

# DMCSEE as a center and a project

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# DMCSEE - From initiative to operability

- 1998 need for Balkan subregional center
- 2004 Center initiative – “top-down” approach  
*(International Commission on Irrigation and Drainage (ICID) adopted a declaration which expressed the need to establish this centre to alleviate problems caused by drought in the area “Balkan Drought Workshop” in Poiana/Brasov (RO), co-sponsored by the UNCCD)*
- 2006 **triangle approach**: UNCCD focal points, permanent representatives with the WMO + observers from UNCCD and WMO)  
*(Workshop for national experts and representatives of National Meteorological and Hydrological Services where they agreed on DMCSEE within context of UNCCD)*
- 2006 **decision on DMCSEE host institution** (procedure led by WMO).
- 2007 – 2009 **advocacy**, management, steering committee, active institutions in consortium.
- since 2008 **first drought monitoring products, fund raising**, cooperation with JRC (Eurogeoss project and EDO portal)
- April 2009 – May 2012 **Transnational cooperation programme project**

# DMCSEE – TCP-SEE project

The DMCSEE TCP project is envisaged as **“bridge project”** phase aiming at development of functions of the centre.

**Transnational Cooperation Programme for SE Europe**  
**www.southeast-europe.net**

**15** partners from **9** countries

Total project **budget 2.2 M€**

Not all countries participate!

(not all countries are eligible)



**consortium**

Jointly for our common future



# Monitoring of meteorological drought

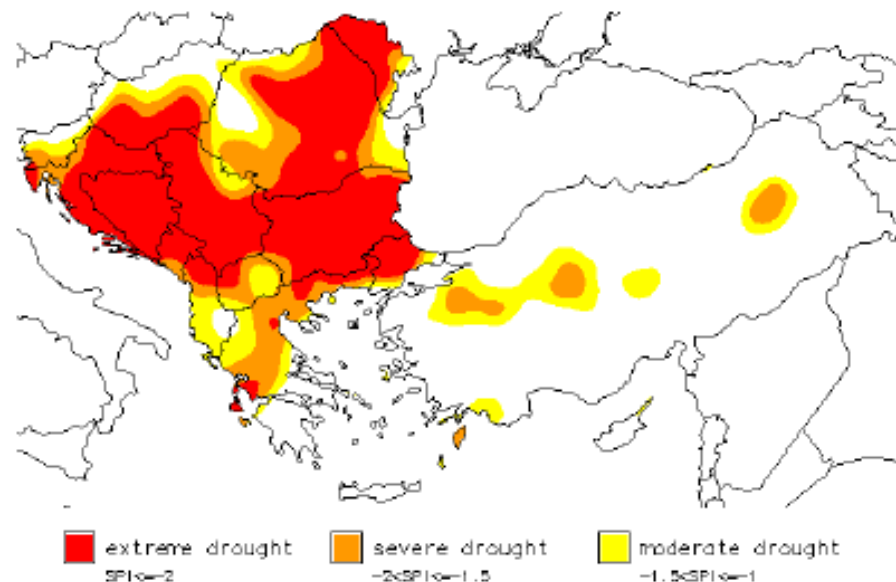
## Implementation of Standardized Precipitation Index (SPI)

Using [GPCC](#) data, some preliminary maps of the SPI, Percentiles and Precipitation for the region are prepared.

For period 1951-2000 maps are available.

**Standard tool for monitoring and early warning of meteorological drought**

SPI Aug 2012 (3 months)  
GPCC first-guess analysis



Standardized precipitation index (SPI), computed from GPCC data

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# Work packages of the project

- WP0 Project preparation
- WP1 Transnational Project Management and coordination
- WP2 Communication and dissemination
- WP3 Climatological monitoring and mapping system
- WP4 Drought risk assessment
- WP5 Capacity building trainings
- WP6 Start-up of the DMCSEE

