Drought Monitoring in Transboundary Basins

by

Robert Stefanski

World Meteorological Organization
Outline of Presentation

- High-Level Meeting on National Drought Policies (HMNDP)

- Overview of Integrated Drought Management Programme (IDMP)

- Drought Monitoring

- Examples of Transboundary Drought Monitoring
High-Level Meeting on National Drought Policies (HMNDP)

• March 11-15 2013
• Over 414 participants from 87 countries
• Main Partners – UNCCD, FAO, WMO
• Key message: Help countries move from reactive to proactive drought policies

• 12 representatives of UN agencies and inter. & regional organizations (UNU, IFRC, IOM, CBD, WFP, IAEA, UNECA, JRC, ICARDA, GWP, ACMAD, ISDR)
• Final Declaration adopted – www.wmo.int/hmndp
IDMP Objectives

- To support stakeholders at all levels by providing policy and management guidance and by sharing scientific information, knowledge and best practices for Integrated Drought Management.

- Contributes to global coordination of drought-related efforts of existing organizations & agencies:
  - Better scientific understanding & inputs for drought management;
  - Drought risk assessment, monitoring, prediction and early warning;
  - Policy and planning for drought preparedness and mitigation across sectors; and
  - Drought risk reduction and response
IDMP Regional Programmes and Initiatives

Support action and implementation on the ground, adding to existing efforts the strength of IDMP and its partners

Central and Eastern Europe (2013): GWP Central and Eastern Europe


South Asia Drought Monitoring System (2014): IWMI in Bhutan, Bangladesh, Nepal, India, Pakistan and Sri Lanka

Central America (2013): Regional workshop leading to training on SPI and assessment of current drought.

South America (2015/16): Regional workshop in Bolivia potentially leading to follow-up activities with partners – South American Drought Monitoring

Pacific Islands (2016): Tuvalu, Solomon Islands, and Kiribati

- Adapting of 10-step process by Don Wilhite (National Drought Mitigation Center at the University of Nebraska-Lincoln)
- Response to need articulated at High-level Meeting on National Drought Policy (HMNDP)
- Template that can be adapted to national realities and needs
- Building on existing risk management capacities
A UN-Water Initiative

Moving from crisis to risk management

Capacity Development to Support National DROUGHT Management Policies

Find out more on the initiative: www.ais.unwater.org/droughtmanagement
Regional National Drought Management Policy Workshops - Sessions

- Country Reports
- Keynote Presentation – Don Wilhite – US Expert

- Drought monitoring and early warning systems – WMO
- Vulnerability and risk assessment – UNCCD
- Biodiversity and Drought – CBD
- Drought preparedness, mitigation and responses – FAO

www.ais.unwater.org/droughtmanagement
Importance of a Drought Monitoring System

- Allows for *early* drought detection
- Improves response (*proactive*)
- “*Triggers*” actions within a drought plan
- A critical *mitigation* action
- *Foundation* of a drought plan
Components of a Drought Monitoring System

- Timely data and timely acquisition
- Synthesis/analysis of data used to “trigger” set actions within a plan
- Efficient dissemination network (web, media, extension, etc.)
Potential Monitoring System Products and Reports

- **Historical analysis** (climatology, impacts, magnitude, frequency)
- **Operational assessment** (cooperative data, SPI and other indices, automated networks, satellite and soil moisture data, media and official requests)
- **Predictions/Projections** (drought indices, soil moisture, streamflow, seasonal forecasts, etc)
Components of a Drought Early Warning and Information System

- Monitoring AND Forecasting
- Tools for decision makers
- Drought risk assessment and planning
- Education and awareness
Planned drought mitigation and response options

Time during normal conditions

Consider I-1 is SPI

Consider Level 2; SPI = -1.25 (Moderate drought)

Consider Action 1: Ban watering lawns
Consider Action 2: Dig extra wells for livestock and wildlife in area
Consider Action 3: Reduce irrigation of annual crops by 50%
Regional Drought

http://www.drought.gov/gdm/
Maps of Current Droughts in Europe

1st ten-day period of February 2016

- **Watch**: rainfall deficit
- **Warning**: soil moisture deficit
- **Alert**: vegetation stress following rainfall / soil moisture deficit
- **Partial recovery of vegetation**
- **Full recovery of vegetation to normal conditions**

**Combined Drought Indicator**, based on SPI, soil moisture and fAPAR.

- **Watch**: when a relevant precipitation shortage is observed
- **Warning**: when this precipitation translates into a soil moisture anomaly
- **Alert**: when these two conditions are accompanied by an anomaly in the vegetation condition.
For further information

www.droughtmanagement.info
rstefanski@wmo.int
Regional National Drought Management Policy Workshops

- Central & Eastern Europe, Romania - July 2013
- Latin America and Caribbean, Brazil, Dec 2013
- Asia-Pacific, Vietnam, May 2014
- Eastern & Southern Africa, Ethiopia, Aug 2014
- North Africa and SW Asia, Egypt, Nov 2014

Initiative ended in July 2015 and a next project phase of national consultations is proposed.
Drought Help Desk - Two function areas

Help Yourself
- Drought Management Tools
- Questions and Answers bank
- Reference Centre databases
- Discussion group using social media

Get Help
- Personal assistance for Drought Management (policies, laws, strategies)
- Capacity building
- A rapid guidance to the tools of the Help Yourself

IDMP
Integrated Drought Management Programme