



# Gestione del Rischio Idraulico per il bacino del fiume Vipacco ed ulteriori bacini transfrontalieri Upravljanje poplavne ogroženosti na porečju reke Vipave in na ostalih čezmejnih porečjih

## WP 3.2

**Sviluppo di strumenti avanzati per la stima del rischio  
alluvione e l'analisi costi/benefici di misure di mitigazione  
Razvoj naprednih orodij za oceno poplavne ogroženosti in  
analizo stroškov in koristi ukrepov**

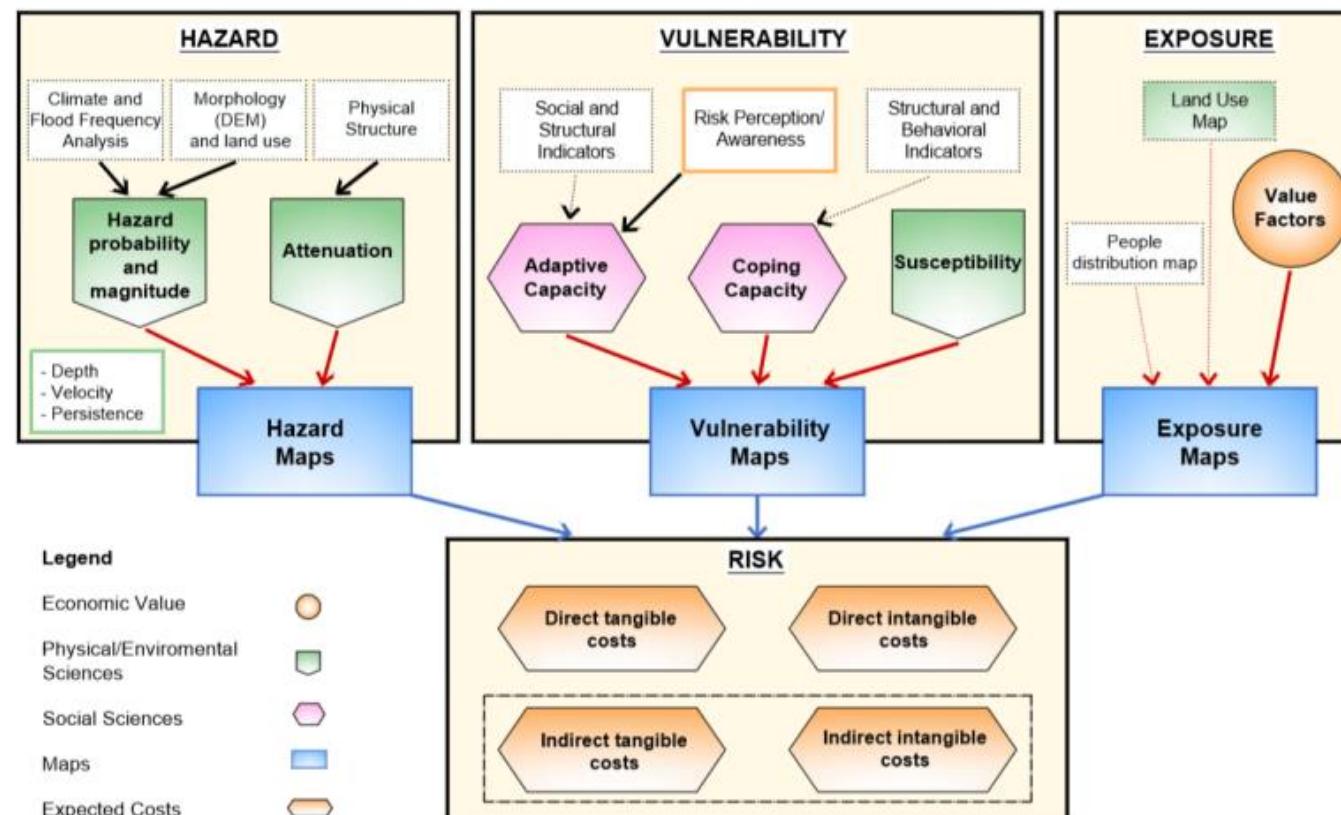
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Autorità di Bacino Distrettuale delle Alpi Orientali

