



**SUSTAINABLE WATER  
ECOSYSTEMS MANAGEMENT  
SWEM 2019**

A new approach to enhance the involvement of stakeholders through the collaborative Flood-Serv platform in flood risk management



**FLOOD-serv**

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**Public FLOOD Emergency and Awareness SERvice**

[www.floodserv-project.eu](http://www.floodserv-project.eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 693599

# Introduction to the project

## The problem



Floods are an increasingly acute problem which endanger lives and can cause **human tragedies, heavy economic losses and severe environmental consequences.**

Despite of efforts at national and local level, flooding cannot be wholly prevented and it remains a severe problem that affects many countries across Europe.

Thus, it is clear that risk reduction in large international basins can only be achieved through transnational, interdisciplinary and stakeholder oriented approaches.

# Overall Project Objective



To develop and provide a **pro-active** and **personalised** citizen-centric public service application that will enhance citizens' involvement and use the collaborative power of ICT networks (**networks of people, of knowledge, of sensors**) in order to raise awareness on flood risks and to enable collective risk mitigation solutions and response actions.

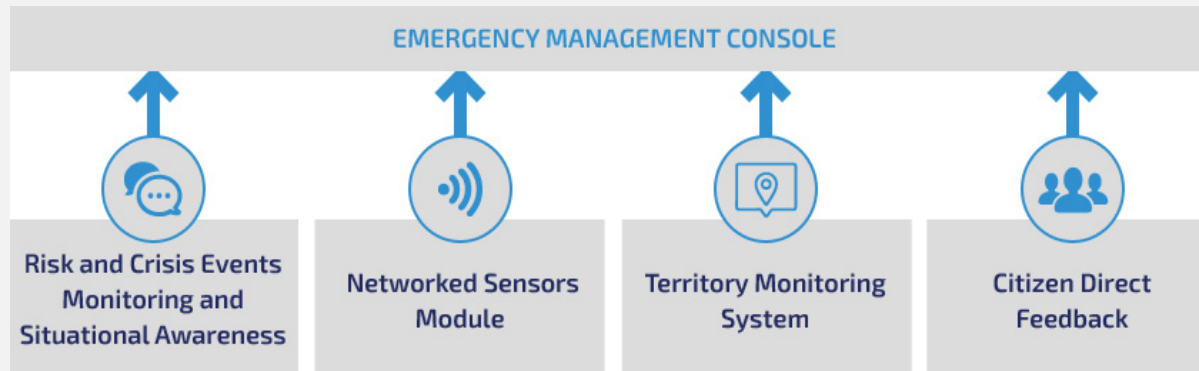


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# New approach- FLOOD-serv platform



