



Carpathian Region: From a Strategic Agenda on Adaptation to Climate Change to practical improvements

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Content

- About the Convention
- The strategic agenda on climate change in the Carpathians
- Development of projects to adapt and mitigate climate change
- Recommendations how mountain areas in general can better adapt and mitigate climate change



History and main objective

- 7 State Parties
- Adoption: 22 May 2003 in Kyiv, Ukraine
- Entry into force: 4 January 2006
- 4 Meetings of the COP: 2006, 2008, 2011, 2014
- Current presidency: Czech Republic

Main objective:

- Protection and Sustainable Development of the Carpathian region

Policy Responses towards a Climate Proofed Carpathian Economy

- Public policy
- Mainstreaming of adaptation objectives
- Ecosystem management
- Increase transnational cooperation
- Ecoregional approach
- Action in framework of Carpathian Convention and of the EUSDR

Working groups

- WG on Conservation and Sustainable Use of Biological and Landscape Diversity
- WG on Spatial Development
- WG on Agriculture and Rural Development
- WG on Sustainable Forest Management
- WG on Sustainable Industry, Energy, Transport and Infrastructure
- WG on Sustainable Tourism
- WG on Cultural Heritage and Traditional Knowledge
- WG on Adaptation to Climate Change

Climate Change adaptation WG at Carpathian Convention

- Decision COP3/15 on Climate change of the COP 3 of the Carpathian Convention: a Working Group on Adaptation to Climate Change under the Carpathian Convention has been established
- Carpathian Convention aims at introducing a new Article on climate change because the topic is so important

Workplan

- Preparation of strategic agenda on adaptation in the Carpathians
- Planning of adaptation measures
- Realization of a clearing house for the Carpathians in the wider EU context

Eger Group

- Workshop on sharing of experiences on adaptation to climate change in mountain areas, Eger, Hungary, 22 October 2012
- Participation of representatives from Pyrenees, Alps, Carpathians, Balkans, Caucasus, Central Asia
- Main outcome: establishment of a platform for exchange of information and know-how and development of possible common activities
- On Facebook: Eger Working Group

Potential Priority Climate Change Adaptation Actions

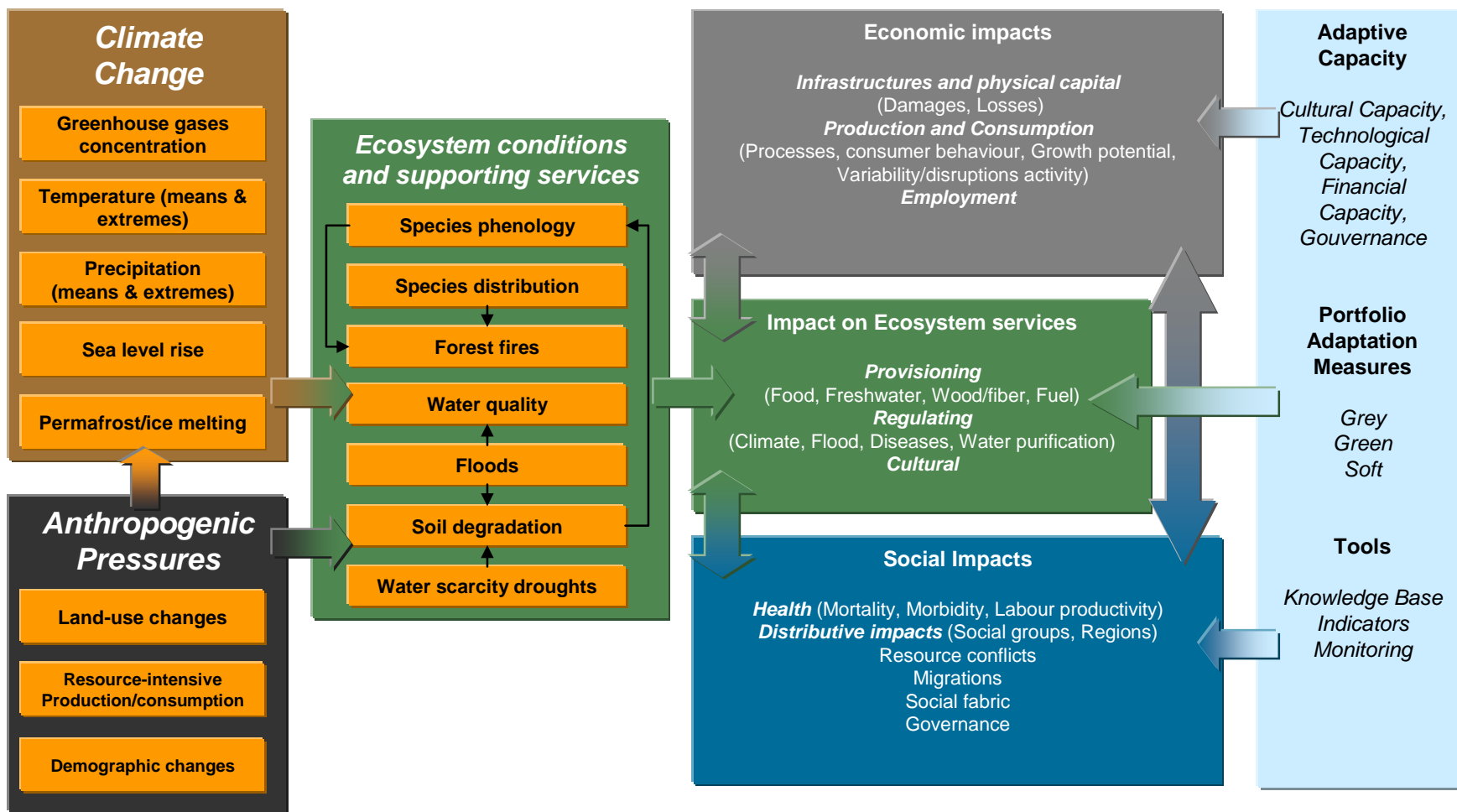
- Capacity building programme which draws on, and enhances the connectivity of the Region
 - Information management and awareness rising
 - Climate-proofing of infrastructure, investments and climate-cross compliance
 - Development of forestry measures for climate change adaptation
 - Making biodiversity management more dynamic
 - Evaluation of Carpathian ecosystem services
 - Capacity-building on proposal-writing for adaptation funding
 - Permanent Working Group on Climate Change

