Decision support system with Implementation in Natural Hazards Field Tests

Ph.D student

Nina Dobrinkova

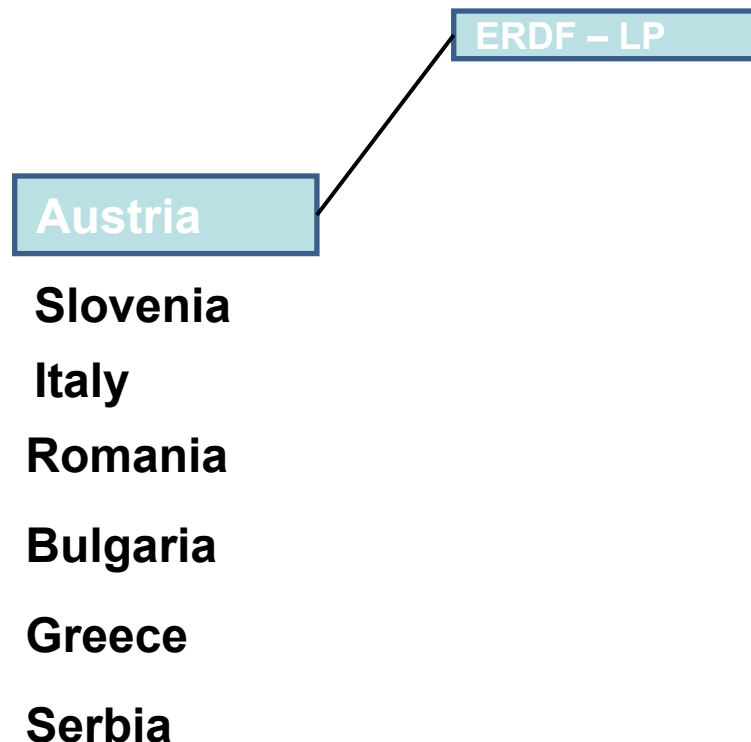21-22 December 2009, BGSIAM,
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MONITORII – successful project under first call of SEE program