**VISFRIM FINAL CONFERENCE**  
**28.06.2022**

# Gestione del Rischio Idraulico per il bacino del fiume Vipacco ed ulteriori bacini transfrontalieri Upravljanje poplavne ogroženosti na porečju reke Vipave in na ostalih čezmejnih porečjih

## WP3.2.1 - Development of technological tools for flood risk estimation

- Sharing of approaches for the assessment of hydraulic risk in cross-border basins



$$R = H \times V \times E$$

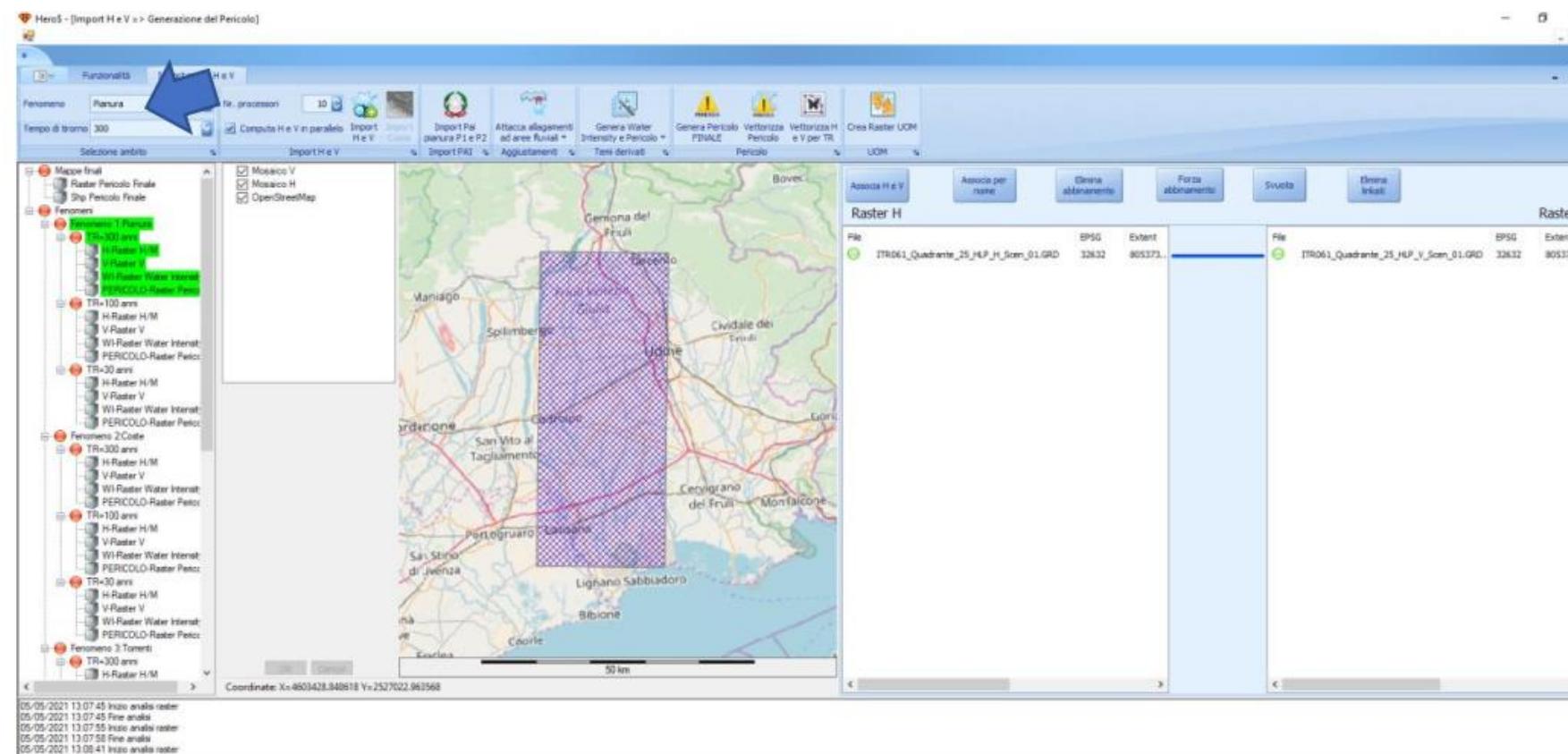
Development of an IT platform for the elaboration of Flood Risk Maps