Strategic Agenda, content

1. Introduction
2. Background
3. Impacts of climate change in the Carpathians
4. Policy responses to create a Path to a Climate-Proofed Carpathian Economy
5. Institutional and organisational responses
6. Cross-Cutting Opportunities
7. Opportunity for the EU Funds from 2014-2020:
8. Steer the Region's Development Towards a Climate-Proofed Carpathian Space
9. Potential Priority Climate Change Adaptation Actions

Environmental pathway of vulnerability and adaptation

Jacques Delsalle, Evdokia Achilleos, DG Environment, Unit D1 – Protection of Water Resources



Preparatory actions

- Three projects:
 - Climate of the Carpathian region (CarpatClim)
 - Integrated assessment of vulnerability of environmental resources and ecosystem-based adaptation measures (Service contract CARPIVIA)
 - In-depth assessment of vulnerability of environmental resources and ecosystem-based adaptation measures (Framework contract CarpathCC)

CarpatClim project

- Climate of the Carpathian Region
- Led by the Hungarian Meteorological Service
- Harmonized long-term meteorological data (1961-2010)
- Daily, gridded database of more than 50 meteorological parameters
- Main aim: freely available common database to improve comparability of project results
- www.carpatclim-eu.org

Philosophy of CARPATCLIM

- No common database of raw data
- Each country provide the same work (hope for the availability of most possible data)
- Common softwares
- National and international consistency
- Near border data exchange (minimum number of data exchanged on equal basis)



CARPIVIA

- Carpathian Integrated Assessment of Vulnerability to Climate Change and Ecosystem-based Adaptation Measures (CARPIVIA)
- Assessed the vulnerability to climate change of the Carpathian region's main ecosystems
- Produced an inventory of climate change effects and ecosystem-based adaptation measures

- www.carpivia.eu

CarpathCC

- Carpathian In-depth Assessment of Vulnerability to Climate Change and Ecosystem-based Adaptation Measures (CarpathCC)
- Examined the vulnerability of water, forests, ecosystems and related production systems
- Proposed concrete ecosystem-based adaptation measures
- Assessed the costs and benefits of adaptation measures
- www.carpathcc.eu