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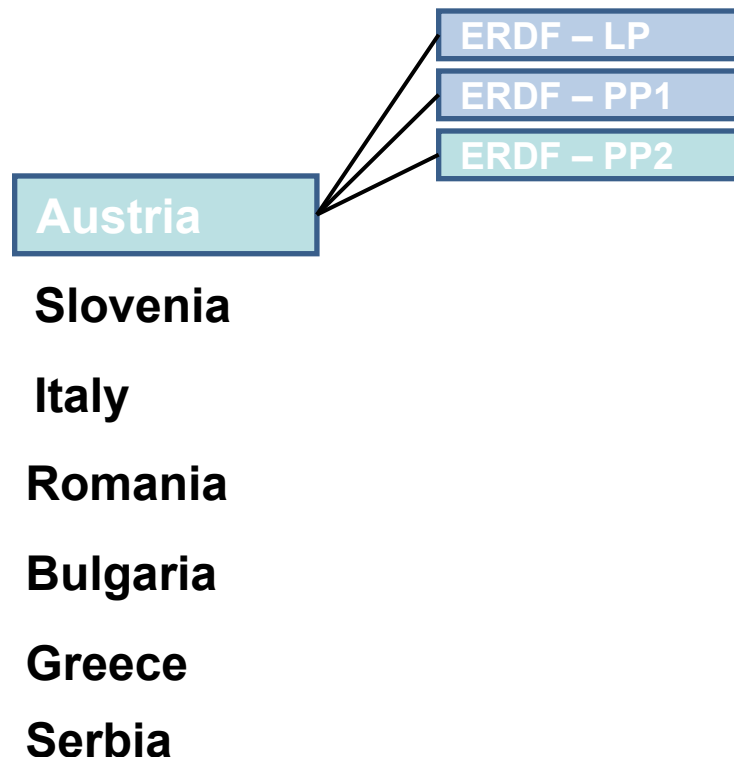
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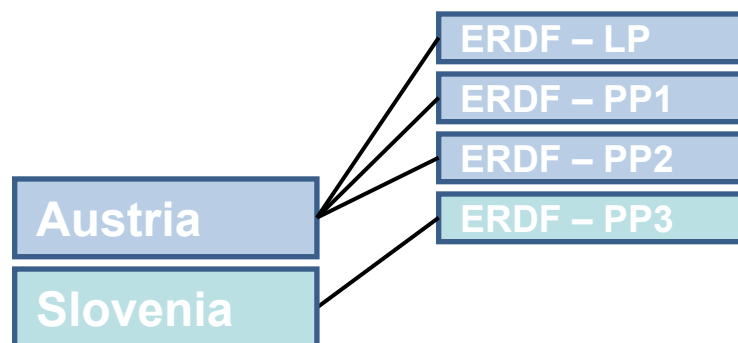
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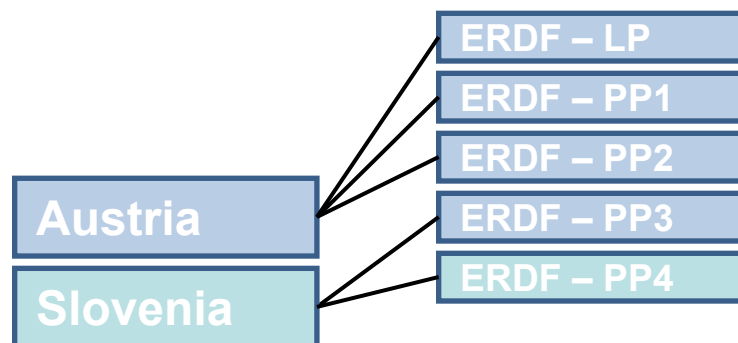