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## WP3.2.1 - Development of technological tools for flood risk estimation

- Implementation of the conceptual approach for risk assessment within IT tools



IMPORT WATER DEPTH and VELOCITY RESULTED FROM FLOOD MODEL



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ID	Description
1	Residential
2	Hospital facilities, health care, social assistance
3	Buildings for public services
4	Commercial and artisan
5	Industrial
6	Specialized agricultural
7	Unskilled agricultural, woods, meadows, pastures, cemeteries, urban parks
8	Tourist-Recreation
9	Unproductive
10	Ski areas, Golf course, Horse riding
11	Campsites
12	Communication and transportation networks: roads of primary importance
13	Communication and transportation networks: roads of secondary importance
14	Railway area
15	Area for tourist facilities, Zone for collective equipment, Area for collective supra-municipal equipment, Collective equipment in the subsoil
16	Technological and service networks
17	Facilities supporting communication and transportation networks (airports, ports, service areas, parking lots)
18	Area for energy production
19	Landfills, Waste treatment plants, Mining areas, Purifiers
20	Areas on which plants are installed as per Annex I of Legislative Decree 18 February 2005, n. 59
21	Areas of historical, cultural and archaeological importance; cultural heritage
22	Environmental goods
23	Military zone

List of the land use classes used as descriptors for the three macro-categories from the EU 2007/60/CE Flood Directive

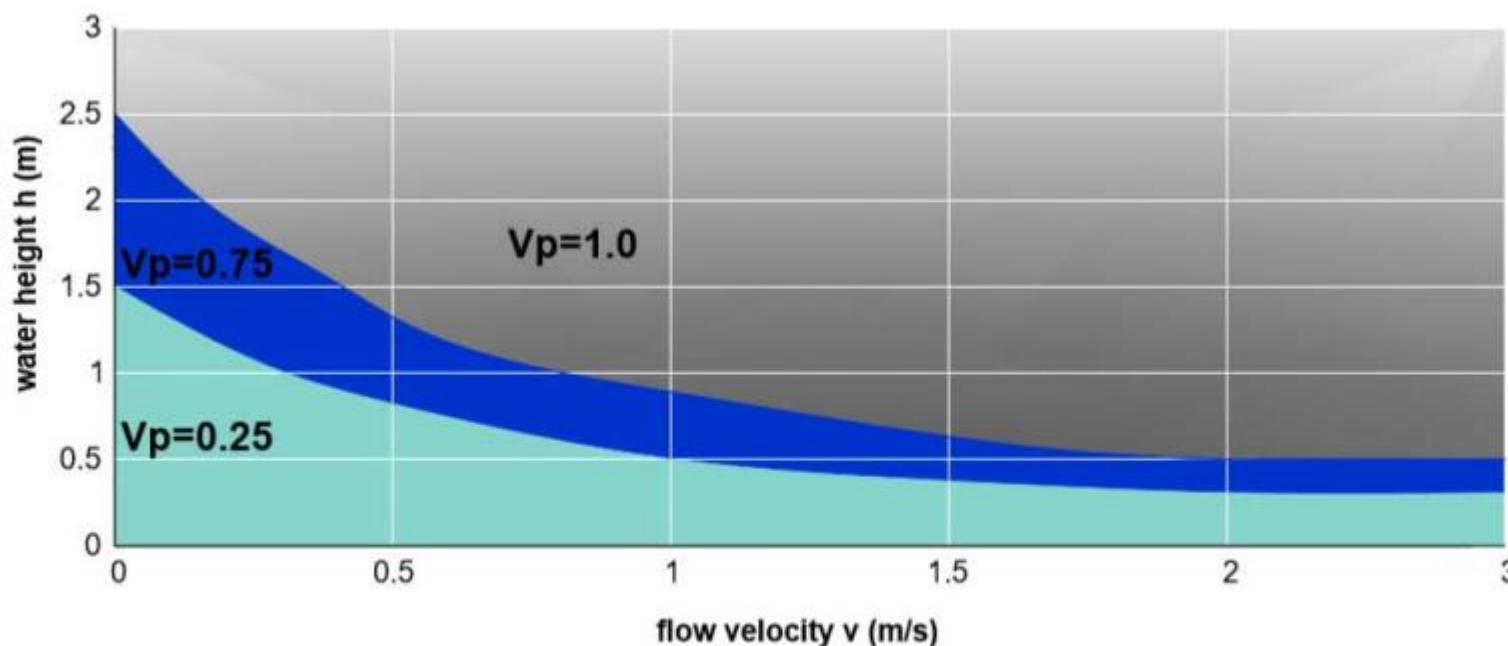
## CALCULATION OF VULNERABILITY AND EXPOSURE OF Affected ASSETS (LAND USES)



