



## *Natural Hazards*

# **DROUGHT\_R&SPI**

### **At a glance**

Title: Fostering European Drought Research and Science-Policy Interfacing

Instrument: Collaborative project

Total Cost: € 4,191,890.80

EC Contribution: € 3,439,950.00

Duration: 36 months

Start Date: 1 October 2011

Consortium: 12 partners from 9 countries

Project Coordinator: Henny van Lanen

Project Web Site: [www.eu-drought.org](http://www.eu-drought.org)

Key Words: pan-European, case studies, vulnerability, risk, natural hazard, past and future, impact, drought research, drought management plans, drought-sensitive regions, Science-Policy interfacing

### **The challenge**

Drought is natural hazard that has hit Europe hard over the last decades. Likely it will become more frequent and severe and the scale will increase due to the increased likelihood of warmer Northern winters and hotter Mediterranean summers. There is an urgent need to improve drought preparedness through increased knowledge on the past and future hazard, impacts, and possible management and policy options. measures, and through drought management plans and an improved science-policy interfacing. This will reduce vulnerability to future drought and the risks they pose for Europe. DROUGHT-R&SPI will address this pressing need.

### **Project Objectives**

DROUGHT-R&SPI will enhance the understanding of:

- (1) drought as a natural hazard, incl. climate drivers, drought processes and occurrences;
- (2) environmental and socio-economic impacts, and
- (3) vulnerabilities, risks and policy responses, incl. the further development of drought management plans in support of EU and other international policies, e.g. UN/ISDR-Hyogo Framework for Action.

The project will address the past and future climate, link science and science policy dialogue across scales and across a range of affected sectors.

### **Methodology**

DROUGHT-R&SPI uses a transdisciplinary approach that includes innovative in-depth studies that combine drought analyses for selected case studies in water-stressed regions across Europe with drought analyses at the pan-European scale both for past and future climate.

DROUGHT-R&SPI is organized into three scientific themes:

- (1) drought as a natural hazard;
- (2) drought (socio-economic and environmental), and
- (3) drought vulnerability risk reduction and policy responses

The case studies represent different scales (local, river basin and national) and cover different geoclimatic regions (Greece, Italy, Netherlands, Portugal, Spain and Switzerland) that are vulnerable to different drought impacts. Drought research will be well integrated into the policy-making process across scales by the establishment of Case Study Dialogue Fora at a detailed scale and a pan-Europe Dialogue Forum at the large scale from the start of the project onwards.

## Results

Main achievement so far are:

- (1) key information, incl. impacts on large-scale past drought events across Europe was stored in the web-based Drought Reference Database (DRD);
- (2) information in the DRD was linked to European Drought Impact report Inventory (EDII), which shows pan-European drought vulnerability patterns and the different nature of impacts across Europe;
- (3) archival information points out that historical droughts were much more severe than recent droughts, which have shown an increasing trends for some areas in the 20<sup>th</sup> century;
- (4) economic impact analysis produced relevant outcome for the agriculture and energy sectors (different drought impact on producers and consumers, i.e. winners and losers);
- (5) impacts on aquatic ecosystems (water quality reduction, fish dieback) are most commonly reported environmental impacts. Area burnt by wildfires or reduction in bird diversity could be associated with drought when long time series were available;
- (6) detailed inventory and an ex-post evaluation

of past practices to cope with drought showed that stakeholders still perceive significant gaps in the establishment of preventive measures, structured drought planning, and a poor tradition of ex-post evaluation.

## Expected Results

DROUGHT-R&SPI will further deliver the following:

- (1) enhanced knowledge on future droughts (frequencies, severities) at the pan-European scale;
- (2) in-depth understanding of environmental and socio-economic impacts in water-stressed regions (case studies) and considering the large-scale drivers;
- (3) responses to drought events at the case study scale, and list best practices for the development of drought management planning based on lessons learnt;
- (4) drought indicators that integrate physical, impact and vulnerability indices, addressing different scales and water sectors;
- (5) innovative methodology for early warning (monitoring and forecasting) at the pan-European scale;
- (6) Dialogue Fora at different scales for Science-Policy Interfacing;
- (7) drought hazard and potential vulnerabilities at the case study and pan-European scale in the 21<sup>st</sup> Century to identify drought sensitive sectors and regions;
- (8) web-based information and knowledge sharing facilitated by the European Drought Centre (EDC).

## Potential Impact

DROUGHT-R&SPI will support a more thorough implementation of the EU Water Framework Directive, particularly by further developing methodologies for Drought Management Plans at different scales (incl. EU level) for the second generation of River Basin Management Plans (due in 2015).

## Project Partners

Wageningen Universiteit (NL)	Eidgenössische Technische Hochschule Zürich (CH)
National Technical University of Athens (GR)	Universidad Complutense de Madrid (ES)
Universitetet i Oslo (NO)	Università Commerciale 'Luigi Bocconi' (IT)
Albert-Ludwigs-Universität Freiburg (DE)	Université de Caen Basse Normandie (FR)
Universidad Politecnica de Valencia (ES)	Stichting Dienst Landbouwkundig Onderzoek (NL)
Instituto Superior de Agronomia (PT)	Eidgenössische Forschungsanstalt, (CH)