

Report of the Rapporteur on

Drought Assessment and Forecasting
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1. Background

At the 14th session of the WMO Regional Association VI for Europe in Heidelberg, 5-15 September 2005 it was agreed that the Working Group on Hydrology should designate the Rapporteur on Drought Assessment and Forecasting during the following inter-sessional period.

With resolution 17 (XIV-RAVI) it was decided to appoint a group of experts as core members of the working group with the invitation to identify and carry out a plan of action taking into account the terms of reference for each of the aspects under consideration. Special attention was reserved to the need of representing the regional interests in relation to hydrology and water resources within the EC context.

For the specific item of the **Drought Assessment and Forecasting** the following actions were envisaged:

- (a) To review and evaluate meteorological and hydrological forecasting systems in RA VI countries with respect to droughts occurrence;
- (b) To assess the use of satellite data in drought monitoring, assessment and forecasting;
- (c) To identify ways of promoting the exchange of data and products, as well as of forecasts and warnings, during low flow situations;
- (d) To propose ways for ensuring effective cooperation with other international and regional bodies involved in drought assessment and mitigation;
- (e) To review and evaluate activities undertaken by end-user, in cooperation with NHSs, to mitigate the impacts of drought.

2. Working and Networking

During the intersessional period an intense work was done in contributing to the drafting of documents and reports in the context of the several groups in which the above mentioned actions were developed. In particular the link between the core members of the regional CHy working group and the working groups acting on the matter inside the Common Implementation Strategy of the Water Framework Directive has been coordinated, giving the opportunity to represent the hydrological aspects during the discussion events and the content of the documents of

- Water Scarcity and Drought Expert Network (WS&D EN) and related Stakeholder Forum
- Climate Change and Water Working Group
- Joint Mediterranean EUWI/WFD Process- Mediterranean Water Scarcity & Drought Group (Med EUWI WS&D WG).

In particular, in the context of WS&D EN were drafted the following documents representing the drought assessment in the EU Member States (27 MSs out of 49 regional MSs):

- Ist Interim Report – 2006
- IInd Interim Report – 2007
- “Prolonged drought” towards a common understanding of the phenomenon and of its impacts - 2007
- “Drought Management Plan Report” including agricultural, drought indicators and Climate Change Aspects – 2007 published 2008

The assessment was enlarged to Mediterranean, Middle East and Northern African Countries through the activities of the Med EUWI WS&D WG that gathered data and information also with a questionnaire for a reliable vision of the state of art in drought and water stress detection and mitigation measures, like that which was conducted in the context of the previous intersessional period (“Drought within the context of the Region VI”). The following report was drawn up:

- “Mediterranean Water Scarcity and Drought Report”- 2008

All these documents are technical documents which include the in-depth analyses based on updated data and contain information from various sources:

- Regional ones, from European Environment Agency, EUROSTAT, the Joint Research Centre and Blue Plan;
- National and local ones from Member States and stakeholders

Through the WS&D EN the contribution to the discussion on Drought and Water Scarcity has been exposed internationally in the context of the 5th World Water Forum- Istanbul 2009 and reported on the European Regional Document (chapter 6) made available for the event.

In fact all the contents of the above mentioned reports and documents were developed with participative processes inside the working groups (meetings in Bruxelles, Rome, Madrid and Paris hosted by the Lead entities of the activities) but, often, comparing the chosen approaches during workshops and conferences. Among them events to be recorded are:

Conference of the Water Directors of the Euro-Mediterranean and Southeastern European Countries – Athens, Greece, 6-7 November 2006

Conference on “Water Resource Management in the Mediterranean Region” and Public Presentation of HYDROCARE Project and Workshop “Drought and Water Scarcity: Discussion in the Frame of EU Initiatives” – Athens, Greece, 19 January 2007

Workshop “How to Cope with Drought in the Mediterranean: Guidelines for integrating risk analysis, drought preparedness and management policy” – Marrakech, Morocco, 15-16 May 2007

Project MEDROPLAN Mediterranean Drought Preparedness and Mitigation Planning- Program MEDA Water.