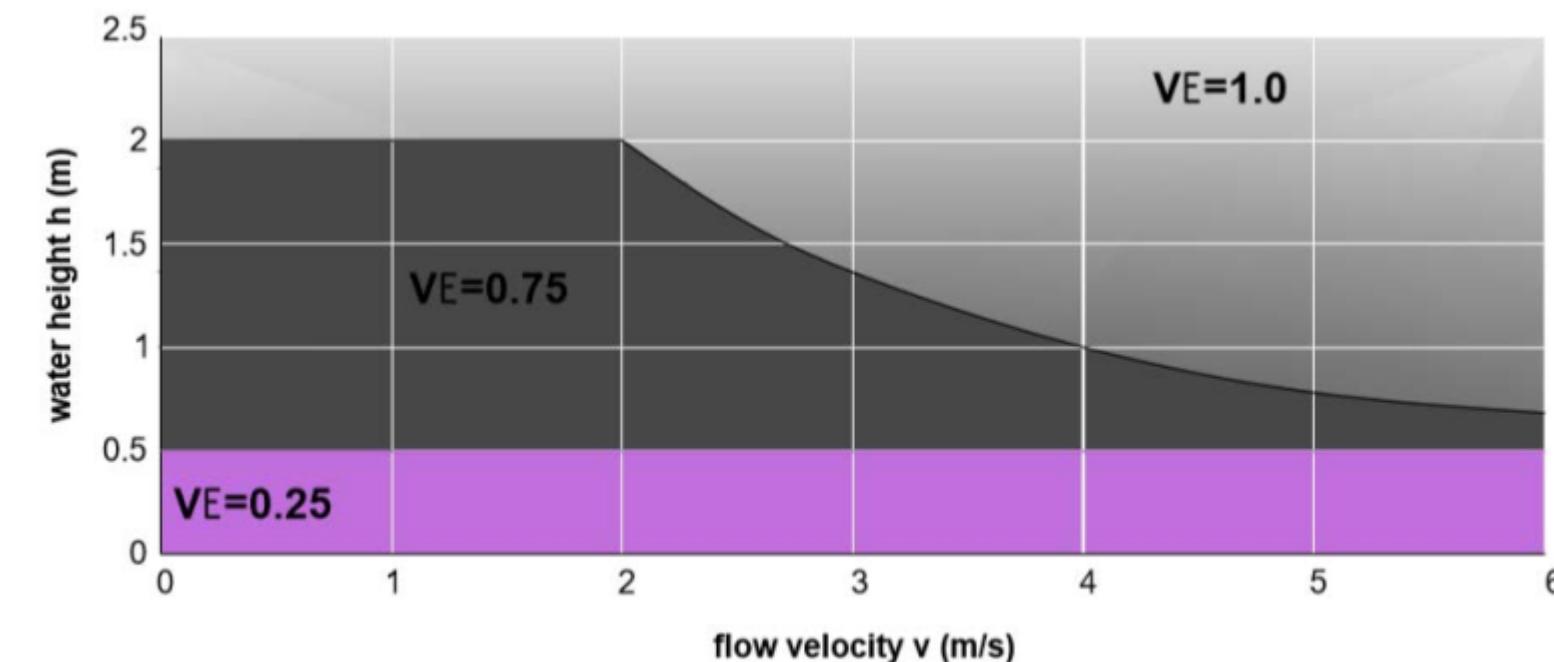
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Vulnerability values for people as a function of  $h$  and  $v$



