Interreg
Danube Transnational Programme
DriDanube

DriDanube project – the path to better drought management in the Danube region

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dr. Sandor Szalai

18 SG meeting - EUSDR PA4
4 November 2019, Budapest, Hungary

Project co-funded by European Union funds (ERDF, IPA)

DriDanube project has finished its work
on 30. September 2019

www.interreg-danube.eu/dridanube

- Project financed by European fund for regional development (85%)
- Lead partner: ARSO/DMCSEE
- Project budget: 1.974.750,00€
- Duration of project (with extension): 33 months **(January 2017 – September 2019)**

7 EU countries
3 Non-EU countries
15 partners
8 Strategic partners

Lead Partner:
- Slovenian Environment Agency (ARSO), Slovenia

Partners:
- EODC Earth Observation Data Centre for Water Resources Monitoring GmbH (EODC), Austria
- Global Change Research Institute CAS, (CzechGlobe), Czech Republic
- Global Water Partnership Central and Eastern Europe (GWP CEE), Slovakia
- Hungarian Meteorological Service (OMSZ), Hungary
- Vienna University of Technology (TU Wien), Austria
- Szent Istvan University (SZIU), Hungary
- National Meteorological Administration (NMA), Romania
- Centre of Excellence for Space Sciences and Technologies (SPACE-SI), Slovenia
- Meteorological and Hydrological Service (DHMZ), Croatia
- Slovak Hydrometeorological Institute (SHMU), Slovakia
- Faculty of Agriculture, University of Novi Sad (FAUNS), Serbia
- Republic Hydrometeorological Service of Serbia (RHMSS), Serbia
- Institute of Hydrometeorology and Seismology (IHMS), Montenegro
- Republic Hydrometeorological Service of Republic of Srpska (RHMZ RS), Bosnia and Hercegovina

Associated Strategic Partners:
- International Commission for the Protection of the Danube River (ICPDR), Austria
- Administration of the RS for Civil Protection and Disaster Relief (URSZR), Slovenia
- The State Land Office (SLO), Czech Republic
- Agricultural Station/Forecasting and Warning Service of Serbia in plant protection (PIS), Serbia
- Environment Agency Austria (EAA), Austria
- Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), Austria
- Ministry of Environment and Energy, Water management directorate (MZOIE), Croatia
- Ministry of Agriculture (FM), Hungary

Slovenia 2
Austria 2
Czech Republic 1
Slovakia 2
Hungary 2
Romania 1
Croatia 1
Serbia 2
Montenegro 1
Bosnia and Herzegovina 1

DriDanube innovations

Monitoring

Drought User Service

An innovative tool integrating all available data, including large volume of remote sensing products and serving the authorities to monitor, forecast and respond during drought development faster and with higher precision.

Impacts and risk assessment

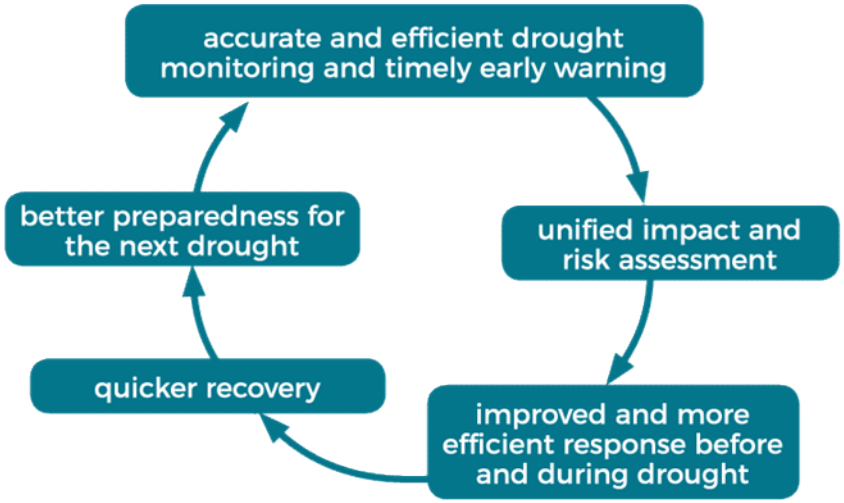
Methodologies for drought impact and risk assessment

Unification and cross-border coherence of drought Risk and Impact assessments. Establishment of network of reporters as additional source of information for drought impacts in agriculture.

