Drought Management Centre for Southeastern Europe

Introduction

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Contents

Description of DMCSEE process
Introduction of the DMCSEE „TCP“ project
Introduction of the conference agenda
DMCSEE Process

2004 **First 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)
DMCSEE Process

2006 Second technical workshop for national experts and representatives of National Meteorological and Hydrological Services

The workshop was organized jointly by UNCCD and WMO in April 2006 in Sofia, Bulgaria, to discuss the establishment of a sub-regional drought centre in South-Eastern Europe within the context of the UNCCD. Participants: UNCCD focal points and Permanent Representatives with the WMO from sub-region were invited.

Important outputs: Framework for the preparation of a project proposal on the establishment of DMCSEE and agreement on further steps towards the establishment
DMCSEE Process

“Framework document” is considered as founding document of the DMCSEE

- 9 “aims and objectives”
- 11 “core functions” of DMCSEE
- 18 “core tasks” of DMCSEE

framework for the preparation of a project proposal on the establishment of a regional “Drought Management Centre for South-Eastern Europe” (DMCSEE) within the context of UNCCD and World Meteorological Organization (WMO) mandate

1. The participants at the workshop adopted the following framework proposal on the establishment of a regional “Drought Management Centre for South-Eastern Europe” (DMCSEE) within the context of UNCCD and World Meteorological Organization (WMO) mandate.

2. At a Technical Workshop on Drought Preparedness in the Balkans within the context of the UNCCD, held from 25 to 27 October 2004 in Pristina, Kosovo, the participating countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The former Yugoslav Republic of Macedonia, Greece, Hungary, the Republic of Moldova and Romania), in the presence of the representatives of a number of international organizations and programmes, agreed on the need to establish, in the context of the UNCCD, a regional centre relating to drought management issues, designated in the present document as “the Centre”.

3. Following an analysis of the answers submitted by interested countries to questionnaires, the participating countries Albania, Bosnia and Herzegovina, Bulgaria, Croatia, The former Yugoslav Republic of Macedonia, Hungary, the Republic of Moldova, Romania, Bosnia and Herzegovina and Turkey, at a Second Technical Workshop on the establishment of a regional centre relating to drought in South-Eastern Europe within the context of the UNCCD, held from 26 to 28 April 2005 in Sofia, Bulgaria, reached consensus agreement on the establishment of a centre for South-Eastern Europe. Representatives from Serbia and Montenegro also attended the workshop as observers.

4. The title of the Centre shall be the Drought Management Centre for South-Eastern Europe (DMCSEE).

5. A decision on the legal status of the Centre shall be taken at a later stage.

A. Aims and objectives

6. The aims and objectives of the Centre are as follows:

(a) To serve as an operational centre for South-Eastern Europe for drought preparedness, monitoring and management;

(b) To create and coordinate a subregional network of National Meteorological and Hydrological Services (NMHS) and other relevant institutions;

(c) To coordinate and provide the operational guidelines that will assist the NMHSs and other relevant institutions in the region to interpret and apply drought-related products;

(d) To prepare drought mapping and forecast products and make them available on a near real-time basis to relevant institutions in participating countries;
DMCSEE Process

2006  **Decision on DMCSEE host institution** (procedure led by WMO).

**Slovenian Environmental Agency** is executing DMCSEE tasks

2007  **Political commitment of Slovenian government** (permanent budget for the governance).

DMCSEE Kick-off meeting

Adoption of **project proposal document**, prepared with assistance of WMO

2008  First ISC Meeting, adoption of ISC Terms of reference.

Cooperation with Joint Research Centre

2009  Start of the **DMCSEE “bridging” project in framework of Transnational cooperation programme** (TCP).
DMCSEE Process

**PHASE OF ELABORATION OF THE PROJECT PROPOSAL**
- Kick-off meeting Ljubljana
- Draft proposal for WMO congress
- TOR for ISC
- TOR for consortium
- Budget and time table estimate
- Fund raising
- Website

**PROJECT ACTING AS BRIDGE TOWARDS PERMANENT DMCSEE**
- International Steering Committee (ISC) of the project
- Slovenia +WMO as executive agency of the project
- Mechanism of evaluation of the project
- Consortium of partners of the project
- Objective 8 of the project

**ESTABLISHED PERMANENT DMCSEE**
- Governance, sustainable funding, human resources, of the permanent center
- Legal status and internal rules and procedures of the permanent center
- Annual working programme partnership agreements for the center etc.

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DMCSEE Final Conference
14 – 15 May 2012
DMCSEE TCP project

Most suitable project framework was found to be

Transnational Cooperation Programme (TCP) for SE Europe
www.southeast-europe.net

(application to call for project was supported by ISC during 2nd meeting)

Main aim of transnational cooperation programme is to foster a balanced territorial development and territorial integration within the cooperation area

-> common infrastructure, not research!
DMCSEE TCP project

15 partners from 9 countries
Total project budget 2.1 M€
Start: March 2009
End: May 2012

Not all countries participate!
(not all countries were eligible)
WP3 – Monitoring and mapping system

- Assessment of existing institutional and technical capacity for effective drought monitoring and early warning system.

