




Consultation Meeting on the Integrated Drought
Management Programme, WMO/GWP
Geneva, 15-16 November 2010

Regional overview of IDM issues Central and Eastern Europe

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Honorary Chairman of GWP Poland*

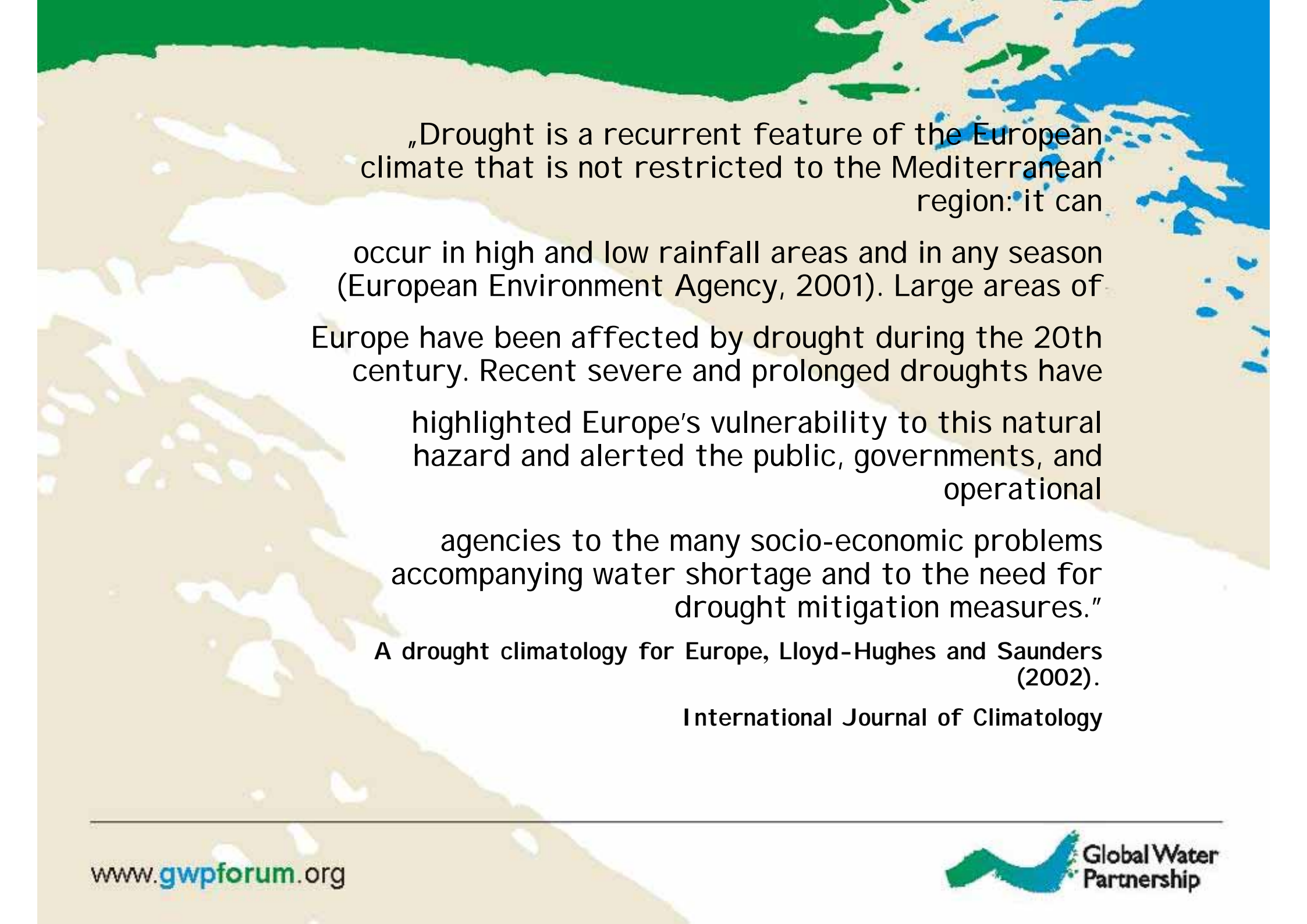
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- A stylized map of the Central and Eastern European (CEE) region, showing landmasses in light beige and green, and water bodies in blue. The map is positioned in the background of the slide.
- The CEE region
 - Droughts in the region
 - Droughts management
 - The main priorities – what to do?