Management

DriDanube Strategy

A clear guidance for overcoming the gaps in the drought decision-making processes and improvement of drought emergency response in the Danube region.



Result 1: Drought User Service – branded for public as Drought Watch

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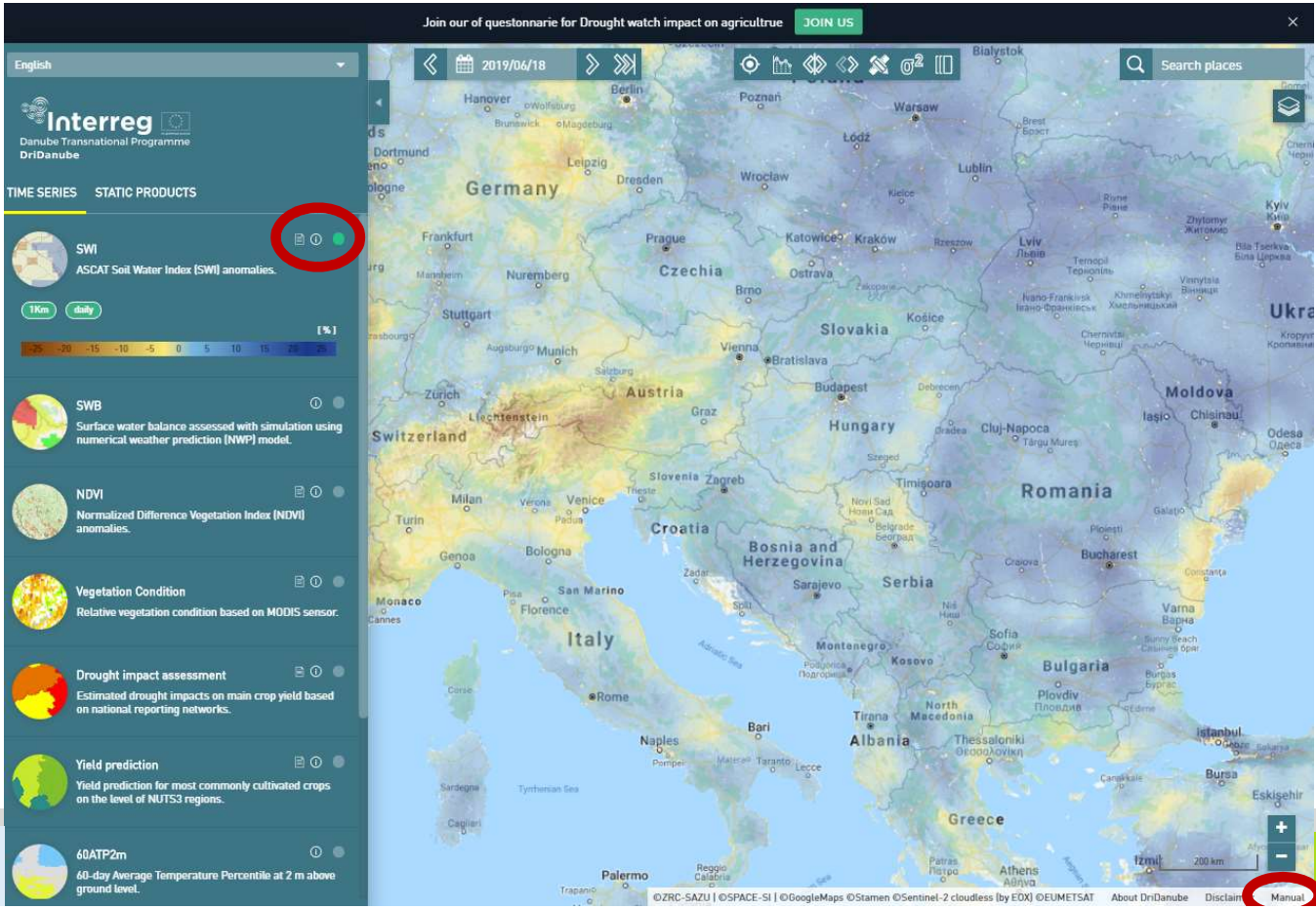
- Web-based interactive tool for near-real-time drought monitoring through different drought indices
- Enables more accurate and efficient drought monitoring and early warning for the entire Danube region

