Shared Water Resource Basins in Arab Countries Targeted for Further Analysis
Introduction

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

In response to:
- Recommendations from RICCAR 5th Expert Group Meeting (Amman, December 2013)
- Resolution adopted by the Arab Ministerial Water Council (AMWC) during its 6th meeting (Doha, May 2014)

Include case studies on major shared surface water basins in the Arab Region
Shared Surface Water Resources with Arab States: Western Asia

- Jordan River
- Euphrates-Tigris-Shatt Al Arab
- Nahr El Kabir River
- Orontes River
- Qweik River
Shared Surface Water Resources with Arab States: North Africa

- Nile River
- Lake Chad
- Niger River
- Senegal River
- Medjerda River
- Guir River
- Daoura River
- Dra River
- Oued Bon Naima
Selected Shared Basins for RCMs and RHMs Analysis

- Medjerda River Basin
- Jordan River Basin
- Euphrates & Tigris River Basins
- Senegal River Basin
- Nile River Basin

SMHI, 2014
Key Vulnerable Sectors

- Agriculture, food security and livelihoods
- Energy sector and hydropower
- Extreme events
- Groundwater linkages
- Public Health
- Water quality and ecosystems
- Current context
Jordan River Basin

Riparians: Israel, Jordan, Lebanon, Palestine, Syria
Basin Area: 18,285 km²

- Agriculture, food security and livelihoods
  - Jordan Valley key area
  - Impacts of droughts on rural livelihoods
  - Impacts of Israeli restrictions in WB
  - Ex. WB: Auja village, Tubas governorate

- Groundwater linkages
  - Main water source in West Bank
  - Groundwater in the Jordan Highlands provides base flow runoff in rivers, that are the major sources for irrigated agriculture in the Jordan Valley.
Jordan River Basin (cont’d)

❖ Energy sector and hydropower

• Palestine relies heavily on energy imports from Israel
• Impact of water development projects in Jordan: Red-Dead Sea, Disi-Amman conveyance project

❖ Water quality and public health

• Jordan River Basin water quality issues
• In West Bank, public health issues related to lack of water
• Also risk of parasitic diseases, spatial and temporal alteration of disease vectors due to increased annual and seasonal variability

❖ Current context

• Affects all riparians
• In West Bank climate-induced stress on water resources compounded by the occupation
• In Jordan additional water stress due to the influx of refugees

❖ Other issues: ex. demographics

• Increasing population and urban expansion
• Lower Jordan River key area
Nile River Basin

Riparians: Burundi, DRC, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania, Uganda

Basin Area: 3,180,000 km²

- **Agriculture, food security and livelihoods**
  - Agriculture contributing 30-50% to the overall basin GDP and providing employment for 60-90% of the population

- **Energy sector and hydropower**
  - Nile important source of hydropower generation, especially Sudan, Egypt, Uganda and Ethiopia

- **Transportation**
  - Nile vital waterway for transport of goods and people, only means of transport in South Sudan during flood period

- **Extreme events**
  - Nile flows very sensitive to variations in rainfall
  - Destructive floods important concern in mid-basins of Sudan

Source: Nile Basin Initiative, 2012
Nile River Basin (cont’d)

- Water quality and public health issues
  - Impact of hydrological projects in increasing water-related diseases risk
  - Major prevalence of: malaria, cholera, shistosomiasis
  - Links to seasonal and interannual temperature and precipitation variability

Key vulnerabilities by country

**Egypt:** Long-term water security given the rapidly rising demand for water with a growing population; sea level rise and groundwater risks in the delta which (main agricultural region and bulk of population)

**Ethiopia:** Food security

**Sudan:** Extreme events; to some degree, food security

**Lake Victoria region:** Extreme events; impacts of variability on hydropower generation and livelihoods; reductions in fish populations in the lake.

Example of vulnerable area: Nile Delta

- Accounts for 30-40% of Egypt’s agricultural production and more than half of Egypt’s tourism and industrial base.
- Highly vulnerable to sea level rise
- Risks to large cities, industry, flourishing agriculture and tourism
Medjerda River Basin

Riparians: Algeria, Tunisia
Basin Area: 22,070 km²

❖ Agriculture, food security and livelihoods

- Agriculture provides the bulk of production and employment in the basin
- Represents 50% of food production in Tunisia
- Drought risks to livelihoods

❖ Extreme events

- Regular appearance of extreme floods
- Devastating impacts:
  ex. January 2003 fatal to 8 people, displacement of 27,000 people
- Exacerbated by dam siltation issues

❖ Water quality

- Salinity
- Industrial and urban domestic pollution
Senegal River Basin

Riparians: Guinea, Mali, Mauritania, Senegal

Basin Area: 289,000 km²

Agriculture, food security and livelihoods

• Important zone of livestock-raising
• Fishing

Public health

• Prevalence of water-borne diseases: malaria, schistosomiasis, diarrhoea…

Water quality and ecosystems

• Flood plain ecosystems affected by dam construction (regularly flooded wetlands and lakes disrupted)
• One national park, two reserves of biosphere, including transboundary reserve of the Senegal Delta (between Senegal and Mauritania).
• 5 Ramsar sites in the delta
Euphrates River Basin & Tigris River Basin

**Riparians:** Iraq, Syria, Turkey
**Basin Area:** 440,000 km²

**Riparians:** Iran, Iraq, Syria, Turkey
**Basin Area:** 221,000 km²

- Agriculture, food security and livelihoods
- Energy sector and hydropower
- Extreme events
- Water quality and ecosystems
- Current context

www.waterinventory.org
Further issues of interest to consider in a climate change/shared basin context

- Agriculture, food security and livelihoods
- Energy sector and hydropower
- Extreme events
- Groundwater linkages
- Public Health
- Water quality and ecosystems
- Current context

Other aspects to consider:

- Population dynamics and projections
- Impacts of water regulation projects (transboundary persp.)
- Migration
- Poverty and hunger
- Gender aspects
- Institutional framework and transboundary cooperation aspects
THANK YOU