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The GWP CEE region





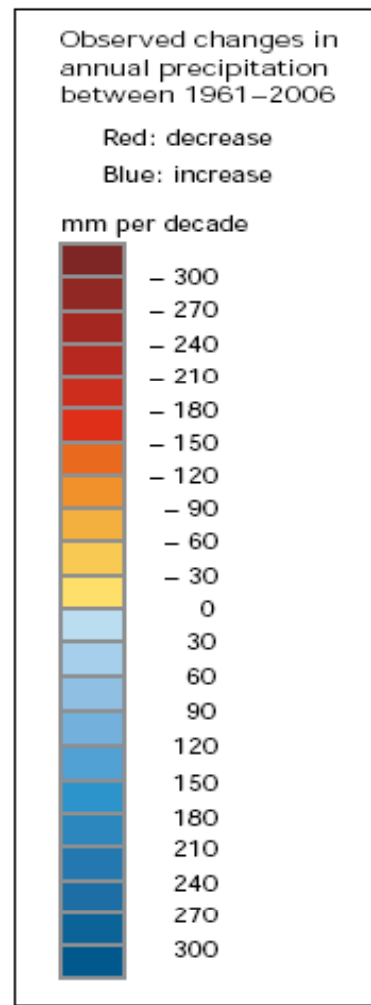
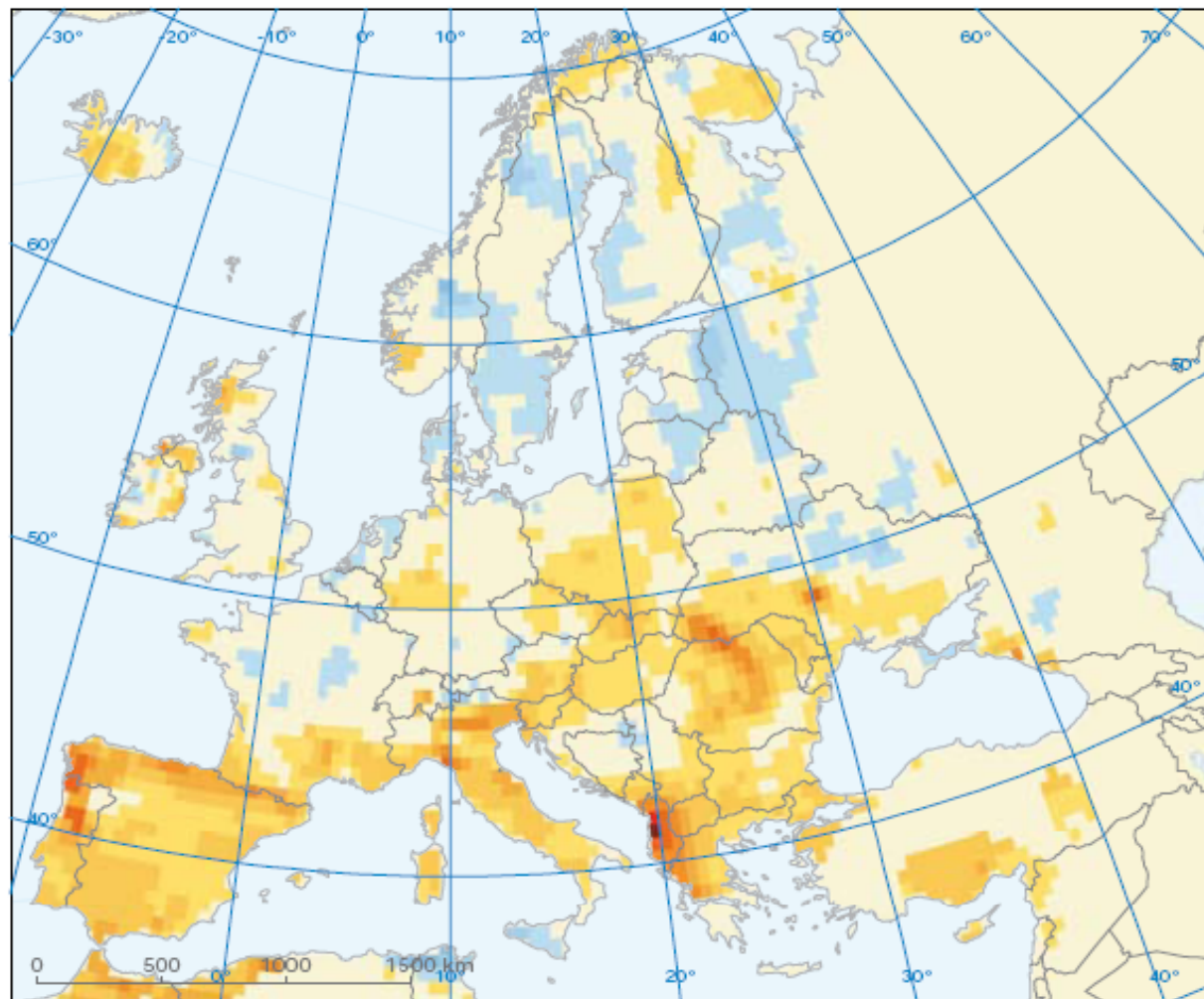
„Drought is a recurrent feature of the European climate that is not restricted to the Mediterranean region: it can occur in high and low rainfall areas and in any season (European Environment Agency, 2001). Large areas of Europe have been affected by drought during the 20th century. Recent severe and prolonged droughts have highlighted Europe's vulnerability to this natural hazard and alerted the public, governments, and operational agencies to the many socio-economic problems accompanying water shortage and to the need for drought mitigation measures.”