- Link:
  https://droughtwatch.eu/

- Source of data:
  - satellite (Big Data)
  - meteorological data

- Drought Watch user manual

- Short info button



Soil water anomalies (SWI) on 18.6.2019

Result 2: Methodology for drought impacts assessment

- interactions with reporters on weekly routine in 2018

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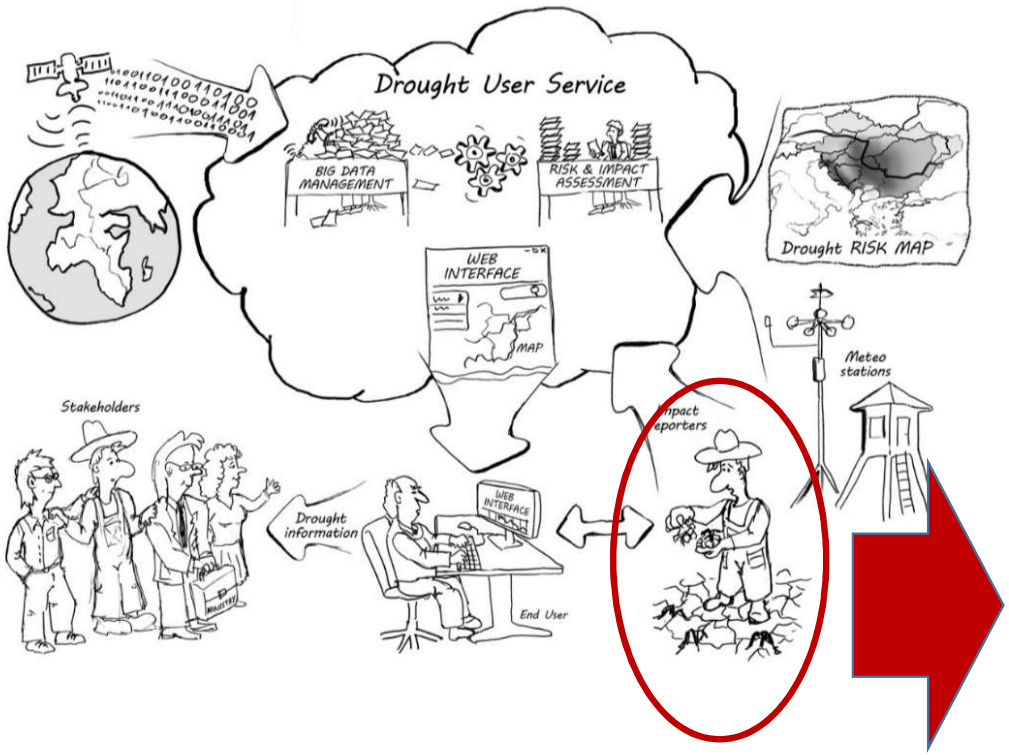
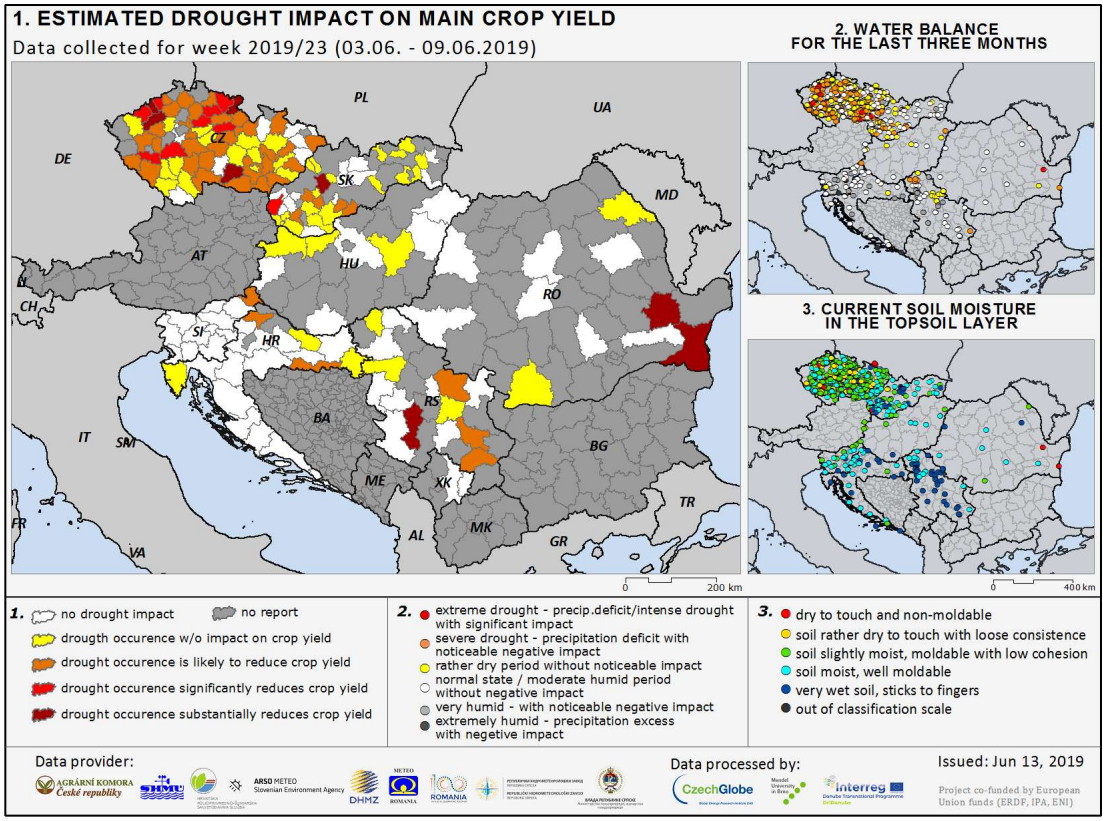
~1000 drought reporters in the region