- Implementation of drought indices: Standardized Precipitation Index (SPI), Palmer Drought Severity Index (PDSI), Palfai Aridity Index (PAI) and others.

- Irrigation scheduling system implemented to assess watering needs of crops

- Development of software to detect snow cover.
Project work packages

1st Training on climatological practices-
CLIMATOLOGICAL HOMOGENIZATION AND INTERPOLATION
METHODS
Budapest, 5. – 10. February 2010
Lecturers:
Olivier Mestre, Meteo-France; lecture on homogenization as technique for elimination of features in data series that are not connected to climate
Mojca Dolinar, EARS; lecture on standard applications of geostatistics for spatial interpolation of climatological and drought monitoring data
Project work packages

1st Training on climatological practices-
CLIMATOLOGICAL HOMOGENIZATION AND INTERPOLATION METHODS
Lecturers (continued):
Reinhardt Schiemann, Meteo Swiss; lecture on advanced geophysical applications for complex terrain
Tamas Szentimrey, OMSZ; lecture on MISH software, available in Hungarian met. Service (OMSZ) for statistical interpolation with use of past data;
Gregor Gregorič, EARS; lecture on application of open-source GIS software SAGA for SPI interpolation.
Project work packages

Result:
regional and local implementation of Standard Precipitation Index

Tuesday, 9:30
Drought Monitoring Process and DMCSEE solutions
Gregor Gregorič,
Slovene Environmental Agency

Regional implementation of Palfai drought index

Tuesday, 11:30
Palfai drought index
Arpad Herceg, Lower Tisa water authority, Szeged
Project work packages

2nd Training on irrigation scheduling systems
Ljubljana, 7th – 11th June 2010

Lectures:
Prof. Luis Pereira, dr. Paula Paredes, Technical University of Lisbon

- Irrigation Demand management as drought mitigation measure
- Introduction to ISAREG model
Wisareg model \textit{(Pereira et al, 2003)}

Irrigation scheduling tool
large selection of irrigation methods;
soils divided into several layers;
results: variety of data

Data requirements

CROP DATA
- dates of phenological stages

SOIL DATA
- data for different soil layers

CLIMATOLOGICAL DATA
- humidity, wind, sunshine...

Etp and RR

Tuesday, 10:15
Risk Assessment of Drought in Agriculture, Irrigation Management and Drought Monitoring through Simulation Models
Prof. Zornitsa Popova,
Soil Science Institute, Sofia
Project work packages

WP4 – Drought risk assessment

- A common methodology for drought assessment (based on available meteorological data and climatologic archives) will be developed and adopted.

  Monday, 17:45
  Drought Vulnerability and Risk Assessment in SE Europe
  Prof. Christos Karavitis,
  Agricultural University of Athens

3rd Training on Drought Risk Assessment
Nauplion, Greece, 22nd – 26th November 2010

Lessons learned:
How to prepare categorical drought vulnerability/sensitivity map based on natural factors (soil parameters, slope, aspect, groundwater depth, meteorological factors and land use)

Risk assessment based on multicriteria
Decision analysis

DMCSEE Final Conference
14 – 15 May 2012
Project work packages

WP4 – Drought risk assessment
- The impacts will be analyzed from the historical records.

<table>
<thead>
<tr>
<th>TIME PERIOD</th>
<th>MAIN AREAS AFFECTED</th>
<th>DETAILED MAIN AREAS AFFECTED DESCRIPTION</th>
<th>SUBJECT OF IMPACT</th>
<th>DROUGHT IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 decade/11 - 30.4</td>
<td>W</td>
<td>winter crops</td>
<td>mild</td>
<td></td>
</tr>
<tr>
<td>2 decade/11 - 30.4</td>
<td>W</td>
<td>Primorska region</td>
<td>summer crops (sugar beet)</td>
<td>severe</td>
</tr>
<tr>
<td>2 decade/11 - 30.4</td>
<td>N</td>
<td></td>
<td>soil cultivation hindered</td>
<td></td>
</tr>
<tr>
<td>2 decade/11 - 30.5</td>
<td>NE</td>
<td>NE</td>
<td>winter crops (wheat)</td>
<td>mild</td>
</tr>
<tr>
<td>2 decade/11 - 30.5</td>
<td>not specified</td>
<td>not specified</td>
<td>summer crops</td>
<td>mild</td>
</tr>
<tr>
<td>2 decade/11 - 30.5</td>
<td>not specified</td>
<td>not specified</td>
<td>dried soil</td>
<td>herbicide application hindered</td>
</tr>
<tr>
<td>2 decade/11 - 30.5</td>
<td>W</td>
<td>Primorska region</td>
<td>dried soil</td>
<td>mild</td>
</tr>
<tr>
<td>2 decade/11 - 30.8</td>
<td>W</td>
<td>Primorska region</td>
<td>vegetable crops, summer crops (maize)</td>
<td>mild</td>
</tr>
<tr>
<td>1 decade/11 - 30.8</td>
<td>NE</td>
<td>NE</td>
<td>summer crops (sugar beet)</td>
<td>severe</td>
</tr>
<tr>
<td>3 decade/21 - 30.6</td>
<td>NE</td>
<td>NE</td>
<td>summer crops (maize, sugar beet)</td>
<td>maize, sugar beet seriously affected</td>
</tr>
<tr>
<td>3 decade/21 - 30.8</td>
<td>NE</td>
<td>NE</td>
<td>summer crops (maize)</td>
<td>mild</td>
</tr>
<tr>
<td>3 decade/21 - 30.9</td>
<td>not specified</td>
<td>not specified</td>
<td>summer crops (maize)</td>
<td>yield reduced by 30%</td>
</tr>
</tbody>
</table>