A drought climatology for Europe, Lloyd-Hughes and Saunders (2002).

International Journal of Climatology

Number of extreme drought events ($PDSI \leq -4$); A drought climatology for Europe (Lloyd-Hughes and Saunders, 2002), Int. Journal of Climatology





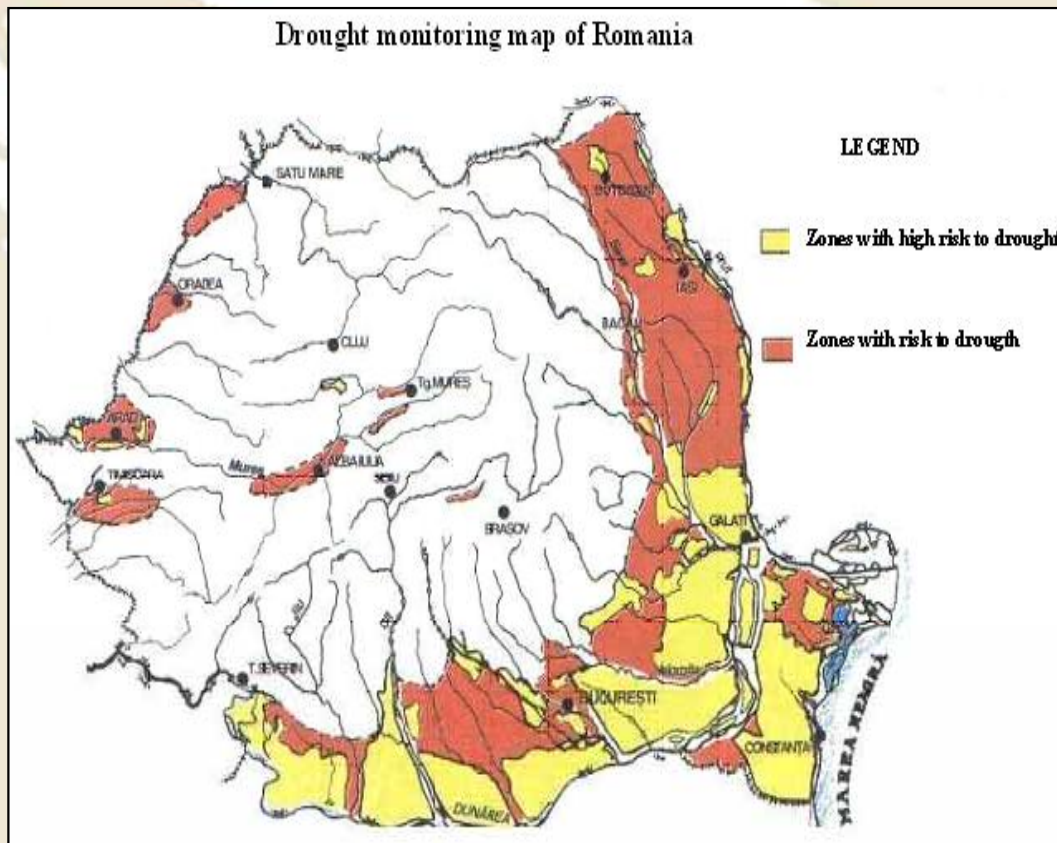
Note: Data are in mm per decade, blue means an increase, red a decrease. The observations indicate that large decadal scale variability in precipitation amount is superposed on the long time scale trends described above. This variability is partly related to the decadal scale variability in atmospheric circulation anomalies (see Box 5.1). Calculating trends over shorter time periods may therefore lead to different results.

Source: The climate dataset is from the EU-FP6 project ENSEMBLES (<http://www.ensembles-eu.org>) and the data providers in the ECA&D project (<http://eca.knmi.nl>).

„Trends in SPI and PDSI values indicate that the proportion of Europe experiencing extreme and/or moderate drought conditions has changed insignificantly during the 20th century. Spatially, changes in the mean value of both indices are found to be variable, with a significant shift towards wetter conditions observed over northeast Europe. Drying tendencies are observed over central eastern Europe and western Russia.”

A drought climatology for Europe, (Lloyd-Hughes and Saunders, 2002).