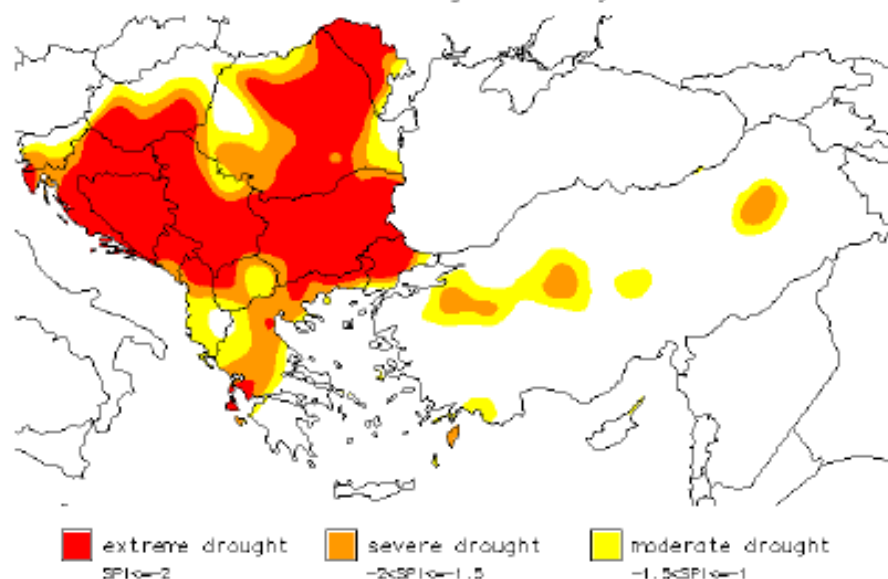
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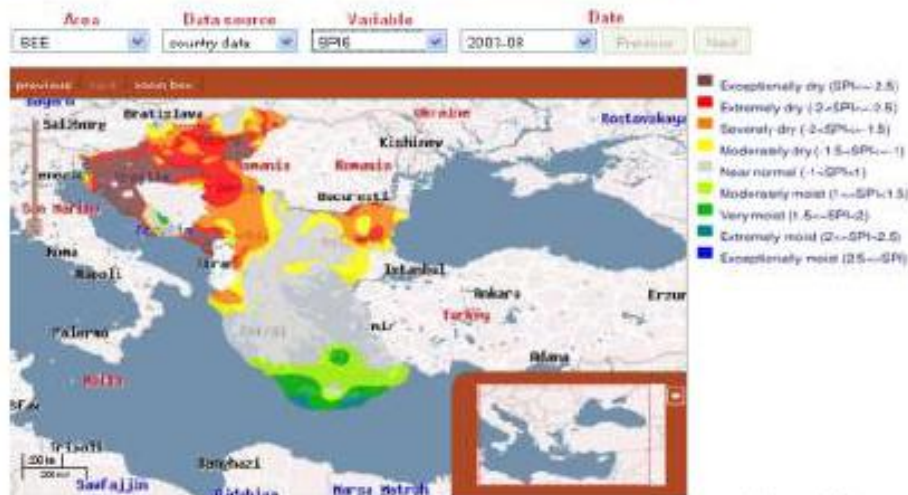
Implementation of Standardized Precipitation Index (SPI)

GIS application and Web Mapping Service

Available on  
[www.dmcsee.org/GISapp](http://www.dmcsee.org/GISapp)

Enables DMCSEE partners to upload their products, composites are calculated automatically

Currently available climatological maps (precip. and temp.) and SPI index



## Sensitivity and vulnerability to drought

**Natural vulnerability:** the rate of the reply, if a natural anomaly occurs. This rate is defined by the natural and social environment. E.g. the loss on vulnerable fields will be larger, than on less vulnerable lands.

The drought vulnerability maps can be prepared for the whole region using GIS techniques. All relevant impact factors (with available data layers) should be considered and appropriately weighted. Vulnerability is categorized and visualized in relative scale.

