



## Project Partner 4



### University of Ljubljana, Faculty of Civil and Geodetic Engineering Built Environmental Department

Chair of Fluid Mechanics with Laboratory

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#### main focus of institution and department

Since 1919, the University of Ljubljana has Faculty for Civil and Geodetic Engineering (FGG). Starting on 1923, Hydrotechnical Division educates Civil Engineers, specialized in Water Management (with Torrent Control) and supporting Erosion Control Curricula, running also on Forrest Faculty. Besides different levels of Study Programs, FGG is deeply involved in research & development programmes (national, transnational, EU) and in implementation of newest technology in day to day practice. Special attention is given also to support the authorities when EU directives and other legislative issues need engineering interpretation and implementation on different administrative levels. Among other activities, hazard and risk assessment, mapping, interventions activities etc. were supported. As Faculty staff act also as certified revisors for highest level technical documentation control, connection to practice and development projects is vivid.

#### short description of PP activities

##### WP 0: Project preparation

- detailed partner activity and financial plan

##### WP 1: Transnational Project Management and Coordination

- ongoing communication with the project manager, project financial reporting, submitting reports for 1st level control, supporting the LP in his administrative and reporting tasks
- project financial reporting, submitting reports for 1st level control, supporting the LP in financial reporting

##### WP 2: Communication and dissemination

- special training courses, engaging trainers
- preparing papers and support conference
- preparation of national material and LP support



### **WP 3: State-of-the-art analysis and methodology**

- WP responsible partner
- review information sources as part of plans
- usability classification of hazard maps
- usability classification of contingency plans
- analysis and compilation of national contributions
- organisation of national stakeholder meetings, development of group-specific requirements, definition of stakeholder conditions and constraints
- transnational compilation of user requirements
- recommendation of measures and elaboration of adaptation strategies
- best practice and adaptation report, methodology and best practice brochure

### **WP 4: Development of SEES-CSA**

- development of decision support for situation assessment integrating
- organization of workshop 6
- organization of workshop 6
- development of common basic module
- development of specific modules for test beds
- organization and hosting of interim results & CSA EXPERTS workshop (06)

### **WP 5: Practical implementation**

- definition and evaluation of communication and contingency plan requirements for hazard maps

### **WP 6: Evaluation and recommendation**

- evaluation of usability, communicability and effectiveness
- recommendations and compilation report
- development of proposals for legal and organisational improvements in their countries and regions
- organisation of national stakeholder meetings

### **WP 7: Finalisation**

- documentation of deliverables at partner level, provision to LP
- 1st level control on partner level, submitting all documents relevant for last reporting period (financial report, certifications, progress report contribution) to LP; contributions for project final report

### **short description of test area**

Test-bed "Savinja River between Nazarje and Prebold" – Slovenia, Celje region (SI)

The test-bed is situated in the western part of Štajerska region, close to city of Celje. The test-bed is located in transition from higher mountainous part to the Celje alluvial plain, so this area is exposed to flooding, erosion and sediment deposition. The test-bed extends over floodplains along Savinja River from Nazarje town in the middle Savinja valley to the Prebold town at the beginning of Celje plain. Wider area of test-bed covers around 35 square km.

Main part of watershed of Savinja River lies in alpine region and river has snow-rain run-off regime, with first discharge pick in March or April, and second in November and December. Area has properties of Mediterranean as also of continental climate. On the other hand Savinja, with its tributaries, has also characteristics of torrent in times of intensive precipitation and storms.

From all natural hazards, floods caused by runoff of sustained rainfall or rapid snow melt and flash floods represent main threat in this area. In last 30 years there were three catastrophic floods in this area. The flood in 1990, when flood rated as event with 100-years return period, caused great damage on infrastructure and major part of villages were flooded. Despite many flood protection measures built after this event, flood reoccurred in 1998 again showed



vulnerability of upper and middle Savinja valley and need for mitigation of risk in this area. In last disastrous flood event in 2007 Savinja watershed showed its torrential characteristics. Great amount of precipitation fell in very short time. Fast runoff, strong erosive processes and debris flows have entailed high water event with great striking power.

Chosen river stretch is important as near field observing area for planned flood protection measures for Celje city. Once the inflow dynamics will be known, the advanced monitored outflow from this river stretch could be used for better real time prognosis, needed for Celje flood protection activities.

### what does the partner bring into the project?

The research group of Chair of Fluid Mechanics has extensive experiences in hydraulic modelling of open channel and conduit flows, water management issues as well as GIS and database management in the water sector. The research group is a recognized partner in the Slovenian water management sector collaborating at national and international research projects, while maintaining consultancy services both for governmental and industrial institutions. The group has state-of-the-art knowledge and recognized experience in flood protection, flood damage evaluation, open channel hydraulic modelling, conduit flow modelling as well in optimization by artificial intelligence tools, integration of hydraulic modelling and GIS into decision support systems tools and development of databases for different water management issues.

Beside the experiences in the national framework the research group has been recently participating in several European research projects (floods, sediment transport, irrigation & drainage). The group is recognized as a valuable partner in those EU project. Recent EU projects were within the Interreg programs: SIMIS project (Interreg IIIA) with project partners from Italy and Slovenia (flood management on international river basin), and ALPRESERV project (Interreg IIIB) ranging 17 project partners from all Alpine regions (sediment management of reservoirs in alpine space).

### benefits for the partner by participation in the project

- "Threat assessment" which is the part of legal expertise for updating "Emergency response plan" based on Hazard Maps, which include the latest knowledge and actual data (maps) from all existing hazard and risk plans
- The final chapter of "Threat assessment" which includes writing recommendations/directions for Emergency response plan, have to foresee development and reactions for different hazard's scenarios
- "Threat assessment" has to be dynamic, ie. "up to date" as much as possible; all possibilities have to be checked to establish on-line refreshing of important data before and during the event (CSA)



**main contact**



**Prof. Dr. Franci Steinman**

Professor Franci Steinman, born in Maribor, Slovenia, is Professor for Hydraulics and Water management at Faculty of Civil and Geodetic Engineering, Ljubljana. Besides teaching he leads group of 12 researchers, participating in 6 EU projects and running several projects for industry. In the period 1998–2000 he was State Secretary for Water Management of Republic of Slovenia. As part time job, he is acting as Certified Reviser of significant Projects in Slovenia and abroad as well.

His primary research areas are: hydraulic engineering, water management, flood risk assessment and protection, development and application of risk-based decision-support in water management, modeling, optimization techniques and GIS support to water systems, experimental and computational hydraulics, water legislation and governance.

References: [www.cobiss.si](http://www.cobiss.si)

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