Examples from some of the CEE countries: ROMANIA (GWP Romania)



► Extremely droughty agricultural years in the XXth century:

Decade 1901-1910: **1907-1908**

Decade 1911-1920: **1917-1918**

Decade 1921-1930: **1923-1924, 1927-1928**

Decade 1931-1940: **1934-1935**

Decade 1941-1950: **1945-1946, 1947-1948, 1949-1950**

Decade 1951-1960: **1952-1953**

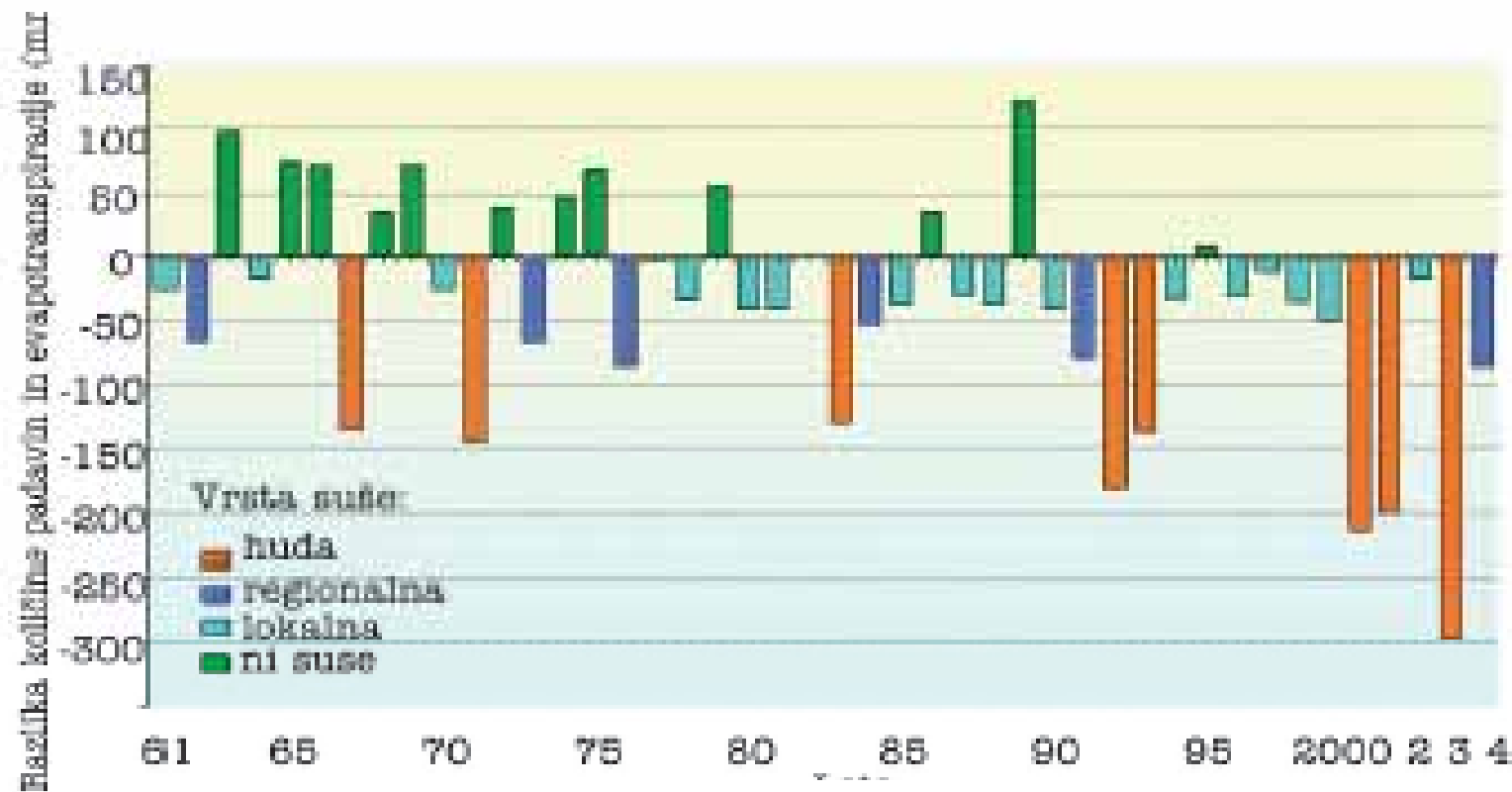
Decade 1981-1990: **1982-1983, 1985-1986, 1987-1988, 1989-1990**

Decade 1991-2000: **1992-1993, 1999-2000**

► Extremely droughty agricultural years in the XXIth century:

