Interreg CENTRAL EUROPE
European Union
European Regional Development Fund

RAINMAN

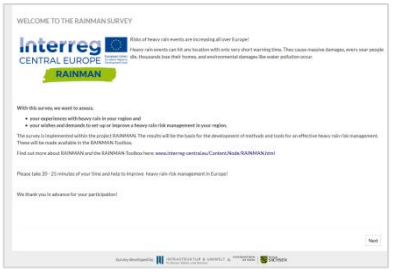
INTEGRATED HEAVY RAIN RISK MANAGEMENT

Newsletter #2
December 2017 — March 2018

NEWSFLASH

26/02/2018

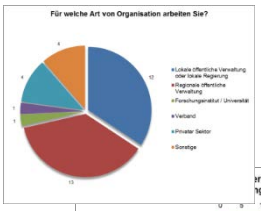
RAINMAN online survey

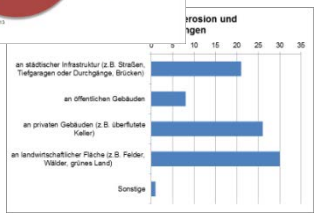


The RAINMAN Partnership has developed an online survey, with which we will assess experiences with heavy rain in all partner regions as well as wishes and demands to set-up or improve heavy rain risk management in the respective regions.

The results will form the basis for the development of methods and tools for an effective heavy rain risk management. These will be made available in the RAINMAN-Toolbox. The survey was prolonged and will now be open until end of May 2018.You are redirected to the Online Survey here:

- Croatian version
- Czech version
- English version
- German version
- Hungarian version
- Polish version





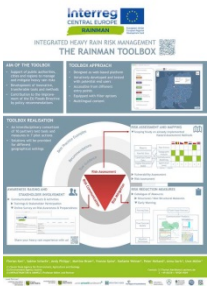
20-22/03/2018

RAINMAN @ WGF

Rudolf Hornich from the Office of Styrian Government in Austria (RAINMAN's PP4) has informed the EU's Working Group Floods about the RAINMAN project and promised to present results in one of the next WGF workshops. The information was received with great interest. A representative from WGF will even be part of RAINMAN's advisory board.

21-22/03/2018

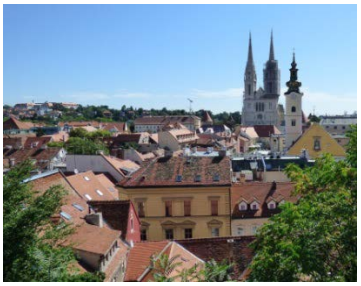
RAINMAN @ Tag der Hydrologie [Day of Hydrology]



RAINMAN partner Saxon State Agency for Environment, Agriculture and Geology presented a poster on the RAINMAN toolbox at the German Hydrology event "Tag der Hydrologie". The conference took place at Dresden's technical university. The partner used the event to network with other heavy rain related projects and to promote the project.

13/06/2018

RAINMAN 3rd transnational partner meeting in Zagreb



The next partner meeting will take place in Zagreb on 13th – 14th June 2018. The focus will be laid on content work and first results (scoping studies, guidance and concept papers) will be agreed upon. Finalised outputs will be made available via the RAINMAN website.

2nd scoping workshop and partner meeting in Prague

The RAINMAN partnership met in the wonderful Czech capital Prague for two days of intense exchange and discussion. A scoping workshop took place on the first day preceded by a partner meeting and a steering group meeting on the second day. The director of the hosting institution Výzkumný ústav vodohospodářský TGM, v.v.i. (VUV), Tomáš Urban welcomed the participants warmly and introduced the institute shortly.