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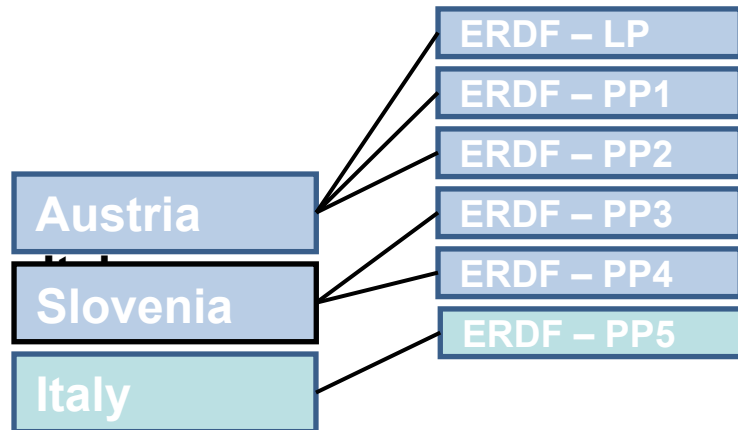
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BZ-CP
Autonomous Province of Bolzano South Tyrol
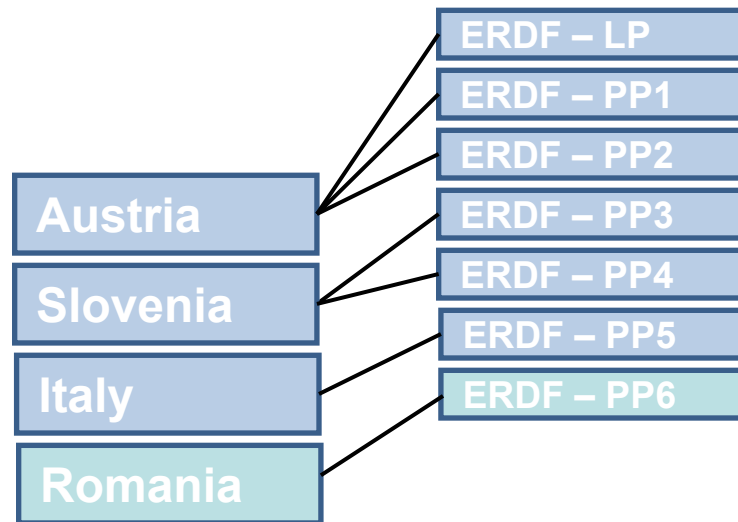Department of Fire Control and Civil Protection