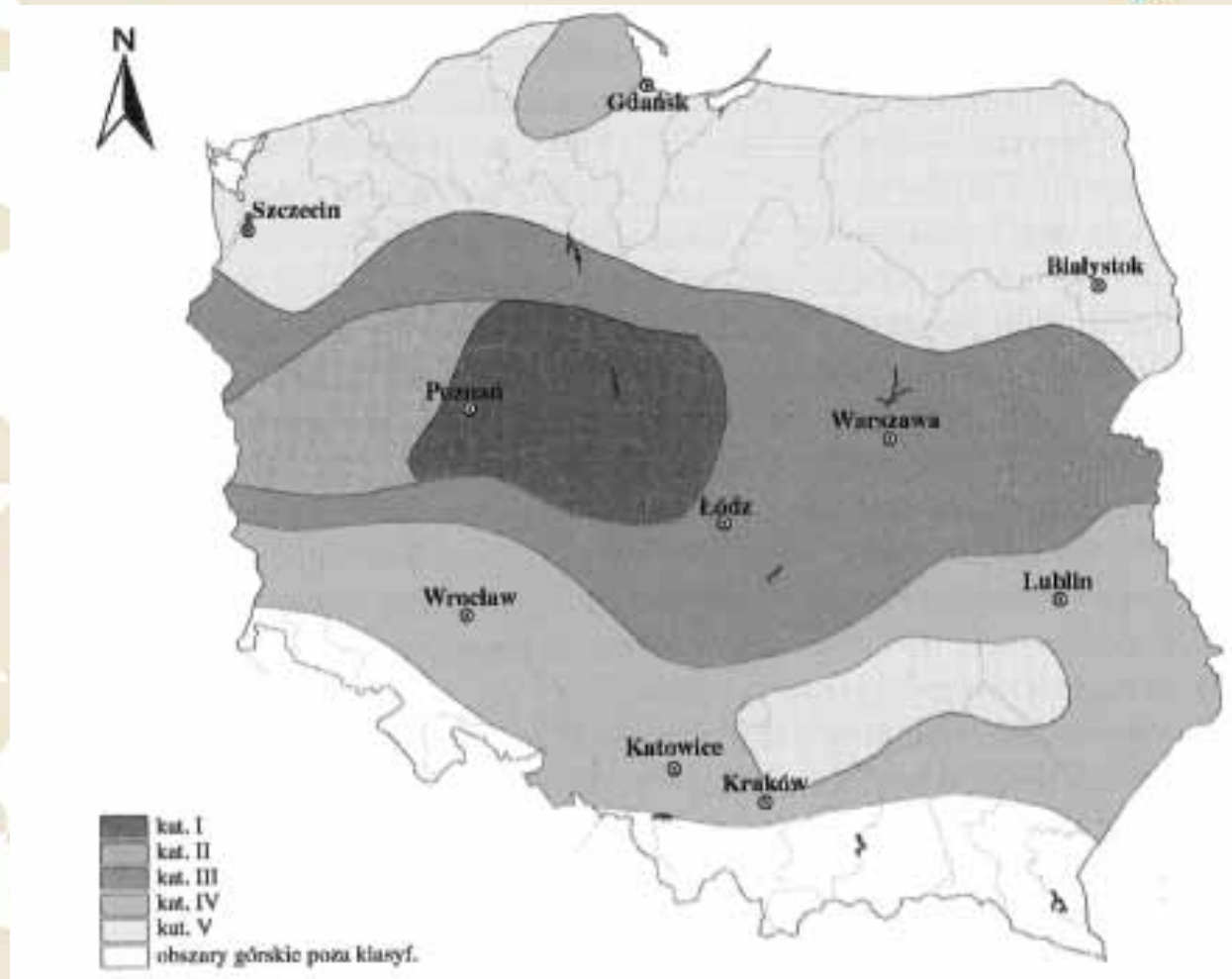
Decade 2001-2010: **2001, 2002, 2003, 2007, 2009**

Examples from some of the CEE countries: SLOVENIA; (GWP Slovenia)



