

Challenges of Climate Change Adaptation in South-Eastern Europe

4–6 Feb 2025
Brdo pri Kranju, Slovenia

Technical conference: Fostering regional drought resilience in South-Eastern Europe

5-6 February 2025, Brdo Congress Centre, Slovenia

Four-session discussion harvest

On empowering drought resilience in SE Europe:

- Although methods and tools have improved, with the mindset we are still behind (in climate change adaptation).
- Change of the narrative: from adaptation (reactive) to preparedness (proactivity), as in community preparing itself for the coming reality.
- Due to its greater-scale nature, **drought is not only an environmental issue, but also a developmental issues and economic issue**. When it comes to dealing with drought, it should not only be about protecting the environment, or adaptation, or securing livelihood, it makes also an economic sense to invest in drought resilience.
- Adopting systemic perspective: existing the narrow field of drought only and broadening our view to see the interconnected system. Thus, instead of talking about individual hazards separately (i.e. drought, flood), a systemic view should be adopted – it is all water management (i.e. storing excess water for later drought relief).
- **Success is in continued commitment over time**, good things take time to develop and eventually become adopted by the community.
- **Countries are the ones in driving seat. UNCCD and other regional organisations can be the facilitators of a country's own internal process.**

Way forward options:

- Improving what is already done and working: define roles of NHMSs in next few years, strengthen collaboration with local and national stakeholders, understand where such collaboration would bring better results, understand what individual stakeholder is good at already. Aim for the combined result.
- Change of drought narrative.
- Help in investing in drought preparedness rather than mitigation.
- Connecting partnerships for stronger collaboration: within a country (i.e. institutional, with stakeholders) and between countries (i.e. regional partnership), otherwise we will always be behind climate change impacts.

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- Developing capacity at national levels but also exploiting options at regional bodies and collaborations; follow what goes on in regional spheres.
- Setting up a task team at a national level, then coming together with such teams from other countries at the regional level (i.e. DMCSEE network, UNCCD communities etc.).
- Global mechanisms: always an option for countries or community such as DMCSEE to apply with a clear plan. It is important to first have a concrete idea what you want and where you want to get to, then regional bodies can help facilitate in making it happen.

Other useful topics mentioned:

- approaches of regional bodies: 1) on the ground, helping countries develop projects, helping with funding; 2) providing guidance and knowledge together with regional and global partners in this field, 3) keeping partnership – answering questions, giving advice.
- Main outcome of COP16 (Riyadh): 160 parties and EU have committed to drought resilience. Two topics discussed: protocol on drought issues, and global framework on drought resilience. Both topics deeply discussed, not concluded, thus will continue at next COP17 in Mongolia.
- UNCCD [Community of Learning and Practice](#) (CLP) launched at COP16: communities out there partnering up to address drought adaptation together, allows peer-to-peer learning options, practical funding.
- [World Drought Atlas](#) released at COP16.
- Suggestion: look at [draft decisions of COP16](#), discuss among each other, come to COP17 with clear internal plan.

On enhancing drought monitoring:

- All DMCSEE countries have to some degree drought monitoring established, mostly in use are standardised indices or at least precipitation anomalies.
- Drought monitoring and EWS mostly carried out when drought is already in place.
- No unified approach on low water levels.
- **To make real use of drought indices (applicable), they need to be linked to the impacts caused under their severity. Moving from event warnings alone, towards info on impacts they will have;** towards multi-hazard, impact-based EWS.
- Regional tools to complement national drought monitoring:
 - Permanent online monitoring platforms [EDO and GDO](#)
 - EUMETSAT satellite data in operational drought monitoring via state of vegetation (health) although damage can be not only due to drought but also hail, pests etc. They offer advantage in spatial and temporal coverage, spatial resolution a disadvantage.

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- Drought Risk Atlas: [tool](#) and [publication](#).
- [European Drought Impact Database](#): current plan is in automatic updates from the media; audience suggests input from the civil society/farmers, harvesting social media.
- [EDORA project](#) (enhancing drought resilience and adaptation).

Albania:

- Drought monitoring is challenging due to geographic terrain complexity.
- International (European and global) platforms are used for forecasting.
- Tailored info is not prepared by NHMS: work is carried out in providing as readable and understandable data, while tailoring them to their sense is left up to the stakeholders.
- Drought impact assessment is important, but data collection is lacking.
- No national drought plan in place (in an operational way) as drought is under the current policy not considered an “emergency “. Due to the phenomena itself with a slower onset it does not fit the scheme of “usual” emergency situations like floods. EU Flood directive mentions topic of drought to be addressed, does not give hints on how.
- Integrated water management is needed - most of the energy comes from hydropower.
- Priority: increasing station capacity and different type of climate data for implementing EWS; increasing national capacity through a 7-year project on monitoring and early warning systems.