International Forum on Drought, Seville, Spain, 18-20 June 2007 and Med Water Scarcity and Drought WG Meeting

Thematic Eionet Workshop “Water Quantity and Use”- EEA Premises Copenhagen, Denmark, 10-11 June 2008

ExpoZaragoza 2008 - Zaragoza, Spain – Session “Planificación y gestión de la Sequía” 24 July and European Day on Water Scarcity and Drought on 5 September

3. Development of tools

From the formal point of view an important act was the adoption, on 18 July 2007, of the Communication from the Commission to the European Parliament and the Council “Addressing the challenge of water scarcity and droughts in the European Union”. The reasons for that Communication were, on one hand the increasing impacts of water scarcity and droughts in the past 30 years highlighted by the mentioned in-depth analyses. On the other hand, the expected impacts of climate change, from the IPCC results, and economic developments were considered an incentive to accelerate the process toward the implementation of countermeasures starting from the management plans foreseen by WFD.

The Communication presents the following initial set of policy options to address and mitigate the challenge posed by water scarcity and drought within the Union, with the intention to remain fully committed to the international conventions, in particular UN Convention to Combat Desertification and UN Framework Convention on Climate Change:

1. Putting the right price tag on water
2. Allocating water and water-related funding more efficiently
 - improving land-use planning
 - financing water efficiency
3. Improving drought risk management
 - developing drought risk management plans
 - **developing an observatory and an early warning system on droughts**
 - further optimising the use of the EU Solidarity Fund and European Mechanism for Civil Protection
4. Considering additional water supply infrastructures
5. Fostering water efficient technologies and practices
6. Fostering the emergence of a water-saving culture in Europe
7. **Improve knowledge and data collection**
 - **a water scarcity and drought information system throughout Europe**
 - **research and technological development opportunities**

In order to comply with the objective of the EC to open a debate on how to adapt to water scarcity and drought and the aim of the WMO Hydrology Network to offer a virtual place to exchange opinions and information on the topics related to its mandate, among which water scarcity and drought, the above set of options were put as topics of discussion on the ad hoc **forum** (<http://www.whycos.org/hnforum/index.php>) open on the WMO web site emphasizing those (in red above) considered of greater interest for the hydrological community and offering opportunity for a deeper involvement of the NHSs. To stimulate the discussion, questions were posed for each topic. The intention is to do away with the system of sharing questionnaire to gather information on national strategies and suggestion to transmit to the EU level to direct the process started with the Communication.

A **report** is being drafted summarizing the index and indicators developed so far under research and structural initiatives with the scope to describe the physical, environmental and socio-economical phenomena and related effects of drought and water scarcity. Some of them were considered more useful for the development of observatory and early warning system on droughts. Some examples of operational bulletins and observatories at several levels will be included in the report.

About this item, the **Development of a European Drought Observatory (EDO)** is under implementation in a prototype form to provide timely and authorized information on the occurrence and evolution of drought situations in Europe. The observatory will be complemented by an **Information System for WS&D** developed by the EEA in order to provide annual assessment of drought and water scarcity based on a set of indicators. The EEA approach to the issue is outlined in the just published report “Water resources across Europe – confronting water scarcity and drought” (EEA Report n.2/2009).

The development of such tools require the potential deep involvement of NMHSs in fact, as reported from the JRC Ispra “EDO is based on handling, processing and analysing real-time meteorological and hydrological data as well as running complex models for the surface water balance, soil moisture, and run-off. At the same time EDO foresees the operational exchange of data and information between organisations at the European, MS, regional and RB levels, requiring strong competencies with respect to data standards and exchange protocols”. In the future JRC intend to integrate the observatory with information produced by national drought observatories individuating “a common set of basic drought indices to be produced on both the overview and on the more detailed national level, as well exchanging drought relevant information over the internet. The **Drought Management Centre for South-Eastern Europe (DMCSEE)**, based on the Environment Agency of Slovenia (EARS) is one partner in this development and a collaboration agreement between EARS and JRC has been signed recently.”

EDO will be part of a more complex system of observatories that at the moment comprises the European Flood Alert System (EFAS), the European Forest Fire Information System (EFFIS), the European Soil Data Information System (ESDIS) and the Monitoring Agriculture by Remote Sensing tool (MARS).

Recommendation

In the light of such developments a strong coordination between the NMHSs and JRC is hoped, possibly under the overseeing of WMO.