The scoping workshop was the second in the project and focused on the collection and categorization of risk reduction measures. The workshop is part of the development of a scoping study on existing tools and measures to mitigate risks of heavy rain. In the workshop, selected external experts from the Czech Republic and RAINMAN partners presented their experiences with early warning systems as well as prevention and protection measures:

Petr Šercl from the Czech Hydrometeorological Institute presented ongoing activities regarding an early warning system in the Czech Republic. The Czech Hydrometeorological Institute (CHMI) is currently working with a flash flood indicator, which is inspired by the US FFG (Flash Flood Guidance), describing the amount of precipitation that could cause a flash flood. The aim of the flash flood indicator is the determination of the risk of occurrence of a flash flood. The data is already integrated into the CHMI forecasts; additionally, it is planned create a separate website and mobile application. The outputs are displayed at the CHMI website: http://hydro.chmi.cz/hpps/main_rain.php?mt=ffg.

Regarding prevention and protection measures to reduce heavy rain risks mainly in a rural environment, Josef Krása from the Czech Technical University and František Pavlík from the Czech State Land Office were presenting their expertise. Josef Krása is researching in the field of soil erosion in the Czech Republic: he presented on possibilities to assess risks of sediment inflow into residential areas and the implementation of soil erosion measures. The State Land Office is funding and realizing flood and erosion protection measures in the Czech Republic, as František Pavlík explained and showed with illustrative examples.

The RAINMAN partnership presented the background for implementing measures in each partner country and collected risk reduction measures jointly within the categories prevention, protection, raising awareness, preparedness and aftercare.

During the partner meeting, the discussions focused on the joint activities in the respective Work Packages: the RAINMAN-Toolbox forming the frame for the other joint activities, the scoping study on assessment and mapping as the starting point for the scientific exchange as well as the pilot activities as test cases and implementation examples for the RAINMAN tools and measures. The partners presented the status of their work and clarified open tasks. Conclusions were drawn and next steps were identified.

Regarding the TOOLBOX, the partnership discussed the concept for the toolbox – and agreed on a central issue: the language. The entire platform of the toolbox will be developed and provided in English. But concerns were voiced that the main target group of regional and local administrations will not be able to use the toolbox due to this language barrier. Hence, it was decided that "teasers" and summaries will be additionally provided in the 6 national languages of the partnership.

Major progress was made in discussing the scoping studies and guiding documents on ASSESSMENT AND MAPPING. During the next meeting finalized version will be presented so the partnership can discuss and agree upon it.

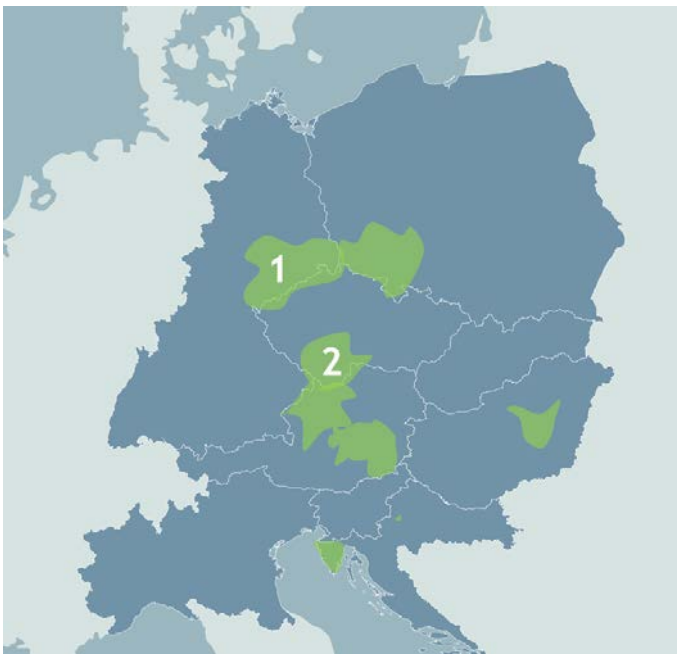
The status of the set-up of the PILOT ACTIVITIES was presented by Sabine Scharfe, Saxon State Office for Environment, Agriculture and Geology (DE), Dana Fialová, Region of South Bohemia (CZ), Cornelia Jöbstl, Region of Styria (AT), Yvonne Spira, Environmental Agency (AT), Gábor Harsányi, Middle Tisza Water Directorate (HU) and Mariusz Adynkiewicz-Piragas, Institute of Meteorology and Water Management (PL). In the following session, the connections and interlinkages between the WPs were discussed. A synoptic overview over the pilot activities and the expected will be prepared by all PPs until the next meeting. This overview will be the basis for further communication and stakeholder participation activities in the project.