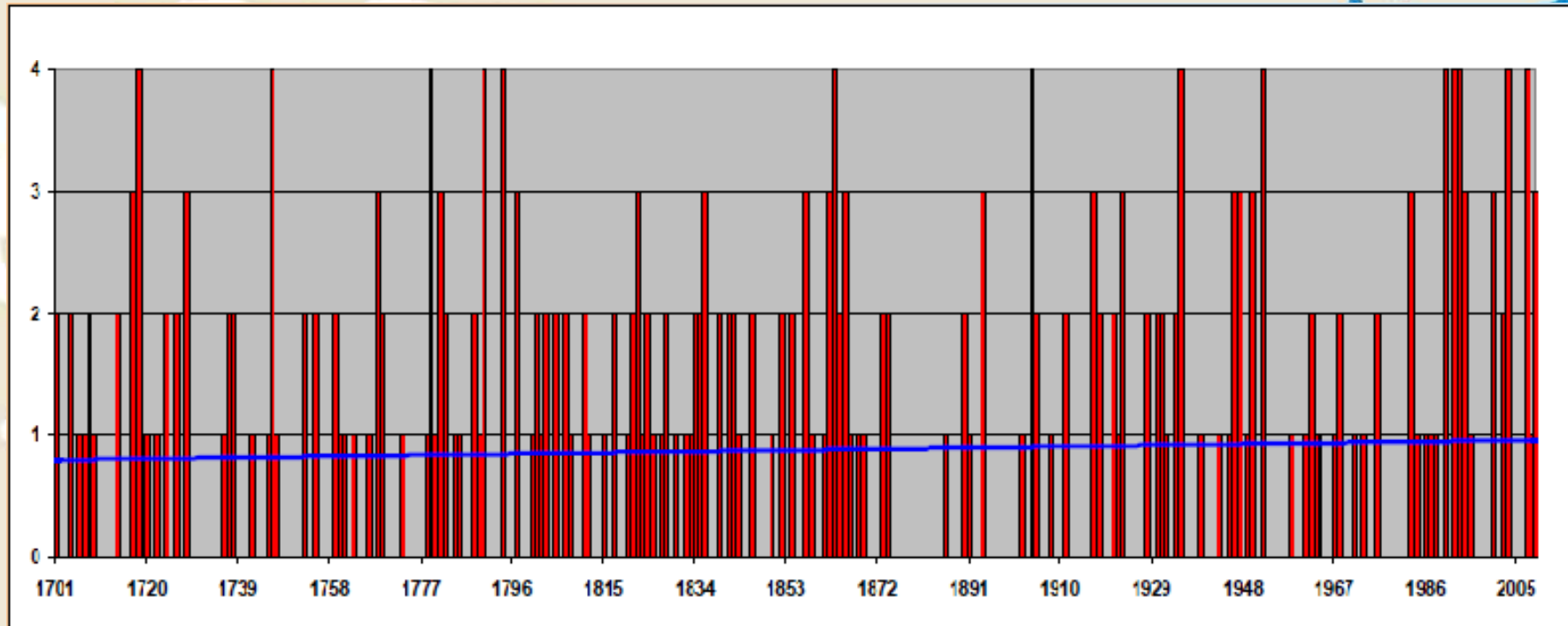
Droughts in Slovenia during 1961 to 2004.
The intensity of drought is determined by the rate of water deficit in 8 main agricultural areas in Slovenia [modified from Sušnik, 2003].

Examples from some of the CEE countries: POLAND



Hierarchy of small water retention needs as an indication of desertification risk

Drought value numbers in Carpathian Basin from 1701 till 2000: HUNGARY



Classification description	Drought value number
Low or none	0
Mild or local	1
Significant	2
Serious	3
Extremely serious	4

UKRAINE – catastrophic droughts affecting large portion of the population

- Over the past 120 years about 70 drought events, some of them several years long; since independence 7 drought events: 1994, 1996, 1999, 2000, 2003, 2005, 2007,
- In 2007 unusually strong spring and summer drought covered about 2/3 of the country's territory; reduced grain yields to 22 million tons – export reduced to zero,
- Only farmers who installed irrigation systems survived,
- Special government resolutions to combat consequences of 2007 drought
- But 2007 drought is just an example ...

Comments on drought management from SLOVAKIA

- The 1994-2010 period was in Slovakia significant in frequent occurrence of serious droughts (mainly in 2000, 2002, 2003, 2006, 2007, 2008 and 2009).
- There are no national adaptation and mitigation strategies to face drought implications.
- Main problem: collection, integration accross drought prone sectors, coordination and harmonization of institutions dealing partially or separately with drought issues.