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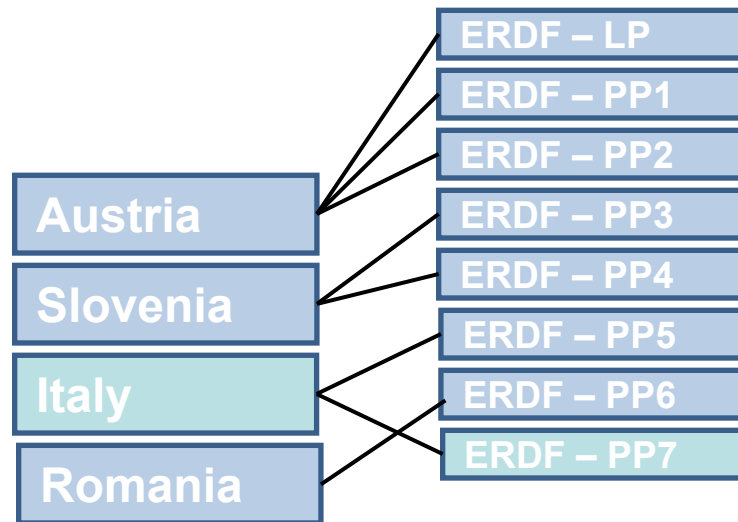
Bulgaria

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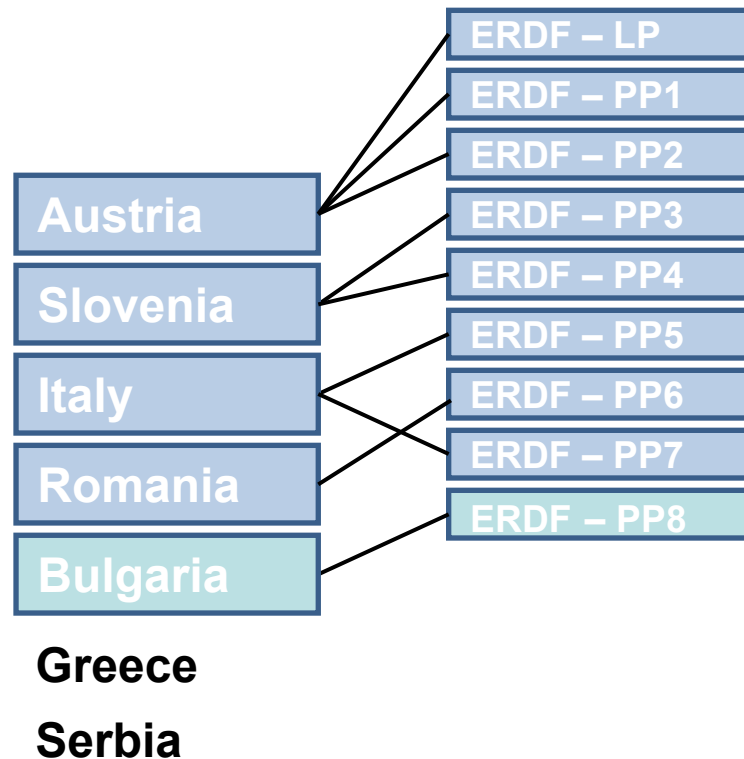**University of Modena and Reggio Emilia**
Department of Earth Sciences

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Aldo Tomasi
Alessandro Corsini