Presentation of pilot actions

The tools and methods developed in RAINMAN will be tested in all partner regions. The partners share their experiences, improve the tools and methods and make them transferable. There are 7 pilot actions, with different characteristics to cover a wide range of application conditions.

In this Newsletter, pilot actions (1) and (2) will be presented more closely on the following pages:

- **(1) Risk assessment and implementation of a forecast and warning system in Saxony, Germany**
  Responsible for the implementation: Saxon State Office for Environment, Agriculture and Geology; Leibniz Institute of Ecological Urban and Regional Development and the Saxon State Ministry of the Interior.
- **(2) Testing of risk assessment tools and protection of flood prone areas in South Bohemia**
  Responsible for the implementation: T.G. Masaryk Water Research Institute and the Region of South Bohemia.

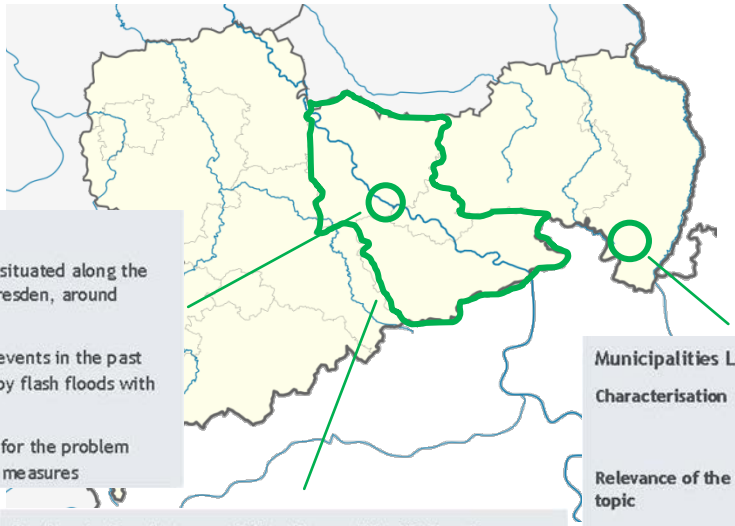


With the next Newsletters, all pilot actions with their implemented and planned activities, their thematic focus and the lessons-learned will be presented.

Pilot action 1: Risk assessment and implementation of a forecast and warning system in Saxony, Germany

Florian Kerl, Sabine Scharfe, Saxon State Office for Environment, Agriculture and Geology

In Saxony, four associated partners support the RAINMAN consortium with their local knowledge and especially with experiences in heavy rain mitigation. Together with the city of Meißen, the municipality of Oderwitz, the Regional Planning Association Upper Elbe Valley / Eastern Ore Mountains and the fire brigade of Görlitz, we intend to test and to validate specific risk management approaches in the fields of risk assessment and risk reduction measures.



City of Meißen

Characterisation	Historical city in Saxony, situated along the Elbe river just north of Dresden, around 28.000 inhabitants.
Relevance of the topic	• Extreme precipitation events in the past • Huge damages caused by flash floods with erosion
Expectations towards RAINMAN	• Create more attention for the problem • Support for preventive measures

Municipalities Leutersdorf and Oderwitz

Characterisation	small municipalities in the Lusatian Mountains: hilly slopes with agricultural use (mainly crop- and grassland)
Relevance of the topic	• Several heavy rain events in the past with damages at buildings and infrastructure • problems with soil erosion
Expectations towards RAINMAN	• Enhance preparedness • Improve the possibilities of early warning • Support for risk reduction measures like retention, influence planning and agricultural usage

