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The role of knowledge management of floods in the Bodrog River Basin



INTERNATIONAL MANAGEMENT OF FLOODS IN THE BODROG RIVER BASIN

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Upper Tisza river basin (down to Tiszaok weir)



Repeated occurrence of catastrophic floods in the Tisza river basin since 1998

- Major flood damages at the territories of Ukraine, Slovakia, Hungary and Romania
- Need for international cooperation and application of effective tools for flood management
- Several international and local projects in the river basin, which focus at the flood management

Projects with the participation of WRI

- Project "Flood Management in Slovakia and Ukraine"
- Ukraine-NATO project "Flood Preparedness and Response in the Carpathian Region"
- Participation in the frame of Tisza Forum working groups

PROJECT "FLOOD MANAGEMENT IN SLOVAKIA AND UKRAINE" (2000-2004)

Project sponsor:

- DEPA (Danish Environment Protection Agency)

Executed by:

- DHI Water and Environment, Denmark

Slovak partner institutions:

- Ministry of Environment
- Slovak Water Management Enterprises
- Slovak Hydrometeorological Institute
- Water Research Institute

Software tools applied in the frame of project

- rainfall-runoff model NAM
- hydrodynamic model MIKE 11
- Flood Watch and DIMS (Dynamic Integrated Monitoring System) in the frame of flood forecasting system

Hydrodynamic model

1. Ukraine

- ◊UH
- ◊LATORICA
- ◊TURJA

2. Slovakia

- ◊TOPLA
- ◊ONDAVA
- ◊LABOREC
- ◊UH
- ◊LATORICA
- ◊BODROG

3. Hungary

- ◊BODROG
- ◊TISZA (Zahony – Tiszalok)

Application of model

- Flood forecasting and warning system (currently in trial operation)
- Optimization of reservoirs operation
- Investigation of Tiszalok weir influence at the water level regime during floods

PROJECT UKRAINE - NATO "FLOOD PREPAREDNESS AND RESPONSE IN THE CARPATHIAN REGION" (2000 – 2002)

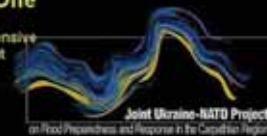
PROJECT WORKING GROUPS

- Legal and institutional framework of flood control
- Geo-spatial data
- Hydrometeorological data and networks
- Flood monitoring and forecasting
- Flood management
- Emergency management

Participation in the expert group and in the working groups - 10 countries: Belgium, Czech Republic, Slovakia, Ukraine, Romania, Hungary, Germany, Switzerland, USA, Sweden

Phase One

Comprehensive
Assessment
Report



Joint Ukraine-NATO Project
on Flood Preparedness and Response in the Carpathian Region

May 2002



WP2: GEO-SPATIAL DATA

- to form Regional working group for geo-spatial data
- to establish regional GIS database (topography, DTM, land use, data on hydrometeorological networks)
- Atlas of Tisza river basin
- coordination of cooperation between data providers and users, standardization

WP3: HYDROMETEOROLOGICAL DATA AND NETWORKS

- new equipment for 26 raingauge stations in Ukraine, automation of 25 gauging stations at the Tisza tributaries
- Regional flood center in Uzhgorod, connected with similar centers in the neighbouring countries (data collection and their primary processing)
- to agree data exchange flow

WP4: FLOOD MONITORING AND FORECASTING

- standardize equipment, software tools and forecasting methodology in the frame of river basin
- regional flood centers (Kosice, Uzhgorod, Nyiregyháza, Cluj) – responsibility for forecasts
- priority to reliable on-line operation of monitoring stations

WP5: FLOOD MANAGEMENT

- need to re-evaluate criteria for flood warning announcement
- revision of methodology for design flood determination
- more extensive application of GIS and numerical models (mapping of possible flood extent, flood risk maps)
- integrated flood plans

WP6: EMERGENCY MANAGEMENT

- establishment of Transcarpathian crisis center in Uzhgorod with local branches in SK, HU, RO (management of crisis events - floods, water quality accidents)
- need to improve engineering army units, public defense units, fire brigades, specialized emergency units
- practical field demonstrations, courses, workshops, public relations

FINAL WORKSHOP OF THE PROJECT 1st PHASE BUDAPEST, MAY 2002

Proposals for the implementation of pilot projects in the region

Estimated total costs for implementation projects:

11,15 mil. EUR