Vulnerabilities of six important sectors 1/6

Water resources

- * Reduced snow cover
- * Sudden&heavy rainfalls
- * Changes in precipitation pattern → increase: the risk of floods, erosion, landslide risk
- * Declining river water levels → drought events
- * Declining groundwater level → availability&quaility of drinking water



(Source: Sakis Werner)

Adaptation measures 1/6

Water resources

- * Adjusting permits for water use or pollution discharge
- * Introducing smart irrigation systems
- * Planting forests and combating illegal logging in catchment areas in order to reduce nutrient loading and soil erosion
- * Restoring floodplains near rivers and streams to buffer extreme runoff and reduce flows of nutrients
- * Ensuring legal frameworks are in place to support planning and implementation of adaptation measures

Forests – vulnerability

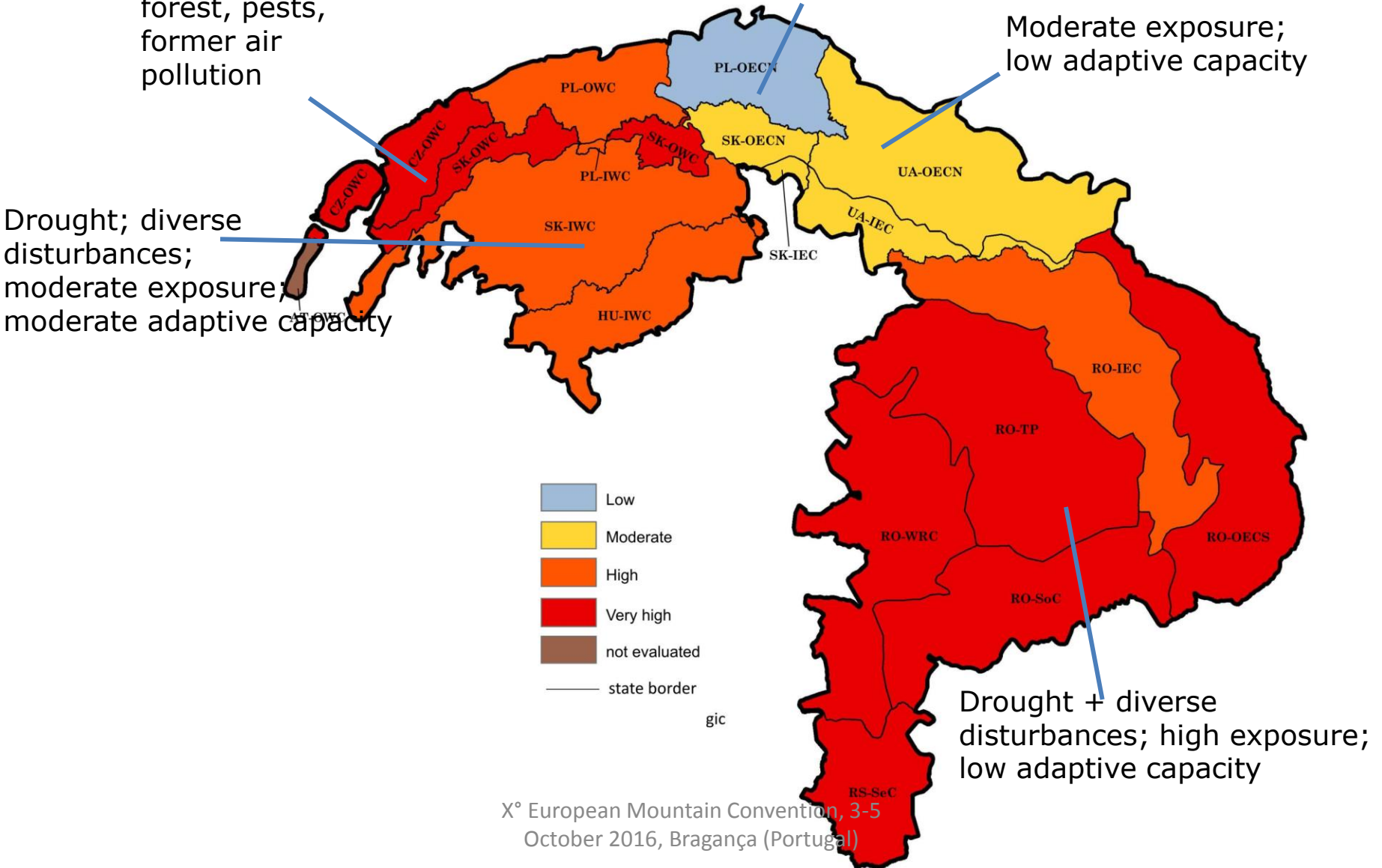
Secondary spruce forest, pests, former air pollution

