Participatory basin management: 
how to do it 
&
why it matters!

Citizen Observatory for water management: 
a new participation approach 
in the Eastern Alps River Basin District

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extension of about 40,000 Km²

average rainfall ranges from 700 to 3000 mm/year

People ≅ 7.100.000
Municipalities 1.100

The Hydrographic District of Eastern Alps

The Flood Risk Management Plan (FRMP) highlights the hazards and risks of flooding from rivers, the sea, surface water, groundwater and reservoirs, and set out how Risk Management Authorities (RMAs) work together with communities to manage flood risk.

➢ flood hazard and risk maps
➢ objectives for the purpose of managing the flood risk
➢ proposed measures for achieving those objectives

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THE FLOOD RISK MANAGEMENT PLAN

HAZARD

R_f = 30 years
R_f = 100 years
R_f = 300 years

II
II
II

flooded area extension

1200 km²
2200 km²
3900 km²

EXPOSURE and VULNERABILITY

Population
Economical assets
Environmental and cultural heritage

highest priority in the non-structural measures of prevention and preparedness

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presence of people, livelihoods, environmental resources, or economic, social, or cultural assets in places that could be adversely affected

Adaptive capacity
Coping capacity
Resilience

R = H · V · E

R_{f|100} = (H; V, E)

R(H, V, E)
Citizens’ observatories are emerging as a means to establish interaction and co-participation between citizens and authorities both during emergencies but also during the day-to-day water management virtual place of the two-way communication between citizens and decision-makers.

Authorities and citizens cooperate in:

- sharing information about events and places
- supporting a shared situation awareness, not only to improve response and recovery, but also to improve prevention, protection and preparedness for future emergency situations
- implementing new approaches to participation in planning, decision making and governance

Observatories allow citizens and communities to take on a new role in the information chain.
A Citizen Observatory for Water Management as flood risk mitigation measure

Data collection of real-time information on weather conditions, river levels and floodings

Existing Monitoring network (Physical sensors)

Flood Forecasting and Decision Support System

Data Assimilation

Communication

Emergency/danger alerts, Floods and road practicability reports

Authorities

Students
Civil volunteers
Technicians

Citizens

Training
Education campaigns

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A Citizen Observatory for Water Management as flood risk mitigation measure

- complementary source of data for hydrological/hydraulic monitoring
- more spatially distributed coverage
- dedicated apps, easy-to-use physical sensors and other monitoring technologies linked to a dedicated platform

Two-way communication between Citizens and Authorities
Citizens receive in exchange alerts setting from weather forecast and flood warnings, sensors data, information from the Authority
A Citizen Observatory for Water Management as flood risk mitigation measure

**TRAINING activities**
to learn to use the CO supporting technologies but also to better understand the dynamics of flood events

**Supporting communication with the teams of volunteers during an emergency**
transmission of the position of the volunteers and sharing of useful information in order to optimize emergency management

**Involvement of technicians** and professionals (expert citizens): agreements anche formative sessions

when an extreme event (i.e. heavy rain) is forecast, AAWA calls upon any available participants to acquire high-quality data to feed the models and databases
Engagement of schools is currently ongoing, including the development of educational programs for teachers, approved by the Italian Ministry of Education.

The aim is to raise student awareness of existing flood risks in their own area, and to help students recognize the value of the Citizen Observatory in protecting their families.

(300 primary schools and 300 middle and secondary schools involved)
The Citizen Observatory for water management is a step forward in achieving important Sustainable Development Goals:

- Capacity for early warning, risk reduction and risk management for national health

- Protection of the world's cultural and natural heritage

- Reduction in the number of deaths and the number of people affected and economic losses caused by disasters, including water-related disasters

- Increase in the number of cities with the adoption and implementation of policies aimed at mitigation and adaptation to climate change, integrated resilience to disasters

- Resilience and adaptability to climate-related risks and natural disasters

- Improvement of education, awareness and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

- Effective and transparent institutions at all levels

- A responsive, inclusive, participatory decision-making process at all levels
A Citizen Observatory for Water Management as flood risk mitigation measure

The citizen observatory was adopted as a not structural mitigation measure for flood risk in the FRMP.

€ Economic value the citizen observatory is assumed to decrease the social vulnerability of the flood risk

Risk Map of Padua territory (RT 100 years)

Cost of the Citizen Observatory measure 5 million € (annual benefit in terms of avoided damage: approximately 135 million €)

Social value The citizens are the hearth of the alert system: they are involved in data collection and are made aware of the risk that characterizes the place in which they live

ACTIVE PARTICIPATION IN WATER MANAGEMENT
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