Vulnerability values of buildings as a function of  $h$  and  $v$

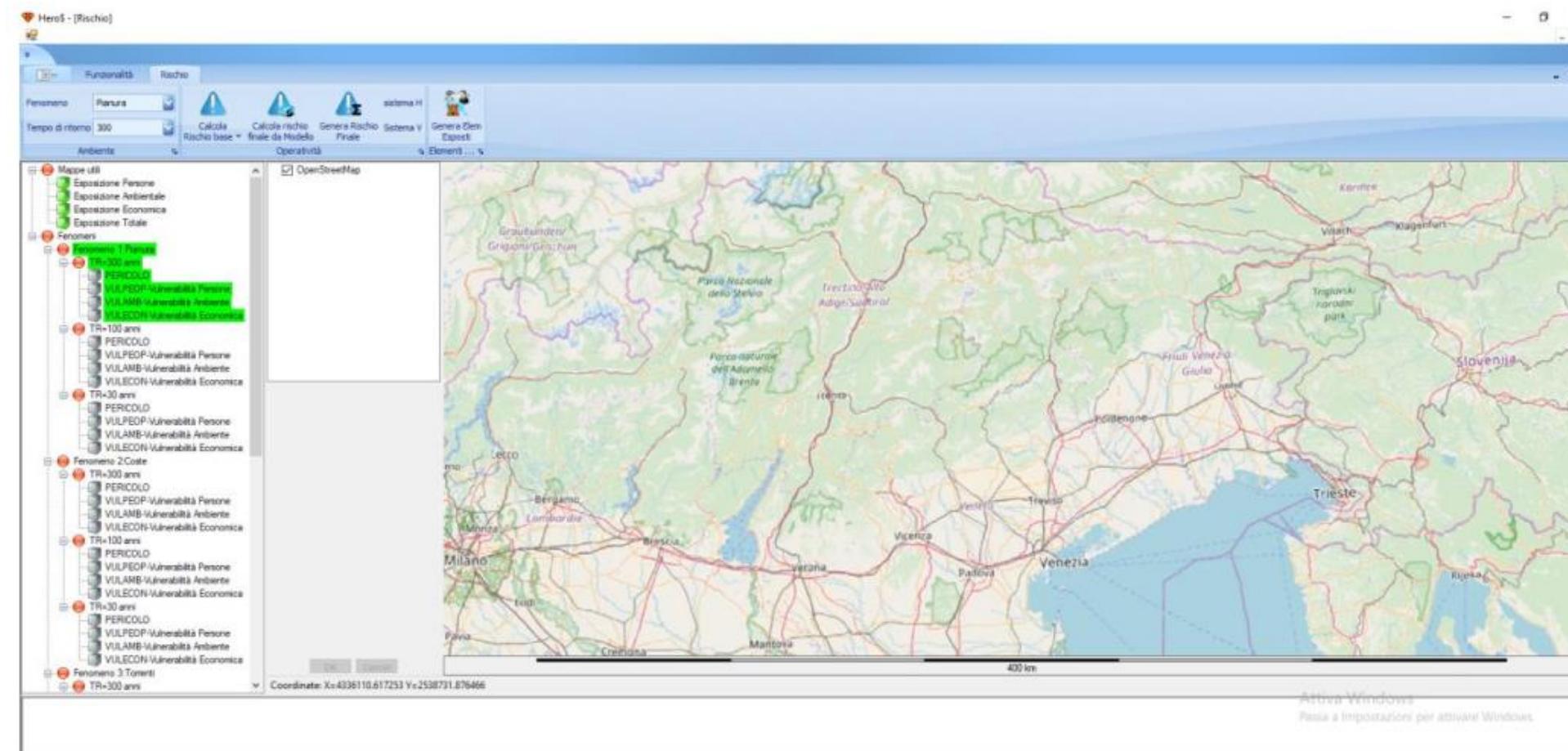
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CALCULATION OF FLOOD RISK AND ITS ECONOMICAL ESTIMATE