Good forest structure, lower exposure, moderate AdCap

Moderate exposure; low adaptive capacity

Drought; diverse disturbances; moderate exposure; moderate adaptive capacity

Drought + diverse disturbances; high exposure; low adaptive capacity



Vulnerabilities of six important sectors 2/6

Forests and forestry

- * The way climate change affects forests: depend on forest structure, species composition, natural conditions, applied management, air pollution
- * Drought, windstorms → can trigger the pest outbreaks (bark beetles, defoliating species) and moving in of new species (Romania)
- * Forest decline → affects wood production, biodiversity and other ecosystem services



(source: sciencedaily.com)

Adaptation measures 2/6

Forests and forestry

- * Promote&encourage sustainable forest management
 - * Supporting and harmonizing regional and European forest monitoring schemes, including those tracking newly emerging pests and pathogens
 - * Increasing awareness about the role of forests in integrated watershed management
- particularly in biodiversity maintenance, water regulation and erosion control

Vulnerabilities of six important sectors 3/6

Wetlands

- * Increased temperature → dry out wetlands
- * Wetland loss → reduces habitat for plant & animal species, habitat fragmentation → threatened: migratory birds and amphibians
- * The most vulnerable wetland habitats: peatlands



(Source: wildlifetrust.org)

Adaptation measures 3/6

Wetlands

- * Developing monitoring systems for aquatic ecosystems in the region
- * Integrating wetland protection with flood control practices
- * Supporting programmes aimed at wetland and peatland restoration, floodplain rehabilitation
- * Creating new wetlands and lakes to enhance local water retention capacity and support biodiversity

Vulnerabilities of six important sectors 4/6

Grasslands

- * Increase in temperature, extreme events, tree line shifting upward, agricultural intensification → reduce the quality and coverage of grasslands → habitat fragmentation & species loss
- * Increased nutrient input (mulching & use of fertilizers) → increase the presence of invasive species & affect water quality → not suitable for grassland management



[Source: Barbara Scabo]

Adaptation measures 4/6

Grasslands

- * Implementing agro-environment measures and the EU nature & biodiversity Natura2000 management plans
- * Diversifying species and breeds of crops and animals
- * Managing through (extensive) grazing and mowing
- * Avoiding the abandonment of land or mulching or fertilizing techniques
- * Avoiding overgrazing

Vulnerabilities of six important sectors 5/6

Agriculture

- * Maize and wheat yields will decline (become feasible at higher altitudes)
- * Sunflower, soya and winter wheat yields might increase (due to higher temperature & migration of the northern limit of these crops)
- * Pest threaten is predicted to rise → productivity loss
- * Traditional mixed agro-ecosystems may disappear (due to land abandonment and land use change)



(Source: network.hu)

Adaptation measures 5/6

Agriculture

- * Supporting small-scale traditional farms as important economic activities delivering multiple ecosystem services
- * Supporting agro-environment programmes
 - to maintain&enhance biodiversity and viability of semi-natural grasslands&mixed agro-ecosystems

Vulnerabilities of six important sectors 6/6

Tourism

Positive effects from CC

- * Rising temperature in summer
→ bring additional tourists to the mountains

Negative effects from CC

- * Decline in snow depth&duration
→ limited winter sport possibilities



(Source: Andreas Beckman)

Adaptation measures 6/6

Tourism

- * Develop year-round, resilient destinations with good accommodations (e.g. wellness&conference hotels)
- * Develop ecotourism, health and active tourism
- * Evaluate investments in tourism infrastructure in the light of projected snow and water availability
- * Develop climate-friendly winter sport projects, relaxation and entertainment activities
- * Continue to diversify resorts and markets

Publications



Recommendations

- Develop the green economy (having in mind the financial background, this is not a mass production)
- Strengthen the co-operation with the neighbouring territories (water tower role, mountains and rivers together)
- Need for adaptation at the local level
- Strengthen the co-operation among the mountainous areas (more similarity than near the sea level)

Thank you for your attention!