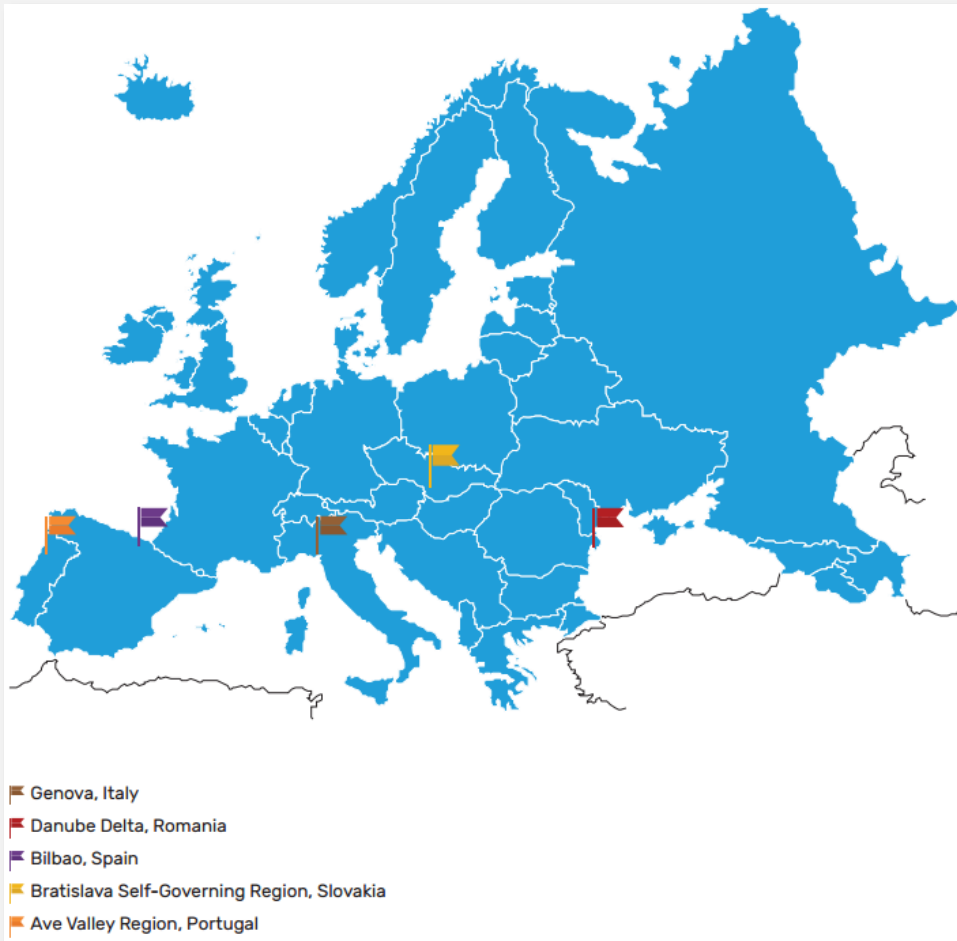
**FLOOD-serv system** acquires information from a large number of external data sources such as:

- **sensors,**
- **social media,**
- **open data,**
- **semantic wiki.**

These data are available through the **FLOOD-serv platform** on mobile devices such as **tablets** and **smartphones** as well as **laptops** and **PCs**.

The **end users** i.e. *public authorities, emergency personnel* and *citizens* are **warned massively** in order to take actions for managing **flood risks** and **impacts**.