Bosnia and Herzegovina – Republic of Srpska:

- Main challenge: suitable temporal and spatial resolution of weather hazards, accurate drought indices, data visualisation.
- Interval for risk assessment update: focus not on the phenomena of drought (frequency, trend) but it is equally important to integrate it in policies.

Bulgaria:

- National drought monitoring focuses more on hydrological drought, moving from only atmospheric drought, as it is more relevant for the stakeholders (producers, hydrology).
- Drought monitoring carried out via soil moisture index derived from soil moisture measurements. It gives additional information on agrometeorological drought and allows for further on-demand expertise from stakeholders to make better decision at the required area.
- Upcoming tasks: current extent of measurement network recognised as a weakness, efforts put into extending the network and looking up to Romania as an example, as these are the requirements of users-farmers who currently use their own stations. Also in sight are trainings on use of stakeholder’s own station data.

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Croatia:

- Drought monitoring considers more the atmospheric drought, via precipitation anomalies (SPI). Its main advantage for NHMS is in simplicity, and in allowing detection of both precipitation extremes (wet, dry) throughout the year. As a visualisation method, the “peacock tail” is used for simplicity in communication, widely used on various websites and communication channels.
- Drought index is updated each day (almost near-real time), NHMS provides also a 7-day SPI forecast, which is well received by public.
- No hydrological drought monitoring system in place – adoption of other indices would be required; no soil moisture data presents a big gap in this.
- Space for drought monitoring improvement: changing the time frame from bound to calendar month, to running 30-day window; including also SPEI maps, covered for different drought levels.
- Upcoming tasks: improving the forecast part of drought detection, focusing also on hydrological drought (via streamflow index); Clim4Cast project is bringing forecasting Drought-Heatwave-Wildfire platform, with NHMS validating its forecasting of heatwave and wildfire indices (the task is more complicated regarding drought). Upcoming plans include improvement of monitoring stations and adding soil moisture measurements.

Cyprus:

- National monitoring evolved more around water scarcity (water use and recharge), rather than drought (anomalies of climate).
- It is carried out via dam storage index and groundwater index. Rainfed agriculture, which would find precipitation anomalies useful, is rather rare as much of agriculture relies on irrigation, thus hydrological drought indices are crucial.
- Challenges in estimating groundwater recharge and actual evapotranspiration (a lot of uncertainty in this part of water monitoring).
- Aims directed towards calculating WEI class index to monitor water used.

Greece:

- Drought monitoring is not fully organized at the national level. At the national level, drought topic is worked on more via various research project work, among others identifying areas of drought risk, and on multiple related tasks, not just monitoring.
- Ministry of Climate Crisis (previously Ministry of Defence) took over the station network.
- In current institutional set up and challenges, it appears the right time to make establishing national drought monitoring a priority task, also with the view on various affected sectors, including tourism but also others.
- Challenges: lack of staff and institutional (ministry) organization.

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Hungary:

- Drought risk is usually addressed as agriculture drought risk.
- At the national level, drought monitoring is not carried out via indices but via analysing long-term climatological series to find patterns, detect drought events etc.
- National drought monitoring is complemented by using JRC products, [Climate-ADAPT](#) platform etc., although certain type of data cannot be obtained (i.e. soil erosion).

Montenegro:

- National Reporting Network established in DriDanube project proved a very good practice for receiving near-real time field observations for applied topic (various agriculture subsectors); challenges in sustaining the network of observers.
- National impact database: challenges are in data availability, and in data coming from different stakeholders; there is a need for establishing a protocol for data collection which would lead to systematic collection of data.
- Upcoming task: integrating National Reporting Network into the ministry of agriculture's operational work for further shaping to their needs and use.
- Key actions for improving risk assessment: establishing national drought authority, Ministry of agriculture to begin creating national drought strategy, need to strive towards adequate and accurate data (capacity building).

Romania:

- Strength in extensive national network of meteorological and agrometeorological stations. Challenge in drought monitoring is currently regarding seasonal forecast.
- Experience with stakeholders: mostly via soil moisture measurements, crop phenology and drought information; most affected sectors are agriculture and water management.
- Current priorities: establishing drought agrometeorological centre (limited not only to droughts as hazards, but also heatwaves and cold waves that have an impact on agriculture production) for sharing good practices, data; project work; training program in field of agrometeorology and drought. In plan is also extending agrometeorology network and improving drought monitoring.

