

Be prepared. Know the risks. Take action.

DANUBE DROUGHT STRATEGY SUMMARY FOR POLICY MAKERS

- **Drought is becoming one of the major challenges** in water management in countries of the Danube region.
- **Drought management starts already** when there are no signs of drought at all and a general belief is present that sufficient water conditions are going to last. It is during that time when we need to build drought resilience.
- **Behaviour mode to be adopted** in drought management should shift from dealing with damages caused by drought to acting preventively for potential next drought.
- **Cooperation of stakeholders, operational services and decision-making authorities** is the key to earlier and more efficient response to drought in order to minimise the extent of drought damage and losses.



DROUGHT IS BECOMING OUR REGULAR VISITOR

Changes in our climate are reflected in more years with above average temperatures, increased evapotranspiration and an unfavourable distribution of rainfall also across Danube countries – all of them increasing the occurrence of drought, which is becoming more frequent, more intense and no longer only associated with the summer months. In recent years such as 2003, 2007, 2012, 2015 and 2017,

significant parts of the Danube River Basin were affected by drought, which had a negative impact on various water-dependent economic sectors, on vegetation and on the aquatic environment. **Severity and frequency of drought can lead to water scarcity situation, while overexploitation of available water resources to meet various water needs can exacerbate the consequences of drought.**

Damage and losses caused by drought 2017

Austria	140 mio EUR/crop failure and fish mortality.
Bosnia and Herzegovina	126 mio/agriculture, 40 % losses in energy production (Bileća).
Croatia	125 mio EUR/agriculture, >4000 fires over 86 500 ha of the Adriatic coast; islands water supply shortages.
Czech Republic	120 mio EUR/agriculture.
Hungary	51 000 ha of agricultural land damaged.
Montenegro	50 % lower yield in viticulture, 42-50 % losses in energy production (Perućica, Piva), fish mortality.
Romania	reduction of Danube flow for 60 %, higher electricity prices, crop transportation problems.
Serbia	Substantial losses in agriculture, water shortage, dried-up lakes, disturbed energy production. >1 bn EUR/all sectors.
Slovakia	20-40 % lower crop yields, dried-up rivers, hydrological drought.
Slovenia	65 mio EUR/agriculture

Source: Consortium of DriDanube project partners.

WE COPE WITH IT UNSUCCESSFULLY

Despite extensive damages in the last decades, drought continues to be managed as a crisis situation, by implementing emergency procedures and urgent measures. However, this approach usually fails to achieve the most sustainable solutions. Existing national drought management practices revealed a number of shortcomings:

Drought monitoring:

- Regionally diverse drought monitoring in terms of the type of drought that is monitored, variety of indices used for it and consensus on used approach for early warning to public.
- Thresholds for agricultural drought and especially for hydrological drought, crucial for efficient early warning, are in most countries either not in place or agreed upon at country level.
- No systematic and regular collection of drought impacts to complement drought monitoring.
- Early warning is mostly carried out when first signs of drought impacts have already occurred.

Drought response:

- Lack of cooperation between relevant national institutions as well as across vulnerable different sectors, especially before and during drought development.
- No clear inter-institutional scheme of data, responsibility and communication flow, resulting in neutralising the institutional response before, during and after drought.
- Existing crisis-oriented drought policies support the adoption of reactive drought response that mainly deals with the treatment of drought impacts.

- In almost all countries there is no formal umbrella document on drought management.
- Despite the drought impacts on the economy and welfare of the people, drought is at the political level still not considered an issue of high priority.

THERE IS A BETTER WAY...

An alternative to crisis-oriented management of drought can be found in adopting a proactive approach, which is slowly becoming one of the main concerns of strategic regional bodies. Through focusing on the preventive and early response, it helps build country resilience to drought and better preparedness for potential next drought. **Optimal drought management model** described in Danube Drought Strategy provides an operational model for the implementation of proactive drought management at the country-level. The proposed model clearly indicates the necessary actions and respective responsible institutions in each stage of drought – as to determine **who is doing what and when**. This way, the model serves as a tool for strengthened institutional cooperation and support in the decision-making process. It has been developed in a way that allows its adoption by any country regardless of its internal organisation of national authorities.

... AND HELP ALONG THE WAY

Several activities are proposed within this Strategy to make the model operational and enable the beginning of proactive drought management implementation in the country. In addition, DriDanube project developed tools that support implementation of proactive drought management in the countries of Danube region:

► **Drought Watch:** an open interactive web application that offers an insight into the development of drought conditions across the entire Danube region. It was designed for national authorities and drought experts, but also for other end-users such as farmers or water managers, to help them make appropriate decisions that lead to the application of relevant short-term measures.

► **National Reporting Networks:** an operational way of drought impact assessment which helps to deliver early awareness of drought damage in place. They consists of engaged individuals on the field, mostly farmers and technicians with knowledge in agriculture and forestry, who weekly report their observations on the state of soil, vegetation or even loss of yield on their specific location, throughout the season or the year.



It is possible to detect drought in its early stages and act accordingly before it creates an emergency situation.

<https://www.youtube.com/watch?v=ASYMEKEeVN0&t=>

► **Unified drought risk assessment:** informative drought risk maps, prepared with a harmonized approach for 10 Danube countries which thus enable comparative information on level of risk for occurrence of drought – to recognize the areas prone to rainfall deficit and the areas where significant drought hazard and/or considerable crop losses are expected.

WHAT CAN POLICY MAKERS DO?

Danube Drought Strategy concludes with some brief recommendations on how to enhance capability of the society to better cope with droughts on the long run:

1. **Initiate political will and call for coordinated legal approach.** Policy coherence related to drought on the regional/national level is one of the guiding principles of the Strategy implementation. For achieving the aim of the Strategy, countries are encouraged to acknowledge drought among national priorities.
2. **Encourage collaboration and partnerships.** Strengthen existing partnership between policy makers and stakeholders, and connect with other institutions and regional initiatives to gain extra knowledge and good practices.
3. **Search for resourcing.** Activities to perform fundamental maintenance of project results on the regional level will be completed with the existing resources or future budget decisions (DMCSEE, partners). At the same time, it is reasonable to expect national efforts ensuring the integration of the results, such as investing in data, products, tools and human capacities that support Strategy implementation.
4. **Develop and adopt a national strategic document on drought management.** It shall cover strategic view on drought issue, set long-term goals and a manner of achieving them, and define a matrix of drought timeline and corresponding course of institutional actions. Support for its preparation can be found in Danube Drought Strategy.
5. **Form a drought impact inventory managed by national authorities.** Creation of regular, sectoral and centralized impacts inventory enables the national authorities to have at any time an insight into exact drought damage in place in any part of the country. It also presents a basis for any further legal steps.
6. **Put results into practice.** In addition to planned sustainability in the frame of DriDanube project, it is necessary to introduce available tools into daily work routine (i.e. using national data sets, operational use of tools in institutions etc.).
7. **Support knowledge sharing and awareness raising.** Continue searching for good practices to guide drought management activities, with emphasis on learning process and the preventive.
8. **Establish water-related learning curriculums** at all levels, especially in elementary education.