### **Scientific background:**

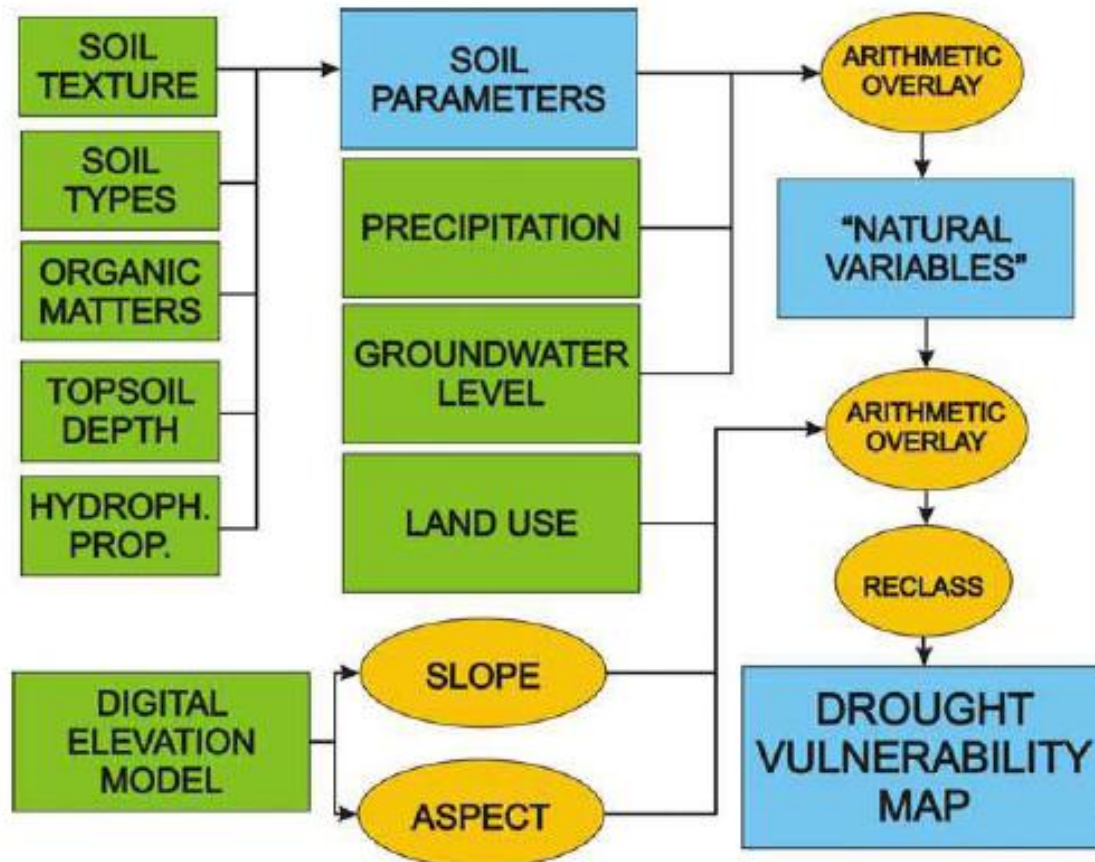
Wilhelmi, O. V. – Wilhite, D. A., 2002: Assessing Vulnerability to Agricultural Drought: A Nebraska Case Study, 2000 — Natural Hazards vol. 25, pp. 37 – 58.

Bella Sz., 2003: Magyarország egyes tájainak aszályérzékenysége – szakdolgozat, ELTE, Budapest, 63 p. (Drought vulnerability of Hungary's each regions – MSc thesis, Eötvös University, Budapest - Hungary)