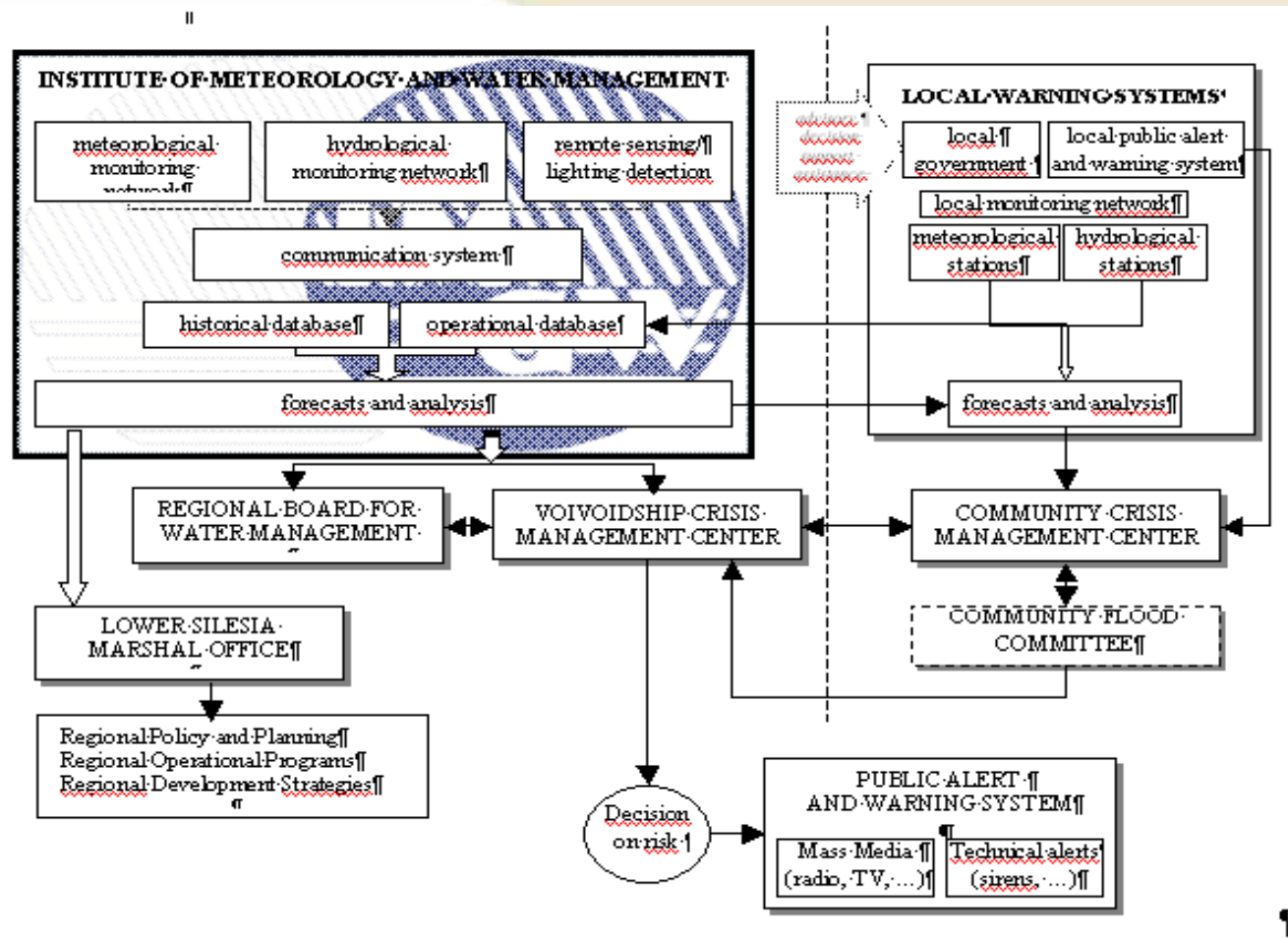
The drought management strategies in the CEE region

- There is no regional strategy as such, but all CEE countries have more or less advanced documents with some instructions how to cope with drought events,
- Some countries have national drought strategies (NDS) developed by National Committees to Combat Drought, Land Degradation and Desertification (e.g ROMANIA),
- In HUNGARY draft proposal of NDS is ready for governmental acceptance – developed generally in line with the I C I D Guide of 1998 „How to work out a drought mitigation strategy”,
- In most of the CEE countries bulk of drought related data are in hands of the national Weather Service Institutions.

The suggested priorities – what to do?

- Territorial delineation of those areas which are threatened by droughts
- Issues of drought/flood induced migration .
- Biomass production – to what extent it can increase water shortage and scarcity?
- Strategic role of alternative resources in the mitigation of water scarcity (trated wastewater, sea water desalination, etc.
- National integrated drought management system ready to run in operational mode.
- Operational drought management centre for South-Central Europe
- Promoting the need for close cooperation between agricultural and environmental sector with intention to find of what are true possibilities for adaptation related to available water resources balancing of consumption of water for agriculture
- Drawing attention to the need to providing water supply during drought periods at all potential risk areas.
- Drought contingency planning and management in the context of IWRM and EU water directives (water policy).

Integrated hydrometeorological monitoring and warning system under development: POLAND