Regional planning association Upper Elbe Valley / Eastern Ore Mountains

Characterisation	The planning region is the smallest but is the most densely populated in Saxony. The Saxon capital of Dresden is situated in its center.
Relevance of the topic	• Frequent heavy rain events in the region • Considerable damages caused by flooding and soil erosion
Expectations towards RAINMAN	• Exchange with other affected regions • Provide own experiences • Learn about measures to reduce damages

Risk assessment:

The Leibniz Institute of Ecological Urban and Regional Development is developing hazard and risk maps for our pilot regions by applying different methods. The associated partners are supporting this by providing valuable information concerning event documentation (e.g. pictures, videos and damage data) as well as information which are relevant for the subsequent hazard modelling process (e.g. drainage and culvert geometries). First tests regarding the hazard assessment have already been conducted and discussed with our associated partners. We expect more in-depth results by the end of this year. These will be discussed within the project partnership and the lessons-learned will be integrated into the RAINMAN toolbox.

Risk reduction:

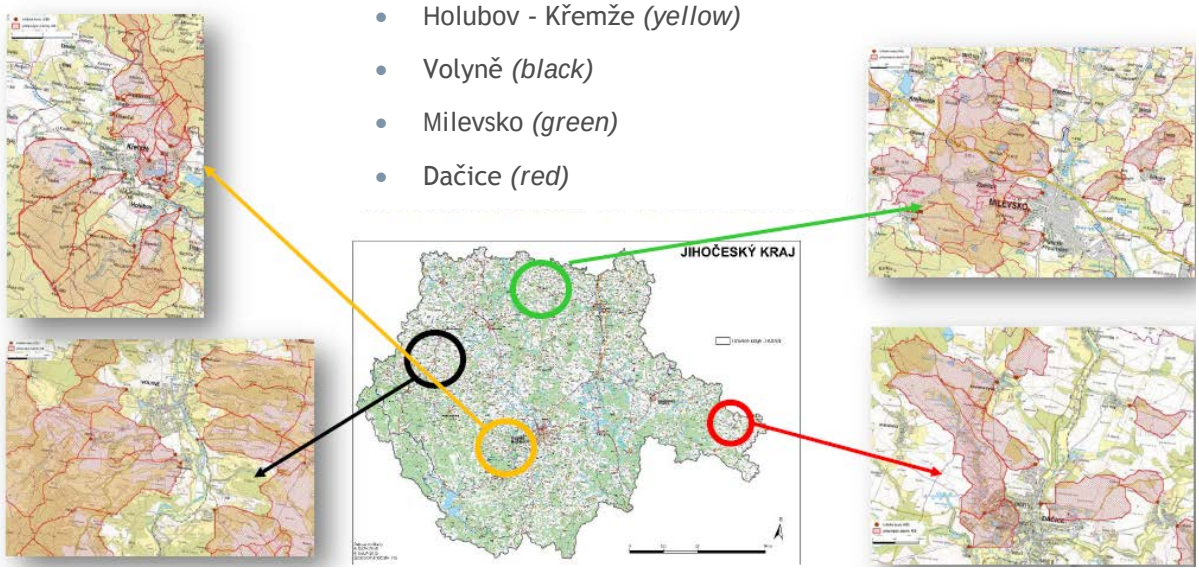
Our pilot activities in Saxony deal with spatial planning instruments and early warning products as risk reduction measures. In 2018, the Saxon State Ministry of the Interior, together with the Regional Planning Association Upper Elbe Valley / Eastern Ore Mountains, will carry out a study on available measures and instruments which integrate goals from heavy rain risk management into spatial planning processes at different planning scales. The results will be further extended with respect to the situation in our partner countries. In 2019, the Saxon State Office for Environment, Agriculture and Geology will conduct a user survey on early warning. We want to capture the user satisfaction with communication products of the recently released Saxon Flash Flood Early Warning System. The outcome of this study will be compared to the results of a former survey on the needs and demands of potential end users on a Saxon Flash Flood Early Warning System which was carried out in early 2014. Additionally, we aim to discuss possible emergency response measures with our associated partners.