It is important to complement **satellite and modelled** drought monitoring data **with the current status of drought impacts** on the ground.

➢ DriDanube Questionnaire for reporters – JOIN US!

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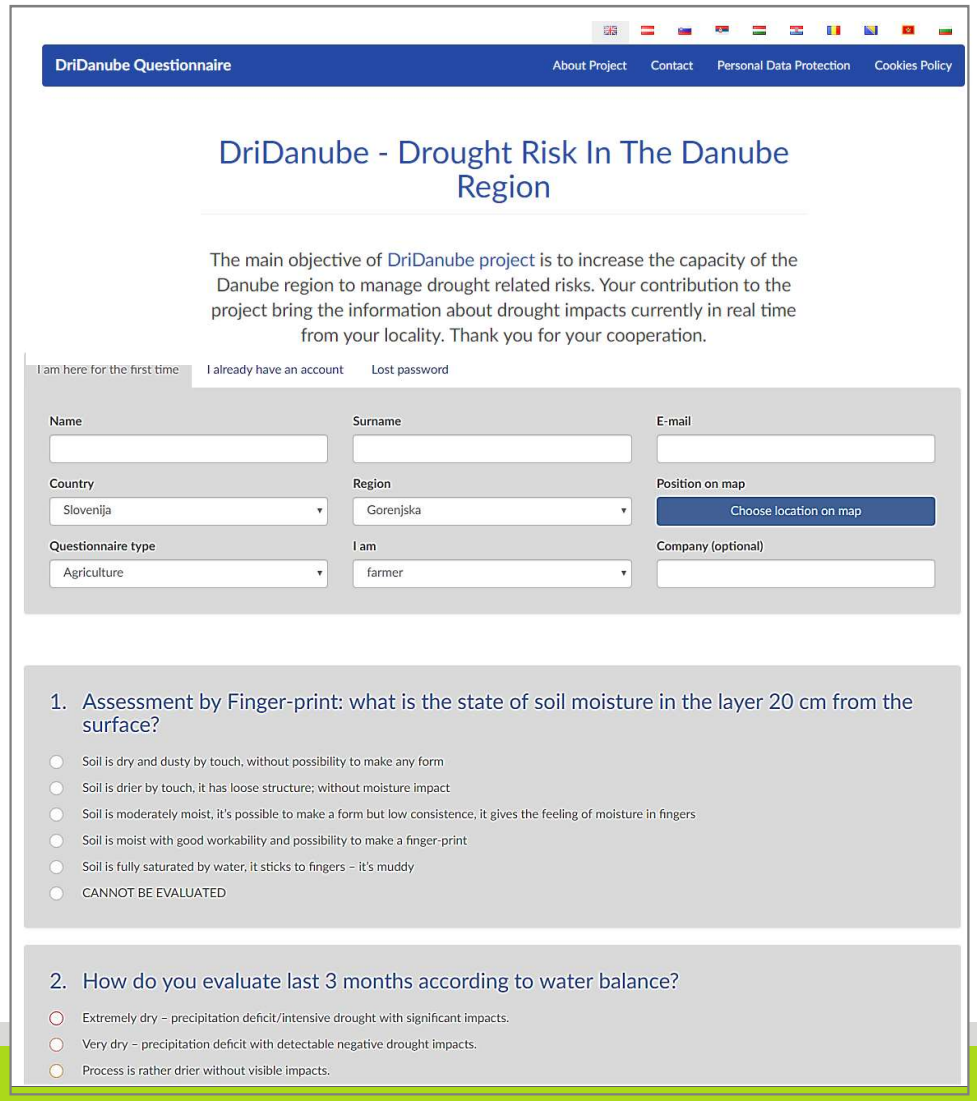