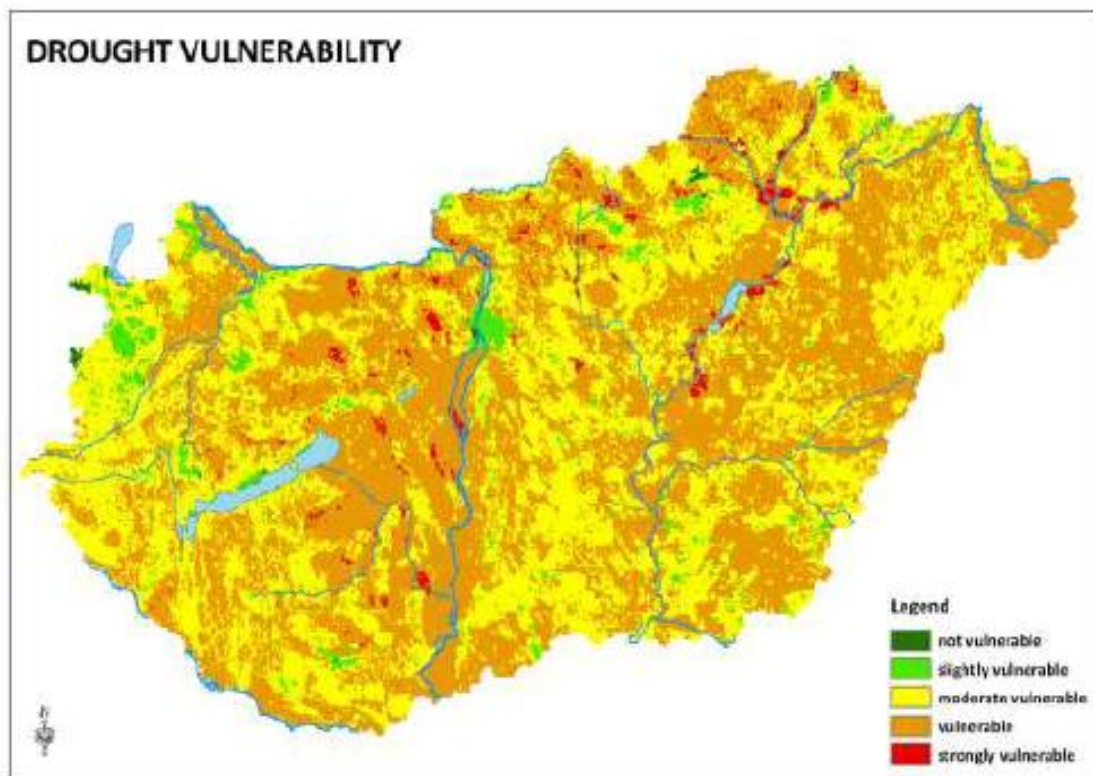


# Sensitivity and vulnerability to drought



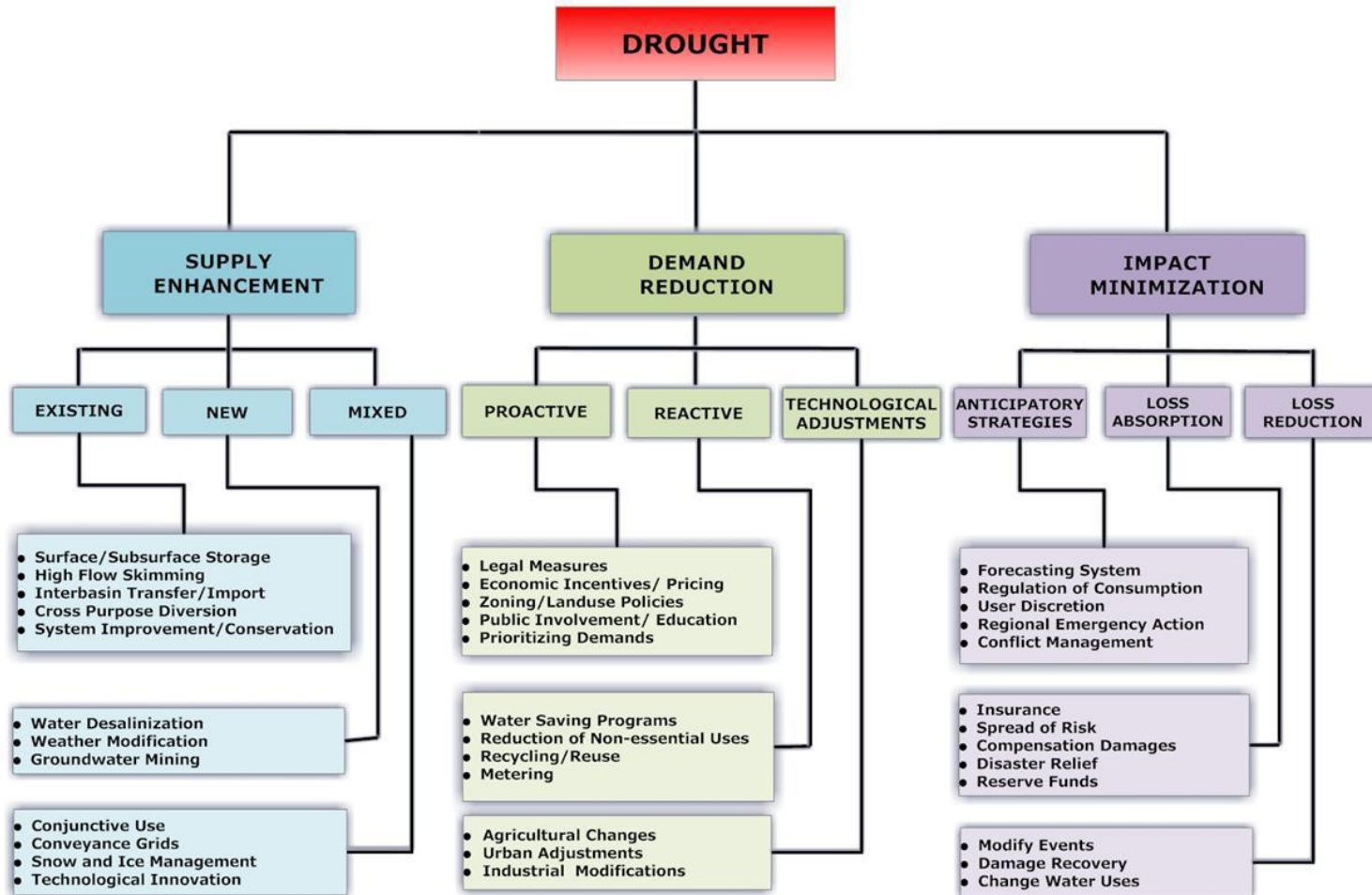
# Sensitivity and vulnerability to drought

Parameter	Weight
Slope	0.1623
Available Groundwater	0.0518
Sunshine duration	0.3071
Precipitation	0.1180
Land use	0.0858
Soil type	0.2232
Irrigation	0.0518



# Comprehensive Management Scheme

(Adapted from V. Yevyevich and E. Vlachos, 1983; C. A. Karavitis and N.S. Grigg, 1992, 1999)



# Drought Vulnerability Index

DMCSEE project, Karavitis et al., 2011

Vulnerability Level	SCALES										
	SPI			Supply		Demand		Impact		Infrastructure	
Less Vulnerable	0	Wet	$\geq 1,50$	0	No Deficits	0	No Deficits	0	None	0	Complete
Vulnerable	1	Quite Wet	0 to 1,49	1	15% Deficits	1	15% Deficits	1	15% Losses	1	15% Deficiency
Highly Vulnerable	2	Quite Dry	0 to -1,49	2	16-50% Deficits	2	16-50% Deficits	2	16-50% Losses	2	16-50% Deficiency
Extremely Vulnerable	3	Dry	$\leq -1,50$	3	>50% Serious Deficits	3	>50% Serious Deficits	3	>50% Losses	3	>50% Deficiency

The final DVI Scores are calculated according to the following equation.