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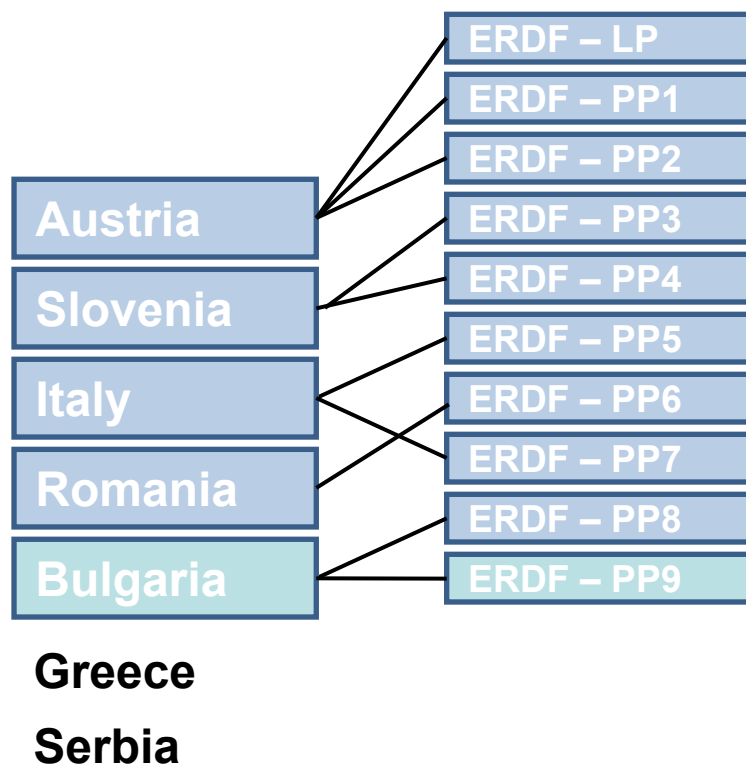
Greece

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Gotse Delchev, Bulgaria

Vladimir Moskov
Stefan Dodunekov
Nina Dobrinkova

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ERDF – PP10
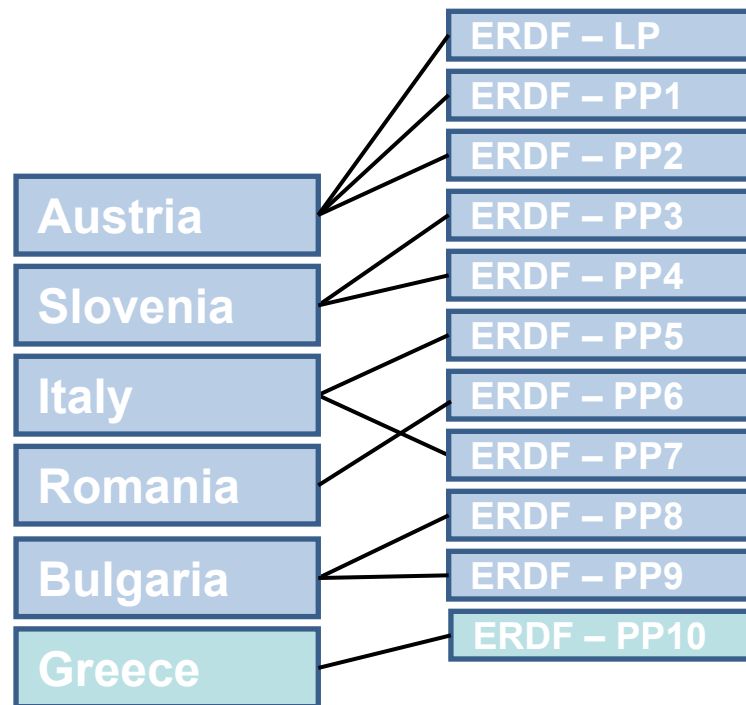
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Bulgaria		ERDF – PP8
		ERDF – PP9
Greece		ERDF – PP10
Serbia		10% – PP1
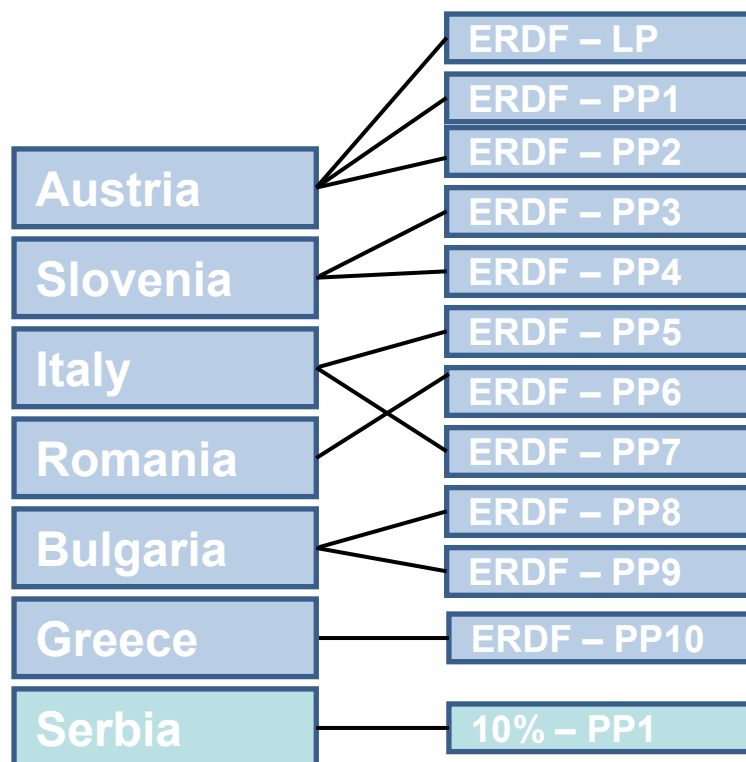
UNIBG
University of Belgrade
Faculty of Forestry,
Department of Ecological Engineering in
Soil and Water resources Protection