Tuesday, 12:00
Regional archive of past drought impacts
Prof. Christos Karavitis,
Agricultural University of Athens

DMCSEE Final Conference
14 – 15 May 2012
WP4 – Drought risk assessment

- The drought risk and drought vulnerability maps will be developed for the region using GIS techniques. All relevant impact factors (with available data layers) will be considered and appropriately weighted. Vulnerability will be categorized and visualized in relative scale in order to provide decision makers with essential basis for drought management policy options.

Tuesday, 12:30
Estimation and mapping of drought vulnerability on the basis of climate, land use and soil parameters using GIS technique
Andrea Móring
Hungarian Meteorological Service
WP4 – Drought risk assessment

- Drought vulnerability estimates based on simulations using crop-yield models

Tuesday, 10:15
Risk Assessment of Drought in Agriculture, Irrigation Management and Drought Monitoring through Simulation Models
Prof. Zornitsa Popova,
Soil Science Institute, Sofia

Fig. 7. Probability exceedance curves of RYD under rainfed maize on the soil of small, medium and large water holding capacity TAW (116, 136, 180 mm m-1), Ky=1.6, at: (a) Sofia for a semi early maize hybrid 1951-2004.
Project work packages

WP1 – Project Management

WP2 - Dissemination
- Establishment of GIS server for dissemination of georeferenced products
- Communication strategy, newsletters, web page www.dmcsee.eu

WP5 – Capacity building
- Trainings, manuals, national seminars

WP6 – Sustainable DMCSEE
- Appropriate legal personality, preparation of business plan, prioritization of tasks, policy recommendations -> round table discussion
DMCSEE – Cooperation with Joint Research Centre

DMCSEE mapping service included in drought catalogue in European Drought Observatory

Currently, GPCC SPI and NWP water balance anomaly are included in EDO.

There is possibility to include local drought monitoring products in global exchange!

Tuesday, 14:30
Drought monitoring and interoperability concept - the EuroGEOSS project
Andrej Ceglar
University of Ljubljana
DMCSEE – Cooperation with WMO

Secondment of experts from Bosnia and Turkey to DMCSEE headquarters (WMO DRR/SEE project, task #4.3)

Mr. Enis Krečinić, Mr. Ayhen Erkan
September – December 2010

Focus: Application of GIS in drought monitoring (Reports submitted to WMO)

Monday, 15:45
WMO Drought Activities and Role of Drought Regional Centres
Jose Camacho
WMO
DMCSEE – conference agenda

Monday, 17:00
Historic and Future Drought in Europe
Prof. Henny A.J. van Lanen,
Wageningen University

Tuesday, 15:00
Gridded climatological database - example of the Carpathian region
Sandor Szalai
Szent Istvan University

Tuesday, 15:30
Efficient use of water resources in a changing climate in Europe
Blaž Kurnik
European environmental agency
Activities of the DMCSEE

Regarding the Aims and Objectives, partners prioritise the following:

• To promote and strengthen the technical and scientific capacity for drought preparedness, monitoring and management in participating countries;

• To serve as an operational centre for South-Eastern Europe for drought preparedness, monitoring and management;

• To prepare drought monitoring and forecast products and make them available on near real-time basis to relevant institutions in participating countries;

Regarding the Core Functiones, partners prioritise the following:

• Encouraging effective national drought preparedness, monitoring and management in the participating countries;

• Collaborating actively with international research frameworks and programmes, to ensure the full participation of the South-Eastern European countries in such frameworks and programmes.

Enhancing the early warning capacity for drought in the subregion;

Regarding the Core Tasks, partners prioritise the following:

• To collect, compile, process, analyse, interpret, assess and validate relevant data on drought events in South-Eastern Europe, including the common methodologies;

• To provide specialized training and exchange programmes on drought issues;

• To establish risk factors on the basis of analysis and modelling in order to provide timely drought forecasts in the subregion;

• To produce and deliver/disseminate appropriate information and products to end-users;

• To develop new applications and techniques to identify, among others, areas with potential risk of drought occurrence, drought sensitivity