



CASE STUDY 2

Drought



CrosseU

Germany
Czech Republic
Poland
Romania
Austria

Climate Change Hotspots (CCH)

Hotspot 1 Germany: Brandenburg, Saxony, Bavaria, and Baden-Württemberg

- The droughts in Germany from 2018 to 2023 were widespread, with the most significant impacts felt in eastern, southern, and central regions. These areas, highly dependent on agriculture, suffered greatly from reduced crop yields, economic losses, and environmental degradation, particularly in forested areas.

Hotspot 2 Czech Republic: South Moravia, Vysočina Region, Central Bohemia and Ústí and Labem and Pardubice Regions

- The impact of drought in these regions manifested through long-term decline in soil moisture and groundwater levels, declines in forest health, recurrent reductions in river flow, caused declines in crop yields and strained water availability for irrigation and drinking purposes.

Hotspot 3 Poland: Central Poland (Łódź and Greater Poland), Western Poland (Lubusz and Lower Silesian), Northern Poland (West Pomeranian), and Southern Poland (Lesser Poland and Silesian)

- These regions are characterized by high exposure to extreme events (repeated cycles of severe drought), economic reliance on water-dependent sectors (e.g., agriculture, hydropower, and tourism), social and environmental strains (declining agricultural viability, water scarcity stress on ecosystems and local economies).

Hotspot 4 Romania: Dobrogea, Bărăgan Plain, Oltenia Plain and Moldavia

- Lower-than-average precipitation (Moldavia region) or even semi-arid conditions (Dobrogea, Baragan and Oltenia plain) expose these areas to significant drought hazard. The dependence on rain-fed agriculture and the lack of efficient water management systems aggravate drought impacts, leading to crop failures and financial strain on farmers.

Hotspot 5 Austria: Seewinkel region

- Seewinkel (North-East of Austria) is a semi-arid region exposed to significant anthropogenic pressure due to agricultural production, increasing population and tourism. The region belongs to a single groundwater body and the decline of the groundwater table lead to environmental consequences like the reduction of the number of saline lakes and water quality issues.

Context

The increased frequency and intensity of drought in Central and SE Europe pose diverse and increasingly severe environmental and economic challenges.

Significant droughts during the period 2018-2023 lead to impacts on agriculture (e.g., notable yield reductions in key crops such as maize and sunflower), forests (defoliation, pest outbreaks, decreased timber yields), water availability, desertification.

These further extended to socio-economic impacts with negative effects on local/national economies, contributing to inflation in food prices and thus affecting food security.



Case Study 2 – Study area

Objectives

- Assess the features of the physical risks of the 2018-2023 multi-year drought and its potential socio-economic implications in a changing climate;
- Examine of the socio-economic fluxes that increased competition for land, groundwater resources and rare ecosystems;
- Identify the range of socio-economic drought-related risks and societal interventions that were applied to secure food supply during the post-COVID-19 transformation and geopolitical crises.

Methods

Using climate and socio-economic data, the hazard represented by drought as well as its impact were investigated for current and future climate. The risk assessment analysis highlights areas most vulnerable to drought, preparing the next step of the study on adaptation options.



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