http://questionnaire.intersucho.cz/en/

Simple methods to weekly check the state of soil & crops on a selected non-irrigated area using online questionnaire.

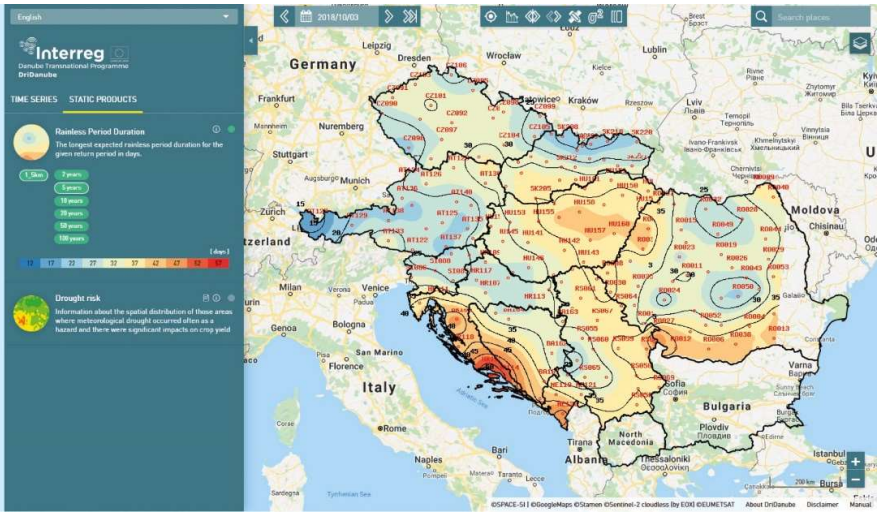
3 types of questionnaire (prevailing land use on observed area):