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## WP3.2.2 - Cost-benefit analysis of flood mitigation measures and preparation of the relative technical documentation

- Sharing of approaches for performing cost-benefit analysis (CBA) of flood mitigation measures

**The value of citizen science for flood risk reduction: cost-benefit analysis of a citizen observatory in the Brenta-Bacchiglione catchment**

Michele Ferri, Uta Wehn, Linda See, Martina Monego, and Steffen Fritz

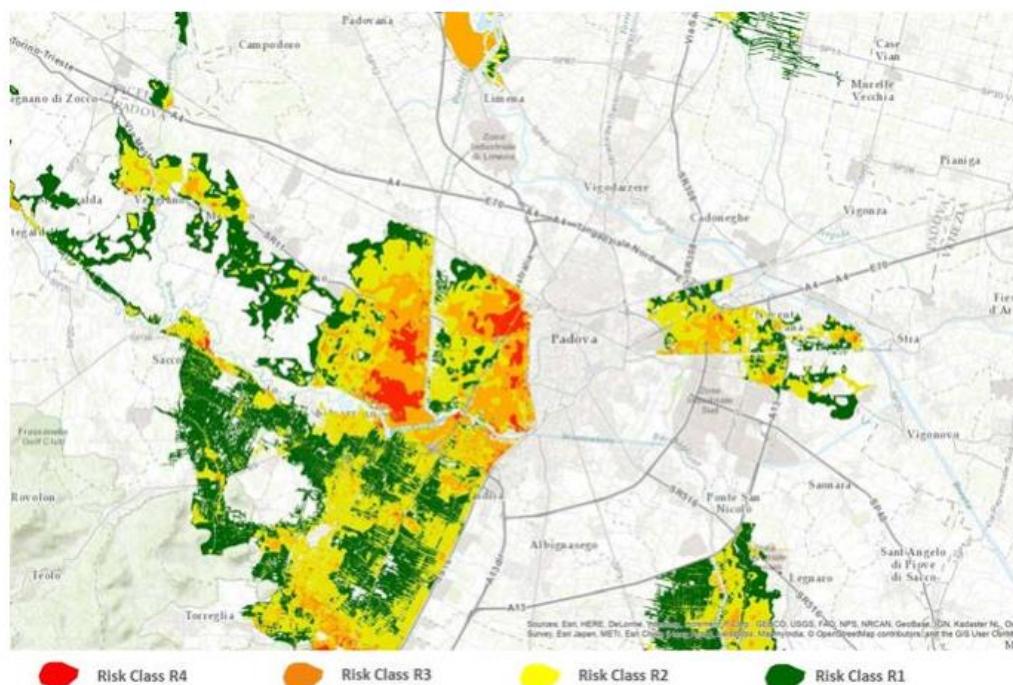
<https://hess.copernicus.org/articles/24/5781/2020/>



