

Science for Environment Policy

Drought management in Europe: researchers present new evaluation method

Droughts can have far-reaching environmental, social and economic impacts. A new study has assessed how drought is managed in six areas of Europe using a new evaluation framework. Their evaluation identified policy gaps and makes recommendations for risk management. A key recommendation is to evaluate responses and management after each drought to identify good practices and strengthen drought management in the future.

Droughts are typically caused by below-average rainfall over an extended period of time. In many parts of Europe, droughts have caused significant damage, and climate change is expected to increase their intensity, frequency and duration.

The socio-economic cost of drought in Europe over the last 30 years has been estimated to be €100 billion¹. European water policy, especially the [Water Framework Directive](#)² and the [Blueprint to Safeguard Europe's Water Resources](#)³, which included a 'Policy Review for water scarcity and droughts', aim to ensure that there is enough good-quality water available for peoples' needs and the environment.

These, and other initiatives, recognise that strengthening society's resilience to drought is best achieved through a risk-management approach, by planning ahead for droughts. Nevertheless, droughts in some parts of Europe are still crisis managed only, by taking emergency actions at the beginning of a drought.

This study, funded by the EU [Drought R&SPI](#)⁴ project, evaluated how drought is managed in parts of Europe. The researchers developed an evaluation framework to identify and assess past responses to drought in six European areas: the Netherlands, Portugal, Switzerland, the Júcar River basin in Spain, the Po River basin in Italy and Syros Island in Greece. These areas represent different climates and geographical scales, including national, river basin and local levels.

To develop their evaluation model, the researchers reviewed water, drought and risk management documents and consulted a wide range of stakeholders, including policymakers (e.g. national water agencies), water users (e.g. water supply companies and irrigation communities), decision makers and managers (e.g. river basin organisations), and other groups (e.g. NGOs). They also undertook an analysis with stakeholders of the strengths and weaknesses of drought management for all six study cases.

They then assessed how each of the six case studies had managed and responded to drought, based on 21 criteria grouped under six drought-policy dimensions. These dimensions (with example criteria) were: the institutional context (e.g. drought-policy development), drought definition (e.g. operative definitions), drought measures (e.g. quality of implementation), resources (e.g. adequacy of financial resources), coordination and participation (e.g. drought-management responsibilities), and learning and evaluation (e.g. evaluation practice).

Overall, the Júcar River basin and the Netherlands appeared to be the most prepared for droughts as they had generally adopted a risk-management approach in the context of a long tradition of water management practices; both areas have suffered severe droughts in the past and have used those experiences to strengthen their capacity to deal with future droughts. For example, the Júcar River basin has well-developed Drought Management Plans (DMPs), while the Netherlands has a flexible drought-management system to monitor drought parameters. In contrast, Switzerland and Syros Island appeared to be the least prepared, generally responding to drought problems through crisis management.

Continued on next page.



22 July 2016
Issue 464

[Subscribe](#) to free
weekly News Alert

Source: Urquijo, J., Pereira, D., Dias, S. & De Stefano, L. (2016). A methodology to assess drought management as applied to six European case studies. *International Journal of Water Resources Development*. DOI: 10.1080/07900627.2016.1174106.

Contact: jurquijo@ucm.es

Read more about:
[Natural hazards](#), [Risk assessment](#),
[Sustainable development and policy assessment](#),
[Water](#)

The contents and views included in *Science for Environment Policy* are based on independent, peer-reviewed research and do not necessarily reflect the position of the European Commission.

To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

1. Communication from the Commission to the European Parliament and the Council - Addressing the challenge of water scarcity and droughts in the European Union: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52007DC0414>

2. The Water Framework Directive (2000/60/EC): <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

Science for Environment Policy

Drought management in Europe: researchers present new evaluation method (continued)

22 July 2016

Issue 464

[Subscribe](#) to free
weekly News Alert

Source: J., Pereira, D.,
Dias, S. & De Stefano, L.
(2016). A methodology to
assess drought management
as applied to six European
case studies. *International
Journal of Water Resources
Development*. DOI:
10.1080/07900627.2016.11
74106.

Contact: jurquijo@ucm.es

Read more about:
[Natural hazards](#), [Risk
assessment](#),
[Sustainable
development and
policy assessment](#),
[Water](#)

The contents and views
included in Science for
Environment Policy are
based on independent,
peer-reviewed research
and do not necessarily
reflect the position of the
European Commission.

To cite this
article/service: "Science
for Environment Policy":
European Commission DG
Environment News Alert
Service, edited by
SCU, The University of the
West of England, Bristol.

3. A Blueprint to Safeguard
Europe's Water Resources:
<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012DC0673>

4. Fostering European Drought
Research and Science-Policy
Interfacing. Funded under the
European Commission's FP7:
<http://www.eu-drought.org/>

High levels of drought-policy development, including having a DMP, as recommended by EU policy, improved the coordinated and structured response to droughts. Switzerland, Syros Island, Portugal and the Po River Valley, in particular, should develop Drought Management Plans to clearly outline the different steps needed at all stages of a drought and promote a risk-management approach to droughts, say the researchers.

Although all areas have at least one definition of drought, usually there are no clear levels of alert that can be used to trigger interventions according to pre-defined plans. These are needed to set threshold levels to activate specific measures to deal with a drought and enable communication among water managers, water users and the public.

Stakeholder participation at all levels of drought-management decision-making proved to be an important part of implementing a coordinated and effective response to drought. In all case studies, however, the researchers say stakeholder involvement could be improved, particularly in finding ways to settle disputes among different parties and accelerating decisions when a drought is underway.

Among the many recommendations for improvement, the researchers highlighted the following for all the case studies:

- strengthen environmental measures to prevent irreversible damage to natural ecosystems;
- develop a comprehensive drought-vulnerability assessment;
- ensure the fair and transparent distribution of financial resources across all sectors affected by drought;
- systematically evaluate drought responses and management after all drought episodes to identify good practices and improve future drought management.

The researchers say their evaluation framework is flexible enough to analyse the management and response to drought across a range of different climates, scales, drought characteristics and socio-economic conditions. They believe the framework can be used to identify good practices as well as problems, leading to better drought management. These good practices can also be adapted to other European areas.