# New approach- using Pilot sites



**Genova, Italy**

**Danube Delta, Romania**

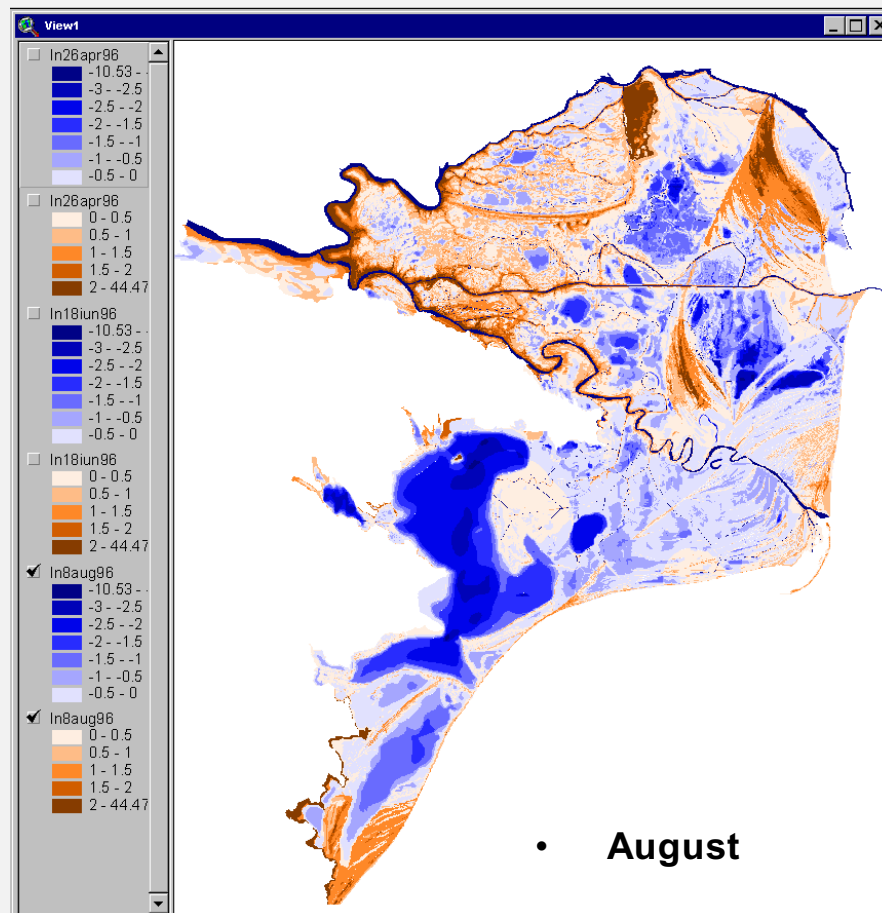
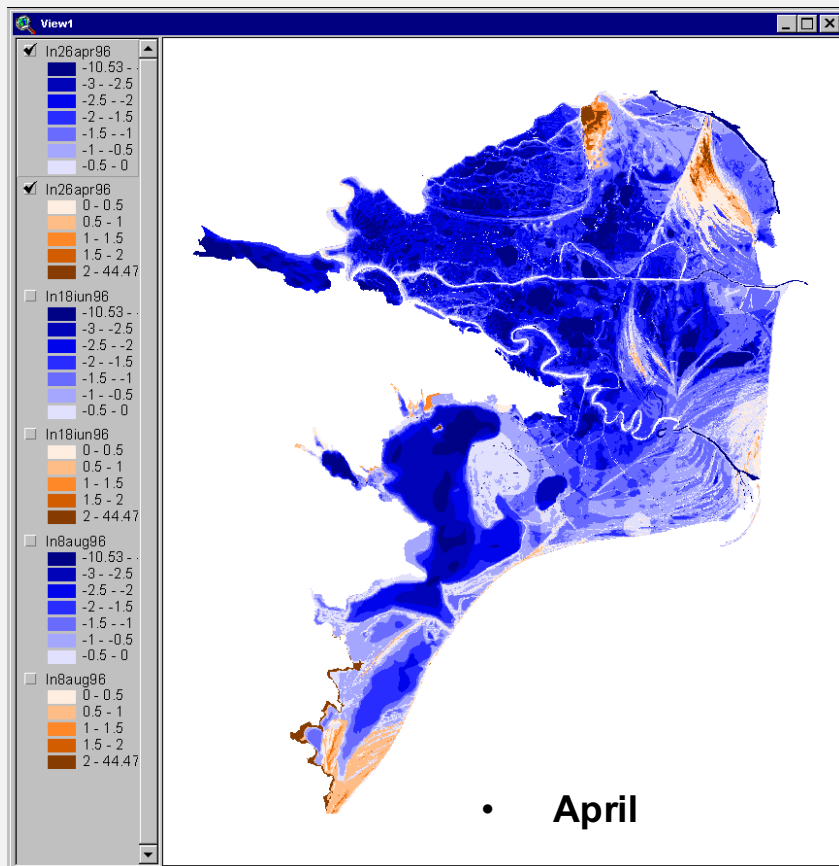
**Bilbao, Spain**

**Bratislava Self-Governing Region, Slovakia**

**Ave Valley Region, Portugal**



# Danube Delta has hundreds of 'faces' all year long (Levels map in April and in the dry season, August)



# Danube Floods-2006→ 2010 effects



*Breaches, 2006*



APRIL 2006



JULY 2010





# Implemented Flood-Serv Components

- An **emergency management console (EMC)**, which visualises the current emergency status on a map and tracks the actions to be executed. The EMC contains an expert system, which proposes response measures based on the data received. Data are obtained from different data sources, e.g. sensors and mobile or social media reports from emergency personnel and citizens.
- **Semantic wiki** which will be a multi-lingual component **to accompany the educational and emergency management facilities** of the FLOOD-serv system and will represent a specific ontology for floods, based on an existent ontology for hazard management and early warning
- Sensors



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# Type of users

- Citizens and public authorities
- Volunteers for emergency cases
- Other relevant stakeholders
- Civil protection services- ISU Delta
- IP Tulcea



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# Approach - done

Tulcea



Bestepe



The platform is build based on a complex user requirements assessment process collecting information about flood risk models based on the EU Floods Directive, flood scenarios, GIS Data, new sensor data, legal and socio-economic information, and the concrete needs and work processes of partner cities.