Belgrade, Serbia

Ratko Kadović
Stanimir Kostadinov

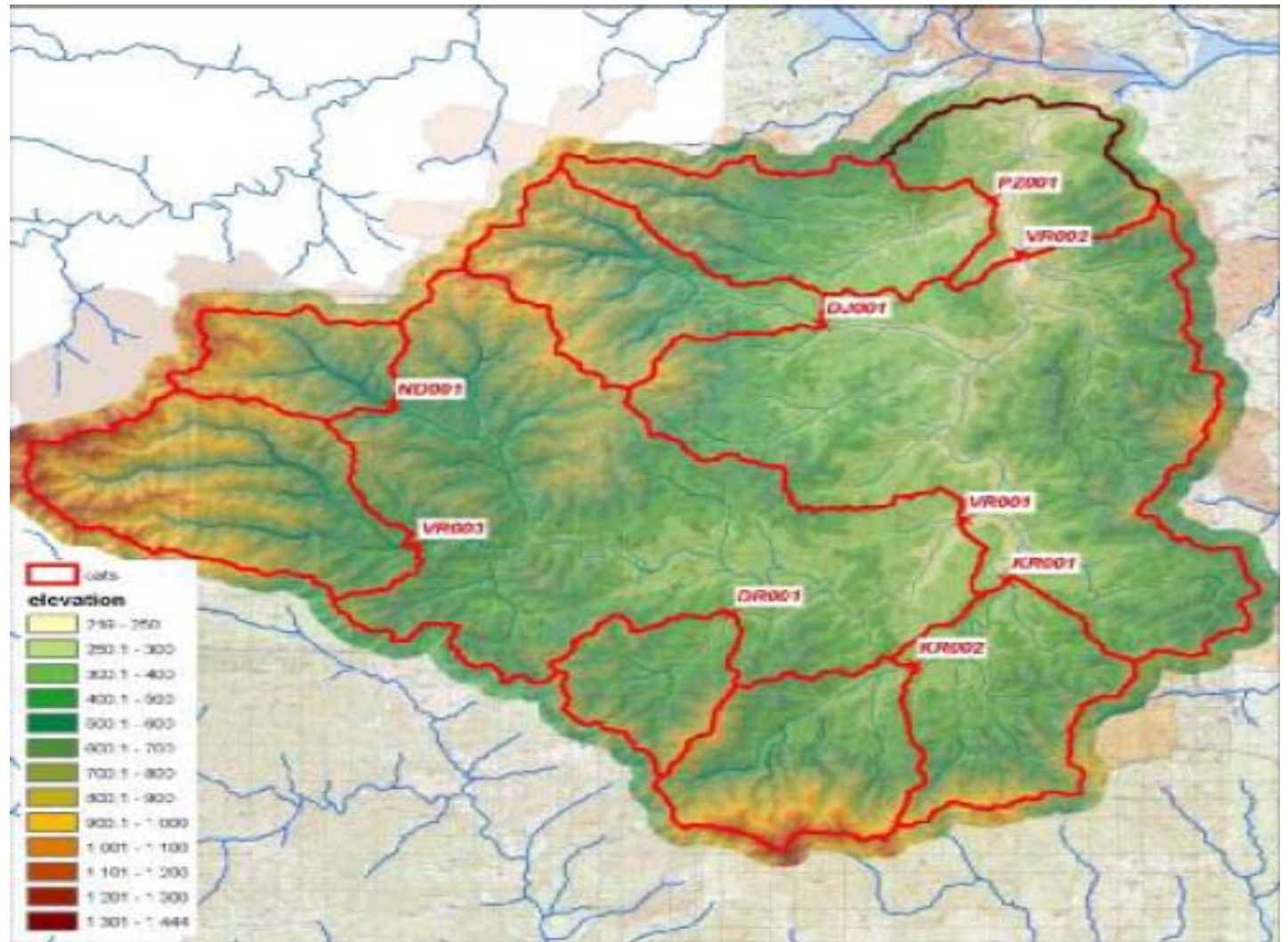MONITOR II

Test Bed Mesta River

GD municipality is situated entirely in the valley of Mesta river. Mesta river springs from the southern slopes of Rila mountain and its upper part runs between Rila mountain and Rhodopi mountain; further it cuts through the western slope of Dabrash hill of Rhodopi mountain and goes thruough Momina klisura gorge, and then enters the Gotsedelchevska valley. The lower part of the river flows through Greece and joins the Aegean Sea. The river is 273 km long, 125 km are in Bulgaria, 25 km in GD. It has 13 main tributaries, one of them is Tufcha river together with Marevo river.

Example segmentation of the watershed

Segmentation of the watershed of river Mesta with risky parts for flood events will give information, where the CSA system will be the most suitable to be implemented

Example for risky zones of river Varbitsa done under MONITOR I project

# Obtaining data for the risky segments will include different information

- meteorological information: remote observations of climatic elements (precipitations, temperature) and river runoff in special centres, including data from automatic stations, satellites, radar measurements, etc.

- assessment of some factors, which influence on the formation of high waters in the region on critical segments (vegetation cover, erosion and landslide processes of the earth, etc.);

- receiving of warning signals from installations in the river bed (or close to it), which is adjusted to signalise by raising of waters over determined level;

The system technology

- For the system will be developed tools and procedures to integrate different sources of information. Such as:

  - real-time information for monitoring,
  - records of past events,
  - hazard analysis and expert knowledge on hazard processes

- Contingency plans and hazard maps with respect to natural hazards for the past events will be used in the decision support part of the system

