission Scenarios
- Step 1: GCM
- Step 2: RCM
- Step 3: HM
- Step 4: VA
- Step 5: IM

The Arab Region

Impact Assessment

Vulnerability Assessment

Thank You