Further information:	Saxon State Office for Environment, Agriculture and Geology Florian Kerl, Dr. Sabine Scharfe Rainman.LfULG@smul.sachsen.de https://www.umwelt.sachsen.de/umwelt/wasser/17525.htm (content only in German language)

Pilot action 2: Testing of risk assessment tools and protection of flood prone areas in South Bohemia

In South Bohemia, four pilot sites were identified, that have been previously affected by heavy rains events:

- Holubov - Křemže *(yellow)*
- Volyně *(black)*
- Milevsko *(green)*
- Dačice *(red)*



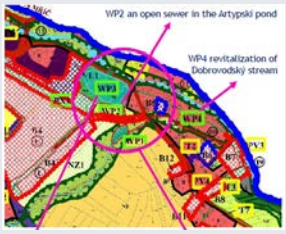
The sites have different characteristic and were selected with the Critical Points method (see box below) based on the following attributes:

- Terrain morphology
- Land use
- Urban x agriculture sites
- Proportion of arable land
- Recommendation of local authorities

The Critical Points method

The main aim of the methodology is to identify critical points and their contributory areas. A critical point is defined as a spot where the boundary of a built-up area is intersected by the course of concentrated surface runoff. The size of the contributory area must range between 0.3 and 10.0 km².

Four critical points were identified in the administrative region of Holubov – Křemže. In the following table the locations are characterised shortly. For each location, a field survey is currently ongoing.

Location 1:		
Current state	one existing retention basin	
Analysis of the territorial plan	• risk for both the existing area and the planned construction for permanent housing • proposal for four flood protection measures (WP1 – 4)	
Location 2:		
Current state	• location with wetlands • no existing flood protection measures • Built up area as well as planned residential area	
Analysis of the territorial plan	• no proposed protection measures yet; • the current agricultural area and permanent housing area are threatened by pluvial floods - it is necessary to propose protection measures	
Location 3:		
Current state	• no existing flood protection measures, • the artificial stream bed of Krásetín brook	
Analysis of the territorial plan	• no proposed protection measures yet; • risk for the existing built up area – necessity to propose flood protection measures	
Location 4:		
Current state	• location near recreation area, • no permanent housing • no existing flood protection measures	
Analysis of the territorial plan	• no proposed protection measures yet; • Territory in open landscape – the consequences of the flash floods are not so significant	

In the next months, the following steps are foreseen:

- Compare the results of Critical Points Method with the real experience from the identified specific locations (see above).
- Examine and evaluate the measures proposed in the municipality's territorial plans in the context of flash (pluvial) floods
- Compare existing measures or measures proposed in territorial plans with flood control measures that we obtain through the RAINMAN Toolbox
- Implementation of this knowledge in the territorial planning documents of municipalities.

Further information:	Region of South Bohemia Štěpán Luksch, Dana Fialová RAINMAN-PP6@kraj-jihocesky.cz http://geoportal.kraj-jihocesky.gov.cz/gs/rainman/

RAINMAN Key Facts

Project duration:	07.2017 – 06.2020
Project budget:	3,045,287 €
ERDF funding:	2,488,510 €
RAINMAN website & newsletter registration:	**www.interreg-central.eu/rainman**

Lead Partner

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- Middle Tisza District Water Directorate
- Region of South Bohemia
- Environment Agency Austria
- Institute of Meteorology and Water Management National Research Institute
- Leibniz Institute of Ecological Urban and Regional Development
- Croatian Waters
- Office of the Styrian Government
- T. G. Masaryk Water Research Institute, p.r.i