Strengthening National Capacities to Manage Water Scarcity and Drought in West Asia and North Africa

Jordan Drought Management Case

Dr. Luay Froukh- Consultant
Ali Hyajeneh- Ministry of Water
Eman Bani Hassan-Ministry of Agriculture
Adnan Zawhreh-Ministry of Environment
Mohammed Shawabkeh-Meteorological Dept.

TOT Workshop
Zaragosa -Spain
5-8 2014
Project Main Objective

The project’s main objective is to analyze, map and identify the critical gaps in pre-impact and preparedness drought management planning and to strengthen the capacities of national planners, policy makers and stakeholders in Western Asia and North Africa countries.
<table>
<thead>
<tr>
<th>Approach</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive</td>
<td>Actions after a drought event</td>
</tr>
<tr>
<td>Proactive</td>
<td>Actions designed in advance, with appropriate planning tools</td>
</tr>
</tbody>
</table>
Jordan Drought Impact

- Most of Jordan is desert, 90% of Jordan area get less than 200 mm/year
- Jordan water supply relies on rainfall, drop in rainfall has significant impact such as;
- Water shortage in water supply in the summer
- Many springs are completely dried,
- Drop of 1 m/year in average in groundwater level during the last 30 years
- Drop in the runoff in most wadis
- Invest in non conventional water supply projects such as desalination and use of fossil water from Disi
- Change in agricultural patterns in the Jordan Valley and highlands due to drop in rainfall
- Increase of imported fruits, vegetables, from Syria, Lebanon, and Egypt
Jordan is one of the more vulnerable countries to drought. This is due to reliance of the country on groundwater and generated runoff from rainfall as the main sources for water supply. Some of the drought indicators in Jordan include:

- Water supply shortages in the summer
- Dried springs (decreased discharges in 850 springs)
- Decrease of groundwater levels by 1 m/year on average over the last 30 years.
- Decrease in the amount of runoff
- Change in agricultural patterns in the Jordan Valley and highlands due to drop in rainfall
### Distribution of Jordan, according to the rainfall and the area

<table>
<thead>
<tr>
<th>Ecological zone</th>
<th>Average rainfall Yearly/mm</th>
<th>Area(million dunum)</th>
<th>% from Jordan area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry desert</td>
<td>&lt; 100</td>
<td>71.2-82.2</td>
<td>81.0</td>
</tr>
<tr>
<td>desert</td>
<td>100-200</td>
<td>9.2-10.0</td>
<td>10.4</td>
</tr>
<tr>
<td>Semi desert</td>
<td>200-300</td>
<td>5.1-5.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Semi-arid</td>
<td>300-500</td>
<td>1.6-1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Semi-humid</td>
<td>&gt;500</td>
<td>1-10.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Semi-humid</td>
<td>&gt;500</td>
<td>1-10.1</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Jordan Water Resources System

Yarmouk / Jordan River

GW

Demand Centers

Red-Dead

Disi Water

GW
Drought Management System

- Monitoring
- Early Warning
- Standards
- Action Plan
- Strategy

Risk Reduction
Country/Regional Stability
The ministry of environment is working on implementation of the three Rio conventions;

• National Strategy and Action Plan to Compact Desertification, 2006 - under update

• National Policy on Climate Change, 2013

• National Strategy on Biodiversity
Drought Management Gaps

The following gaps were identified in Jordan drought management system:

• Responsible unit on drought management. The ministry of environment lead a steering committee to develop drought national plan then committee dissolved. The steering committee did meetings every 3 months.

• The Drought National Action Plan (NAP) is still a new document that requires an effective awareness program and a resource mobilization strategy. It can be considered as a framework for action at the country level.

• The involved ministries and organizations do not reflect drought issues in their plans

• Coordination between various ministries and stockholders

• International organizations funded several attempts and activities but lack integrated approach

• Drought classification indicators/index to identify the level of impact

• Drought projection

• Monitoring and early warning or monitoring systems.

• Mitigation plan.