Isaccea

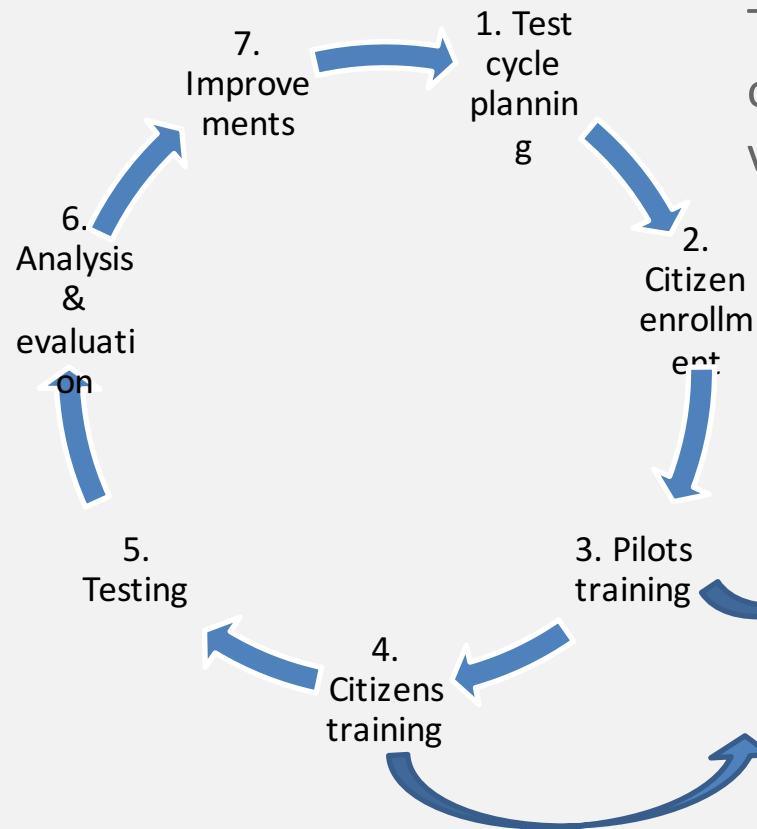


Mahmudia





# Approach- almost done



The FLOOD-serv System is in the process of testing/piloting for verification and validation in a three stage procedure.

- 1. 03.04 – EMC
- 2. 04.04 – General
- 3. 05.04 – Portal, SW, CDF, TMS

Piloting – 8-26 April

Evaluation and Analysis  
D5.4 – Mid of May



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# INNOVATIVE PERCEPTION

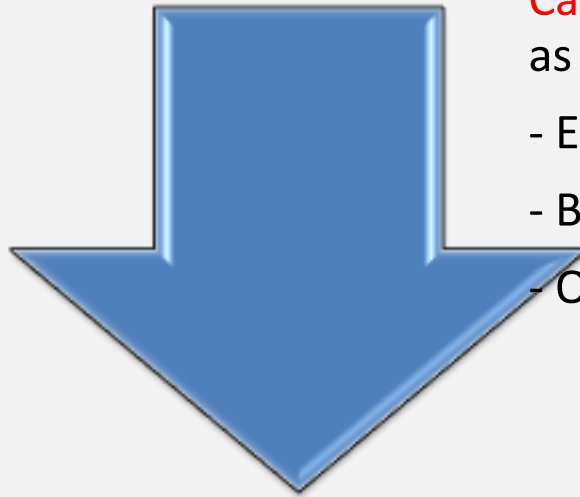


**Good floods?** Positive impact of the floods in Danube Delta → improvement of the + water circulation system - Flood regulating ecosystem services



**Catastrophic** - Floods are usually perceived as catastrophic, whatever their intensity

- Embankments rise or new constructions
- Breach interventions
- Other drastically and expensive solutions





# Conclusions

- Need for new IT based approaches
- Support and improve the flood risk management
- Access to vital information on long term monitoring
- Real-time flood event monitoring
- Citizen involvement
- For Danube Delta, the use of ICT Tools and stakeholder feedback improves the sustainable development in the protected area.



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# Thank you for your attention!

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