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Assessing drought risks for transboundary drought management in the Meuse basin

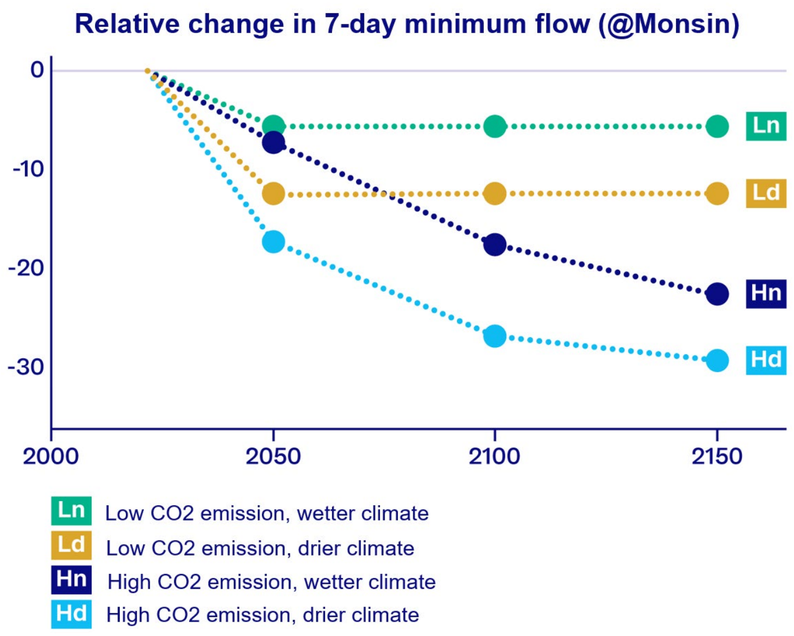
Insights from the Meuse Hackaton

Key take-aways

- A warmer climate causes 80% of the future change in low flows in the Meuse basin; 20% may be caused by human influence.
- A storyline approach based on an extreme drought event supports a collective understanding of drought propagation, societal impact and the effectiveness of potential measures.
- A specific transboundary drought governance framework that enables key collaborations around drought characterization, monitoring, and impact assessment as well as mitigation strategies, response and recovery is needed.

Drought and low flows are changing due to climate change and human influence

- The Meuse basin is increasingly vulnerable to more frequent and severe droughts due to climate change.
- Drought impacts include reduced water quality, energy production challenges, and harm to agriculture and biodiversity.
- A clear understanding of multi-sectoral drought risks and future developments is lacking.



Drought impacts many sectors in all countries

We simulated a plausible future extreme drought to make a concrete story that tells us how a drought travels through the basin. Based on a combination of drought indicators, we selected an interesting drought event from a large set of hydrological model time series forced by a wide range of climate realisations.

What if that drought happens now? We test the impact that this extreme drought scenario would have in the current climate using rainfall-runoff and river basin simulation models.

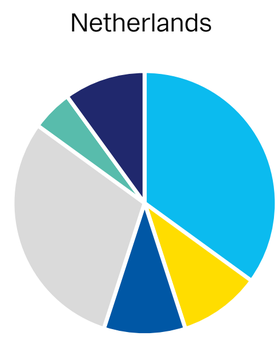
The Meuse Hackaton

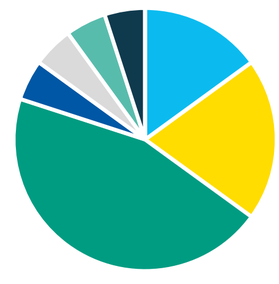
A Hackathon was organized with stakeholders from Belgium, Luxemburg, France, Germany and the Netherlands to collaboratively map the impact chains of water shortage in the Meuse basin and explore potential long-term (structural) and short-term (operational) solutions.

Promising actions to improve drought management

Two main suggestions were made to improve transboundary drought management:

- Co-develop a basin-wide drought management plan.
- Invest in a transboundary drought forecasting system.





impacted sectors
- drinking water
- shipping
- tourism
- industry
- ecosystems
- agriculture
- energy
- fish migration