• Adoption of Drought Guidelines
Monitoring and Early Warning and Systems Challenges

Data Use in

- Data Types and Quality
- Data Storage and Transfer
- Monitoring Network Density
- Data Sharing

Drought Projection
## Summary Notes

<table>
<thead>
<tr>
<th>Organization</th>
<th>Initiative /Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNCCD</td>
<td>Drought Capacity to Develop Policy / Countries Group</td>
</tr>
<tr>
<td>UNISDR</td>
<td>Disasters Risk Management Natural resources /Urbanization/poverty/social/economic</td>
</tr>
<tr>
<td>UNEP</td>
<td>Rangeland Impact due to drought Monitoring, Training (Yemen, Palestine, Iraq, Syria)</td>
</tr>
<tr>
<td>FAO</td>
<td>Drought Mitigation Strategies Water Scarcity Initiative Early Warning System Regional Initiative for climate change network (Arab Countries)</td>
</tr>
<tr>
<td>ICARDA</td>
<td>(Water and livelihood, Jordan, Syria, Palestine and Yemen)</td>
</tr>
<tr>
<td>ACSAD</td>
<td>Regional Drought Action Plan Establish Drought Units (Sudan, Egypt, Lebanon, Syria, and Libya)</td>
</tr>
<tr>
<td>WMO</td>
<td>Climate Watch/Projection Models Drought Policy with UNCCD Regional climate centers Heat waves and sand storms</td>
</tr>
<tr>
<td>ESCWA</td>
<td>Regional Climate Change Impact on Water Resources (Knowledge Base System)</td>
</tr>
<tr>
<td>CIHAM</td>
<td>Drought Guidelines, Measures, Indicators for Mediterranean region (Morocco and Tunisia), training courses</td>
</tr>
</tbody>
</table>
مشروع مع وزارة الزراعة

اسم المشروع: مشروع إدارة الجفاف في سورية والأردن ومصر وليبيا

الدولة: سورية، الأردن، لبنان، مصر

تاريخ البدء: 2010

تاريخ الانتهاء: 2012

الهدف الرئيسي: تأمين إطار عمل بمنهجية فاعلة لعدد من وتقييم أثار الجفاف

الأهداف الثانوية:
- مراقبة وتصور خصائص الجفاف لوضع نظام يمكن تطبيقه
- تأمين نظام فاعلة لتقييم مستوى مخاطر الجفاف وما يصاحبها من عواقب محتملة للحدوث على مختلف المحاور والنظم القائمة من أنظمة زراعية ونظم تطوير المياه للأنشطة المختلفة
- تقييم الفنارة للاستهداف وتقييمها لتحديد أسباب المخاطر المراتبة للهيكليا القائمة، أو للنظم الأدبية، أو للفناريات المستخدمة، أو للأنظمة الاجتماعية أو أقتصادية غير مناسبة أو عدد من هذا
- توفير الدعم والخدمات اللازمة

الجهات المشاركة: سورية، الأردن، لبنان، مصر

الجهات الممولة: الوكالة الألمانية للتعاون الفني GTZ.

النتائج المتوقعة:

1. تحقق التعاون في نظام إدارة الجفاف في المستوى المحلي بين الدول العربية مع المستوى الإقليمي العربي.
2. تقييم مخاطر الجفاف على المحاور المختلفة (الزراعة ونظم الامداد بالموارد)
3. تحدد المناطق ذات الخصائص الفيللية للاستعمال
4. تطوير نظام لمراقبة أثر الجفاف على المحاصيل في مراحل نموها المختلفة.
5. إعداد مؤشرات الجفاف بما يتسبب مع خصائص المناطق المختلفة.
6. توزيع النتائج لتقوية نظام دعم القرار
## Jordan Tasks

<table>
<thead>
<tr>
<th>Action</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish Drought Management Steering Committee from various Stakeholders (ministry of water has he lead with representatives from ministry of environment, ministry of agriculture and ministry Metrological department. Other members are from RCN, IUCN, UNDP, FAO and Jordan University.)</td>
<td>Done</td>
</tr>
<tr>
<td>Define the roles and responsibilities of steering committee members and form responsible body on drought management.</td>
<td>In progress</td>
</tr>
<tr>
<td>Train national team on the use of drought standards and guidelines</td>
<td>In progress</td>
</tr>
<tr>
<td>Develop drought management strategy for Jordan</td>
<td>Planned</td>
</tr>
<tr>
<td>Prepare drought management action plan</td>
<td>Planned</td>
</tr>
<tr>
<td>Develop drought management mitigation plan</td>
<td>Planned</td>
</tr>
<tr>
<td>Develop monitoring and early warning system</td>
<td>Planned</td>
</tr>
</tbody>
</table>