Turkiye:

- National forecasts are carried out at different time scales (weekly, also seasonal), including also expected meteorological drought events.
- Drought monitoring via two indices: SPI (precipitation anomaly) and SSI (streamflow index) which are updated monthly (available on website), while also SPEI is calculated.
- Strong observation network (approx. 2000 stations).

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On strengthening drought impacts and risk assessments:

- **Vulnerability to drought increases way faster than we can cope under current mindset and institutional organisation.**
- Reduced water availability causes cascading problems in various fields of life and the economy, beginning with higher water demand, water overuse, conflicts in water use etc.
- **Drought should be looked at as a systemic risk, thus its cascading impacts need to be considered in risk estimation.**
- Not all sectors or countries are affected by drought equally; the need to be inclusive regardless. Fragmented data and monitoring systems present an issue in assessing drought risk (adds to its complexity).
- **Moving from hazard-based to impact-based assessments** to identify better the vulnerabilities and to direct towards preparing drought plans for those vulnerabilities.
- Impact data necessary for improved management, particularly indirect impacts of droughts, which are underestimated.
- European & World drought Atlas: valuable resources for enhancing cooperation to build resilience; they can help raise awareness of global extend of drought risk; to leverage the collaboration of national authorities; support to countries in preparation of regional drought management strategies.

Way forward options:

- Practical steps for countries to take towards adaptation: 1) identify the risks which are important/relevant for the country (make your own subset); 2) assess the readiness to address these risks: is governance level prepared, are incentives and investments available, is society prepared; 3) seek options: what are the investments needed, where to fill the gaps, what are the capacities of society, government, economic incentives to mitigate or minimize the risk.
- **Bridge the data to information gap, provide knowledge not data to policy makers.** Helpful in this can be Copernicus tools and platforms, also existing regional initiatives.
- When addressing policy makers, it is important to **keep on talking about separate hazards but together as one, especially in the context of living organisms** (human health, livelihood, ecosystemic functions etc.); linking it to the EU adaptation plans (legislation). Only then it will be at the language and field politicians are familiar in and asked to eventually address. It must become a societal topic, not just about the environment.

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On advancing proactive drought management:

- Drought is in this part of Europe a relatively new topic among water management issues of high priority. It is usually not managed sustainably, in a proactive way.
- DriDanube project was a good example in kicking shift in perception from reactive to proactive.
- Only a few countries in the region have dedicated drought management plans in place, some are involved in UNCCD Drought Initiative that helps countries in preparation of national drought management plans. More countries with drought plan needed.
- Drought topic is usually covered by ministry of the environment or agriculture, with little to no coordination on national level with other authorities.
- **Aims should be directed towards connecting different bodies, rather than finding perfect spot/authority for drought.** different communities need to come out of their own known sphere together to work on one same issue/topic.
- **Successful drought management can be achieved when local-national collaboration takes place**
- Unresolved competition among water users: despite being the most vulnerable sector with high economic damages, agriculture is not the first or protected sector to get water in times of water scarcity.
- Initiatives towards improving water quality and quantity.

Way forward options:

- Create stakeholders network: there are water needs in flood situations, and water needs in drought situations, they cannot be addressed separately from each other. The water needs of people during drought and during floods need to be recognised first and properly addressed; ultimately, they are the ones who water management is for.
- Water conflicts have reasonable background (same needs for the same source), thus need to be discussed in peaceful note.
- Combine relevant topics when addressing drought (water) management and response, i.e. establish water-food-energy nexus. Consider sectoral inter-connectedness.
- Closer cooperation with stakeholders – NHMSs to acknowledge their mid-chain role: to better understand the needs of those who manage water, and to get in touch with the community and up-take their real-life struggles.
- Practice systemic approach (combining drought and flood management) in subareas. This is especially beneficial for coastal and highland areas. Over large water catchments, segmental natural solutions are proven not to be good enough, only systemic solutions seem to work (integrated system need to be in place for solutions to work in such areas).
- Measures already in place for agriculture and forestry can be adjusted to greater drought resilience.

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- Strengthen communication on drought policy, considering change of drought narrative and systemic approach.
- Project work reveals up to one third of environmental issues can be resolved by adopting NBS (nature-based, -driven, -inspired solutions): mitigation measures such as wetland and river restorations, water retention, controlled drainage to bridge flood and drought at the same time; soil measures, structural measures (crop rotation, green cover, control drainage). However, water quality is often overlooked (contamination of water!)