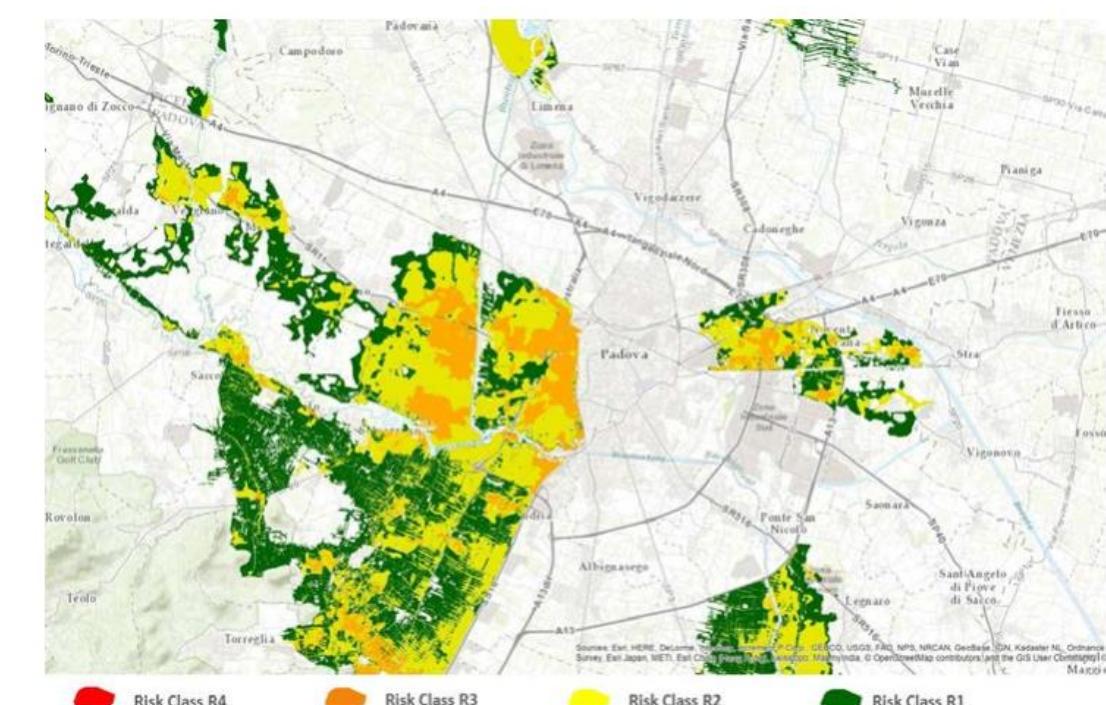
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## WP3.2.2 - Cost-benefit analysis of flood mitigation measures and preparation of the relative technical documentation

- Implementation of the conceptual approach for cost-benefit analysis within IT tools → PRORITIZAZION OF FLOOD MITIGATION MEASURES