$$DVI = \sum_{i=1}^6 F_i \times W_i$$

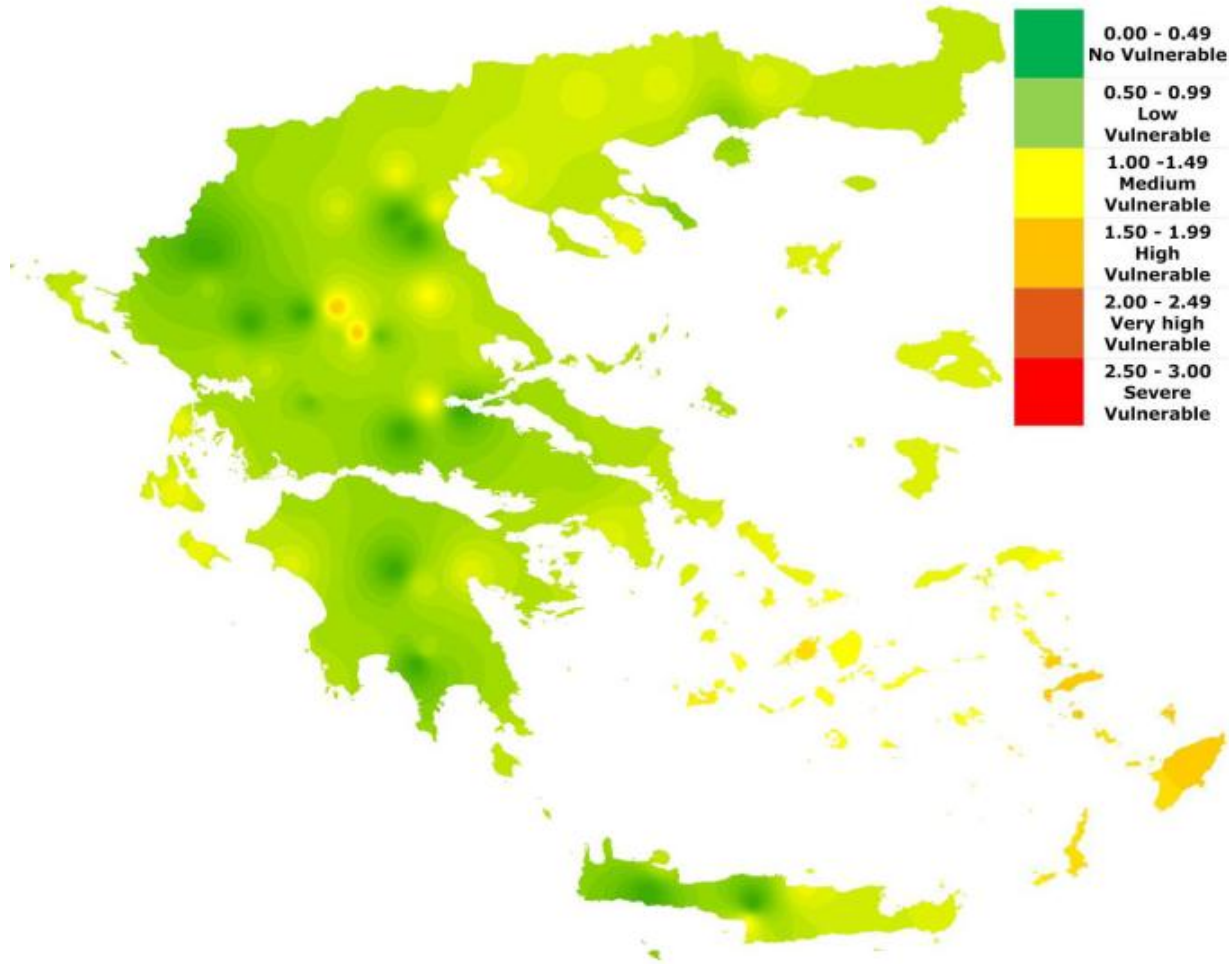
**Where:**

$F_i$  = Indicator Performance

$W_i$  = Indicator Weight

# SDVI, Greece, August, 2003

DMCSEE, Karavizis et al., 2011



# Policy recommendations

## Legal framework – drought management plans (WFD)

- appropriate drought authority (committee?)
- implementation of drought monitoring and early warning -  
specification of drought declaration
- effective water use



# Policy recommendations

## Drought preparedness and mitigation measures

- **Agriculture: Insurance**
- climatological risk - “weather index insurance”
- assistance in risk assessment – NMHSs data policy
- insurance subsidy and participation in mutual risk funds
- reinsurance options
- improvement of resilience



**Thank you for your attention!**