- agriculture
- fruit growing, viticulture, olive growing
- forestry

Result 3: Metodology for drought risk assessment

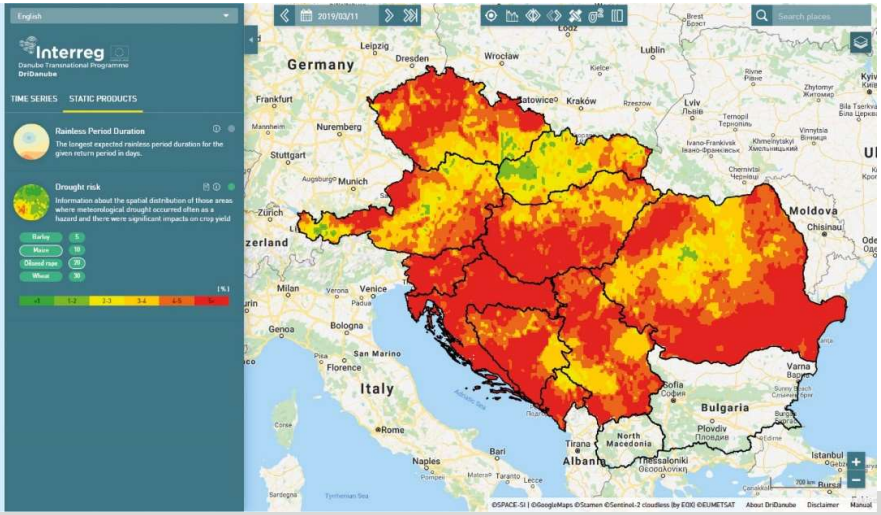
Drought Risk - climatology

Expected length of longest rainless period during vegetation season having a 5-year return period.



Drought Risk - yield loss

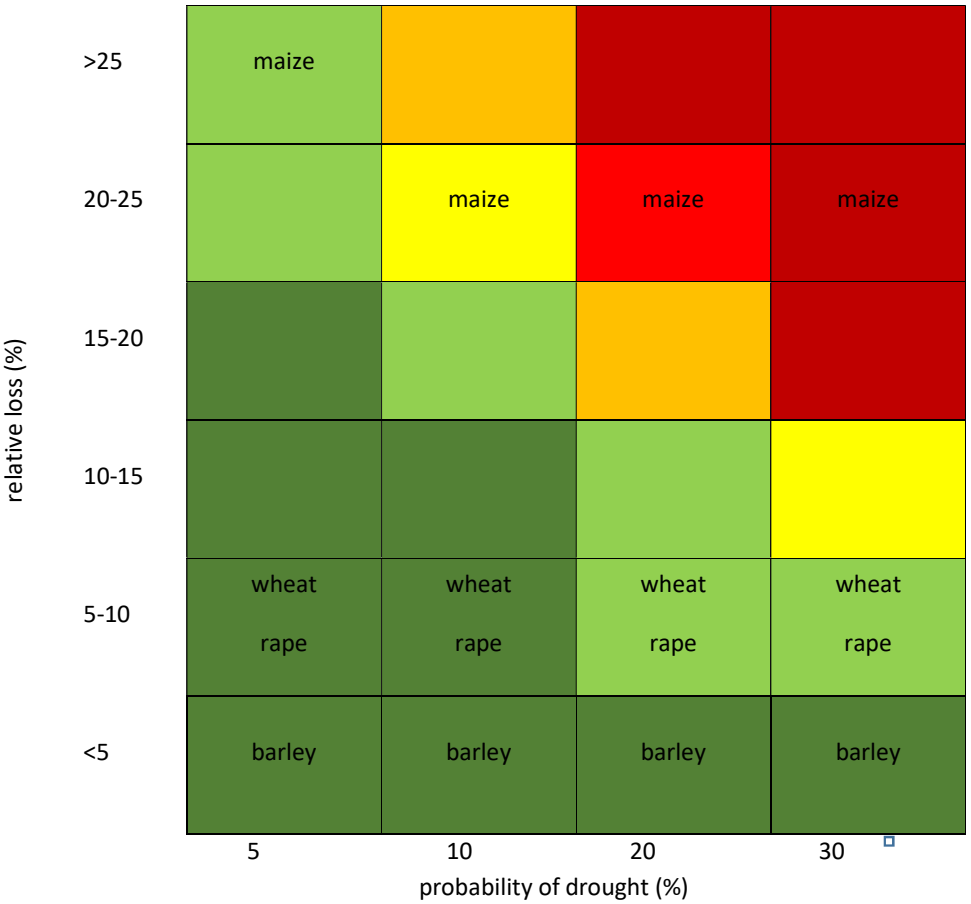
Colour-code drought risk map for estimated maize yield loss upon 20 % drought probability level.



Risk assessment and mapping of the drought risk are the key parts of a successful drought risk-oriented management process.

DriDanube project helped harmonize the drought risk calculation for the agricultural sector and obtain insights into crop yield loss risk across the whole region through the same eyes.