FLOOD RISK MAP ANTE OPERAM



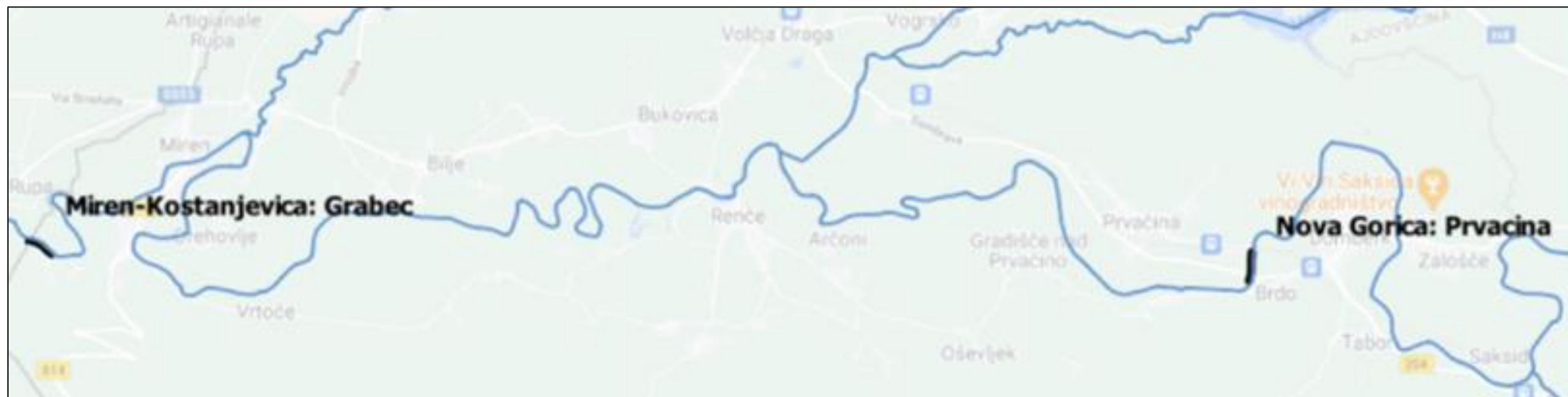
FLOOD RISK MAP POST OPERAM



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## WP3.2.2 - Cost-benefit analysis of flood mitigation measures and preparation of the relative technical documentation

- Application of the software in the project case studies

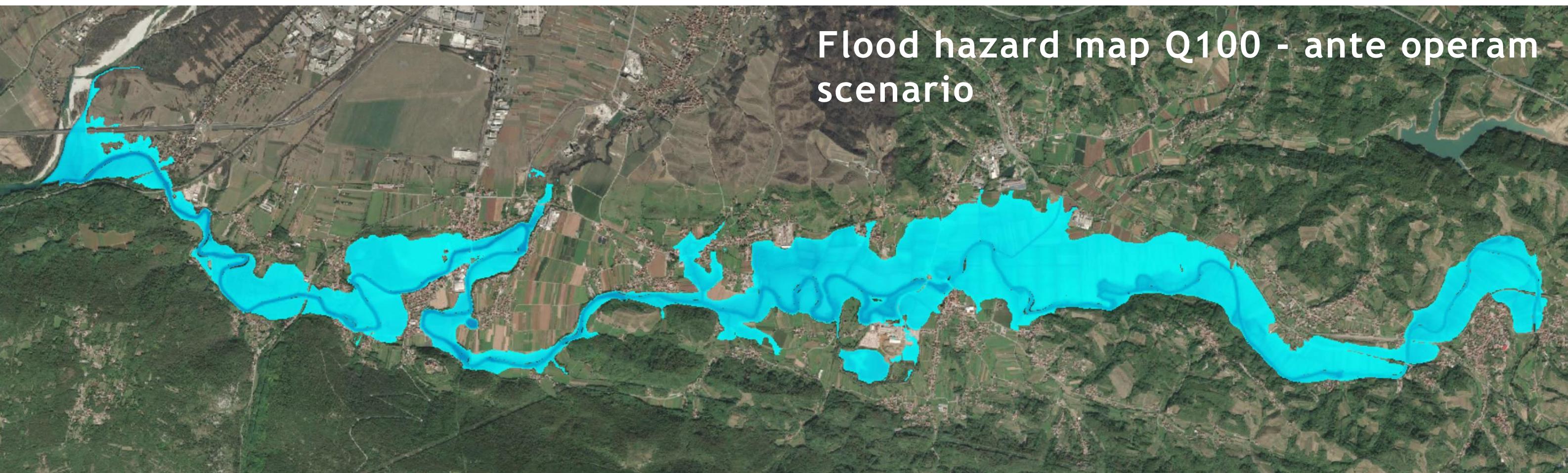




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Flood hazard map Q100 - post operam scenario



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## WP3.2.2 - Cost-benefit analysis of flood mitigation measures and preparation of the relative technical documentation

- Preparation of technical documentation for flood mitigation measures
  - Study of the consistency of the levees of the lower basin
  - Detection of anomalies
  - Geophysical and geotechnical measurements: samples, georadar, electromagnetic interference measurements
  - Based on the results of the geophysical and geotechnical measurements proposal of various flood mitigation interventions





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fiume Vipacco ed ulteriori bacini transfrontalieri  
Upravljanje poplavne ogroženosti na porečju  
reke Vipave in na ostalih čezmejnih porečjih

# Grazie per l'attenzione! Hvala za pozornost!

WP 3.2

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