Climate RVAs

Advocating for a cross-sectoral recognition of risks

&

Developing prescient mitigation action plans

CENTRAL EASTERN EUROPEAN SUSTAINABLE ENERGY NETWORK

Central and Eastern Europe Sustainable Energy Union

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Settlements

- Climate instability: Arctic blasts (impact on the energy poor), hypothermia, freezing of water supply network
- Climate instability: heat waves (impact on the energy poor), hyperthermia/acute kidney disease
- Climate instability: mild winters (reduced snow removal on roads, increased anti-skid measures required)
- Wild swings in temperatures, precipitation ("whiplash" events): infrastructure, buildings fall into disrepair faster[1]
- Climate instability – pluvial rivers: widescale flooding / mud and rockslides / unpaved roads destroyed / sewage/seepage systems overwhelmed
- Flash floods, high winds: mud and rockslides / communications severed (trees toppled)[2] / sewage overflow / siltation of watercourses
- Extended droughts: reservoir/shallow-well depletion (hydropower, potable water, navigation, inland fisheries), eutrophication, parasite loads in waters
- Mountainous areas: ice depletion → threat of rockface destabilization
- Wildfires (forest, land)
- Ambient air pollution (smog, ozone, pollen, etc.)
- Subsidence as aquifers drained
- Sea-level rise / confluences of high tides, storm surge, high surf → coastal erosion - beach, housing, business losses, destruction of piers, jetties, moorings

- 2002, Central Europe in regions of Germany, Austria, and the Czech Republic
- 2005, UK in the Midlands and the North of England
- 2008, Spain in Valencia and Murcia
- 2010, France in the Rhône and the Loire valleys
- 2014, Poland and Germany in the Oder and Vistula valleys
- 2016, France in the Loire and the Seine valleys
- 2017, Spain in Galicia, Asturias and Cantabria
- 2018, UK in Wales, the Southwest and Northwest of England
- 2019, Germany in Saxony, Thuringia, and Brandenburg
- 2020, Italy in Tuscany, Sardinia, and Lazio

[1] An assessment of what can happen when unanticipated extreme cold strikes: https://www.washingtonpost.com/climate-environment/interactive/2023/cold-infrastructure-transportation/

[2] https://www.nytimes.com/2023/01/06/us/california-storms-trees.html In Sacramento, which bills itself as the "City of Trees," the pluvial rivers toppled nearly 1,000 trees in six days… the urban canopy is a critical piece of environmental infrastructure, cooling sidewalks, cleansing air, creating wildlife habitat and giving people of all socioeconomic backgrounds respite from intensifying heat waves

Agriculture, Forestry & Biodiversity

- Winter chill hours for fruit trees reduced, heavy spring rains knock blossoms off
- Winter kill of tree-boring insect pests reduced & undergrowth biomass increases → fire danger heightened
- Lack of snowfall + cold snaps kills overwintering crops
- Rapid onset of spring heat → rapid snowmelt affecting irrigation through summer
- Glacier retreat → irregularity in spring flow, summer irrigation sources
- Extended heat waves / droghts[1]: e.g., each day's average T ≥ 30°C →1% loss in maize yields
- Intense prolonged rainfall overwhelms drainage systems → waterlogged soils, extensive flooding
- Sea level rise → saltwater incursion into aquifers, salinization of soils
- Heat + humidity → mycotoxin proliferation (e.g., aflatoxins in grains, dairy)
- Disease-bearing vectors (e.g., ticks, mosquitoes) proliferate, affecting outdoor workers
- Pollinator decline (bee colony collapse, bee parasites, white-nose syndrome in bats, etc.)
- Endemic biodiversity threatened, invasive species arrive / reduction of control success[2]
- Bears spend fewer days in hibernation (and forage in winter for scarce food)[3] → increased chances for conflict with humans

[1] For every 1°C rise in temperature, the atmosphere exerts a 7% greater evapotranspirative demand, and can hold 7% more water vapour that then can fall out as precipitation
[2] https://www.theguardian.com/environment/2023/feb/10/cacti-replacing-snow-on-swiss-mountainsides-due-to-global-heating
[3] https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.13021 – for every 1°C rise in minimum winter temperatures, bears hibernate for 6 fewer days; for every 1°C increase in Spring temperatures, bears emerge 3.5 days earlier

Local Economy & Social Compact

- Ski areas face a lack of snow
- Other winter sports/activities (e.g., sledding, ice fishing) negatively impacted
- Excessive heat → loss of labour hours, increase in irritability, increase in domestic violence[1]
- Increased fire risk forces closure of outdoor recreation areas
- Toxic algal blooms forces closure of waterbodies for recreation, body-cooling beach/water activities
- Shallow lakes evaporate, reed zones proliferate closing lakeshore beaches
- Communities cut off due to severed communication links, emergency services affected
- Flooding halts essential community businesses (markets, bakeries, bars, etc.)
- Shifts/swings in temperatures & humidity, wildfire smoke & gases, damage important archived papers[2]
- Hospitals overwhelmed by heat prostrated patients, toxin exposure (cyanobacteria), respiratory (mold, asthma, pollen)
- Depopulation: buildings partially abandoned, infrastructure no longer maintained, service deliveries reduced
- The poor are most threatened by the climate crisis → greater need for social services, specializations

[1] https://www.washingtonpost.com/climate-environment/2023/01/03/domestic-violence-climate-change-umoja/ [2] https://www.nytimes.com/2023/01/07/books/climate-change-book-preservation.html