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CSA – Continuous Situation Awareness System
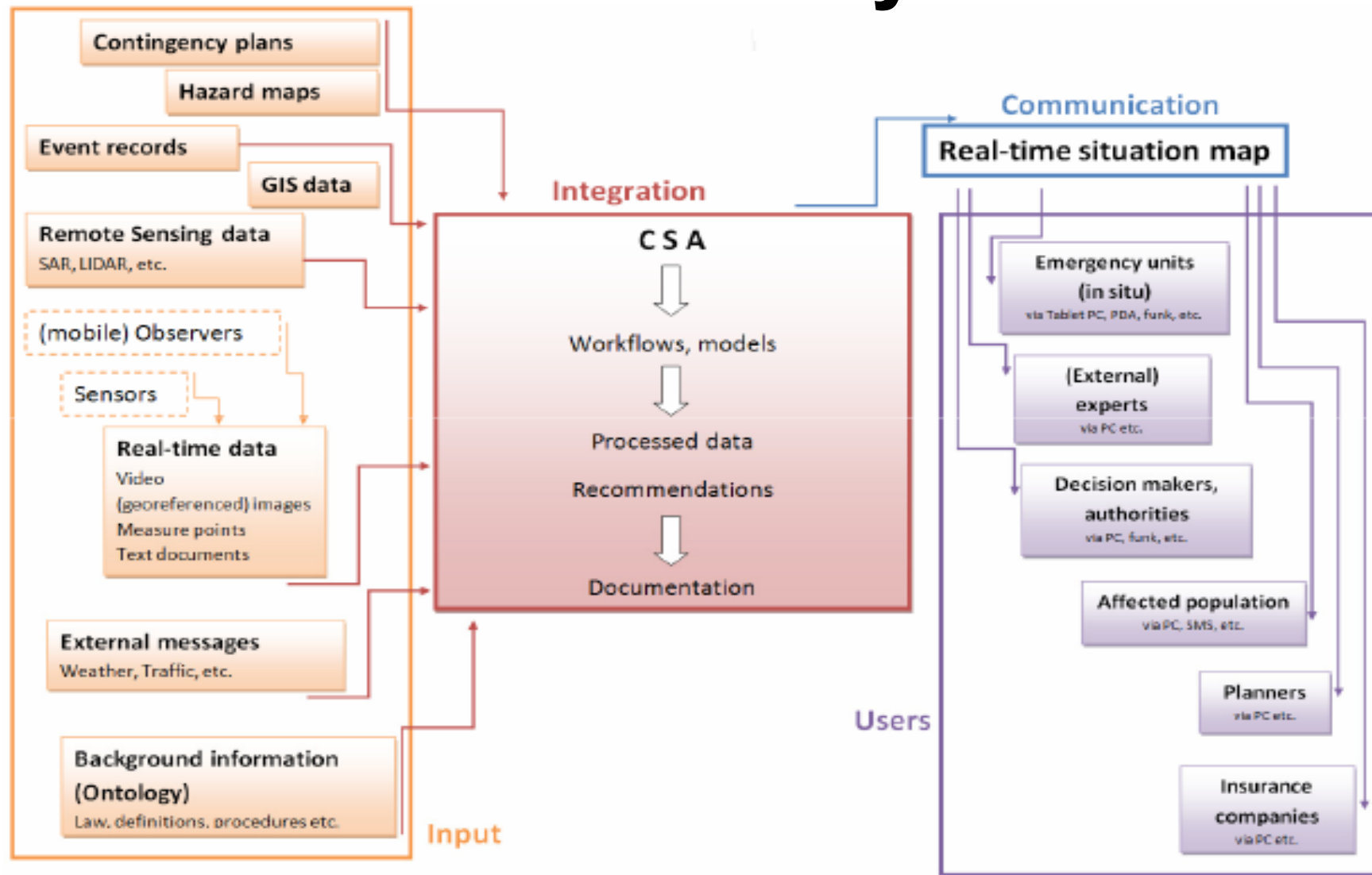
Bulgarian reality

There is no system for early warning and prognosis of floods established so far in Bulgaria. The National Institute for Meteorology and Hydrology are working with different models for predicting extreme precipitations and water runoff, but their data is only 48 hours ahead.

• For calculation of the surface and subsoil component of the runoff, the surface system ISBA (Interface Soil Atmosphere Biosphere) is applied.

• For hydrological prognosis of water levels in settlements and rivers capacity at dam-lakes, allocated hydrological model MODCOU is applied, which is adapted for Bulgaria.

• The modern methods for runoff modeling used by the branch of the National Institute for Meteorology and Hydrology in Plovdiv for the rivers Maritsa, Arda and Tundzha, the prognosis itself at the current

stage could not be done with the necessary precision.

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Future activities

- IMI-BAS and UTH-Volos will be responsible for the SCA system development and tuning

- The SCA system will be installed on test bed river Mesta

- The field exercise for MONITORII will be performed between Bulgaria and Greece

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Thank you for your attention!