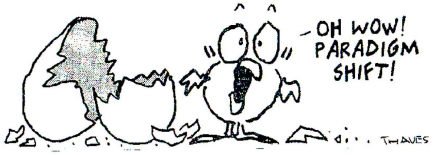
Result 3: Metodology for drought risk assessment



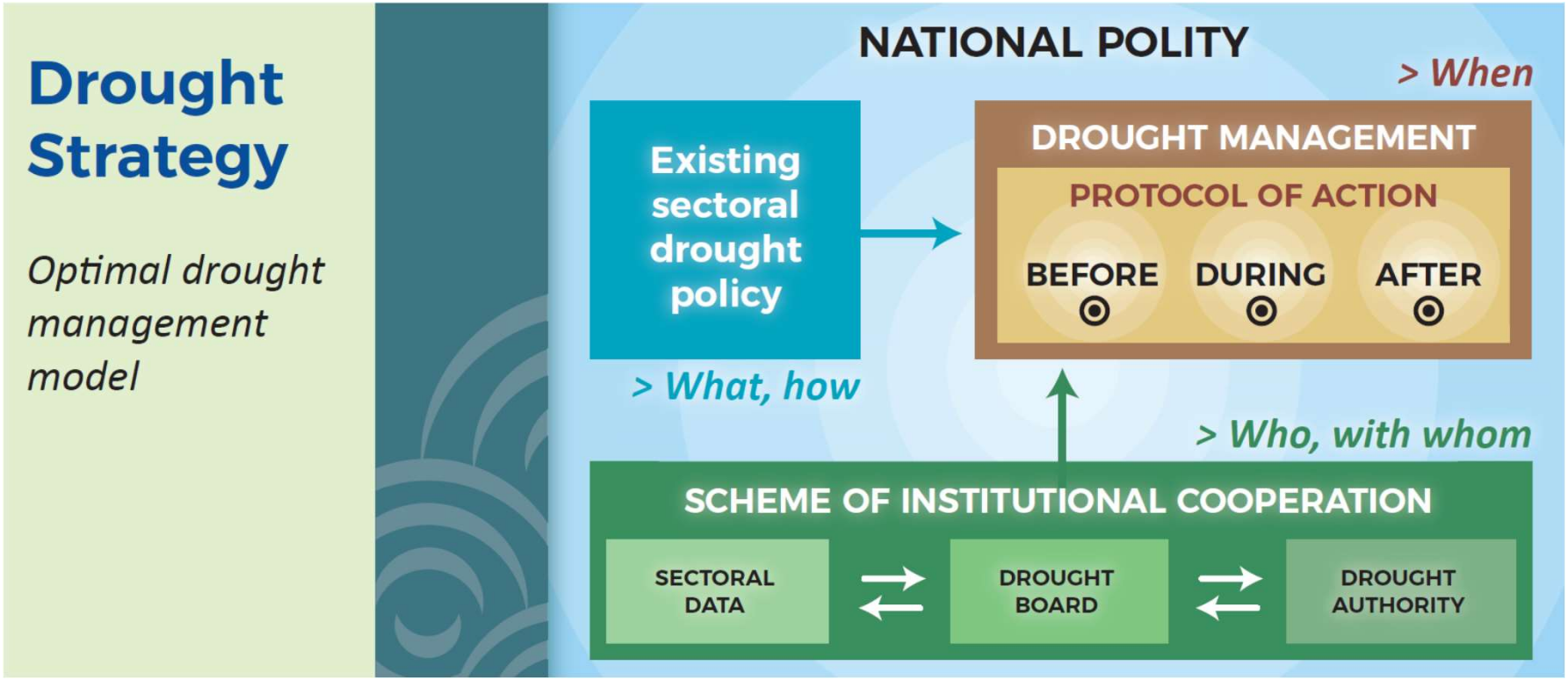
A special software package (RED) for drought risk estimation was prepared by OMSZ and its subcontractor Varimax. Procedures implemented in software calculated probability of reduced crops based on time series data and indicator of drought and non-drought years.

Beside maps, results were presented in form of matrix for four main regional crops (maize, wheat, rape and barley).