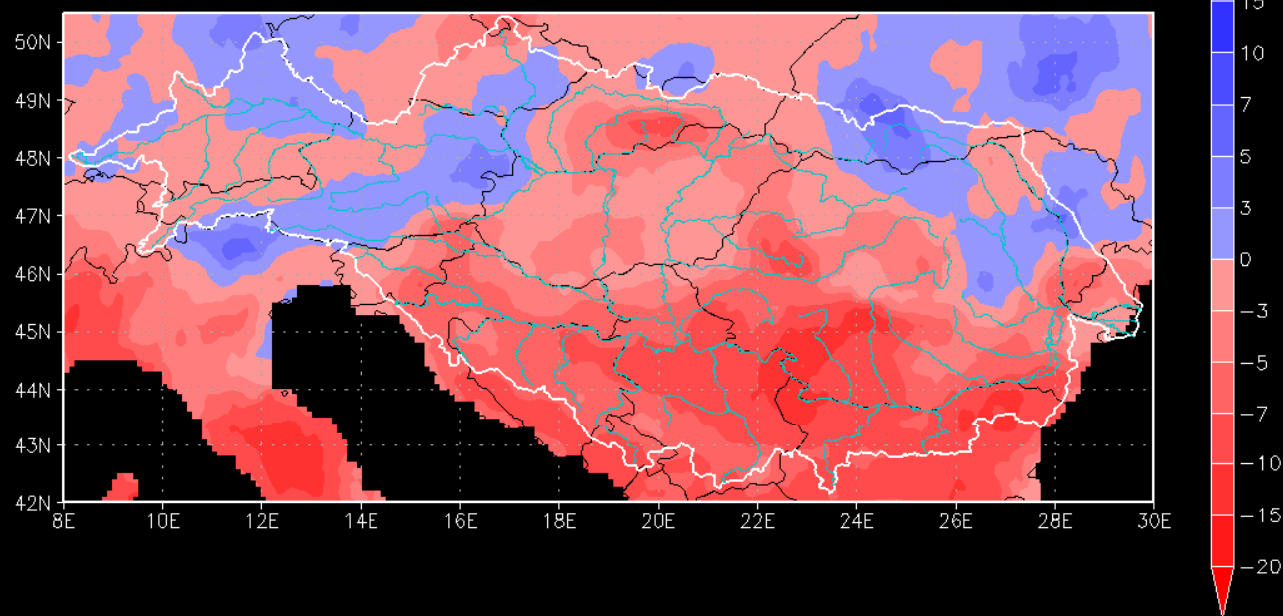


With reference to the WMP/GWP Concept Note ...

- Droughts in the CEE region is an important issue with serious economic, social and environmental consequences,
- The situation is different in specific CEE countries, which must be fully taken into account while designing the IDM strategies,
- A multi-disciplinary and scientific inputs to developing strategies is needed whereby water, land, economy (especially agricultural sector) and ecosystem issues are tackled jointly,
- A risk based approach is needed, as applied in the EU flood directive,
- Stakeholders' participation through advocacy and public awareness is key to the success.

Climate models: ECHAM 5 with REMO 5.7
Climate scenario: A1B

Difference of the ANNUAL precipitation amount for Danube catchment
between the periods 1961–1990 and 2021–2050 (%)
REMO 5.7 A1B ECA

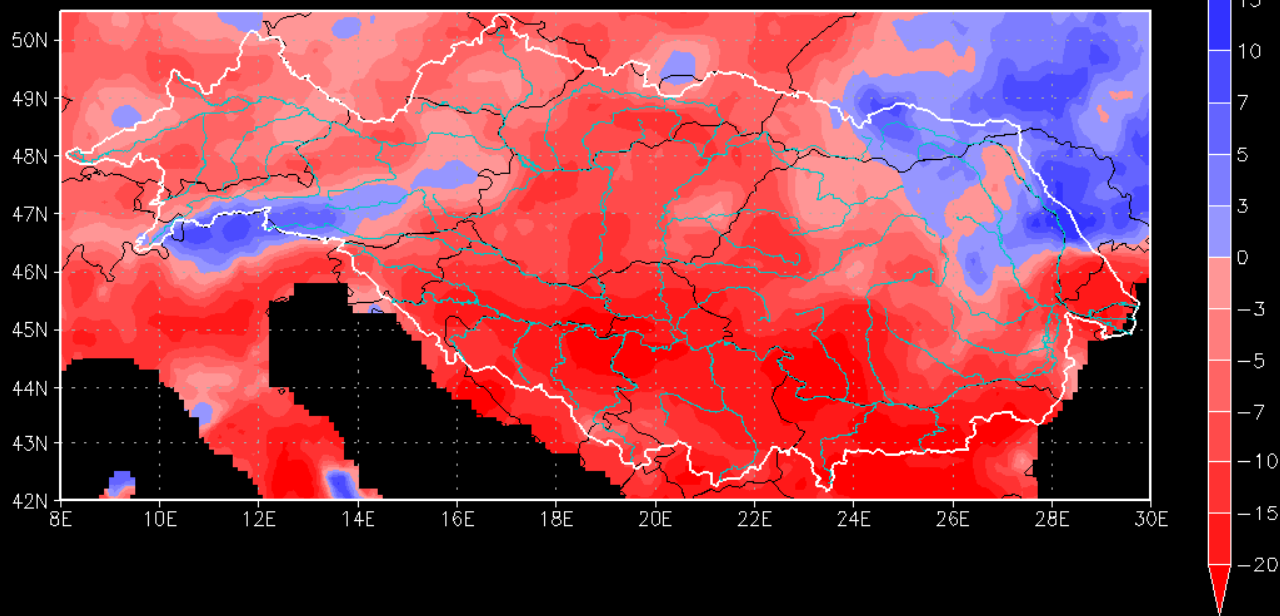


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Climate models: ECHAM 5 with REMO 5.7
Climate scenario: A1B

Difference of the SUMMER precipitation amount for Danube catchment
between the periods 1961–1990 and 2021–2050 (%)
REMO 5.7 A1B ECA



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Thank you!