Result 4: DriDanube Drought Strategy



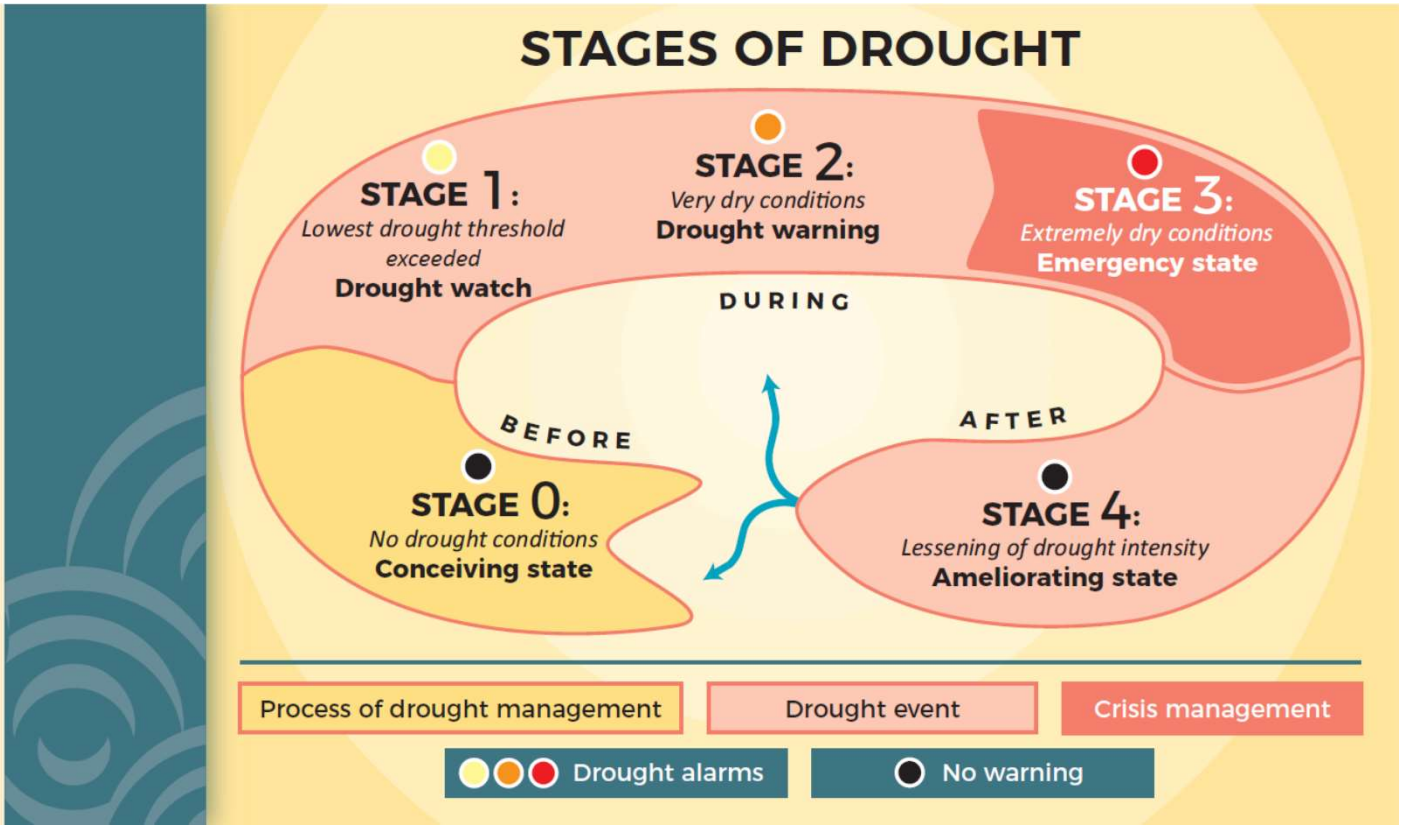
- Drought Management starts already before drought occurs



Institutional cooperation - mitigating drought is achievable through proactive problem solving, strong community involvement and co-operation at all levels.

Protocol of Action

5-stage drought scale and accompanied behaviour



Taking actions - current status of drought management in the Danube River Basin shows a need for investing into measures that will improve water balance in basins to face expected upcoming water quantity challange (SWMI).

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DriDanube project web page:
http://www.interreg-danube.eu/dridanube