



16 SEPTEMBER – CNR IRPI PERUGIA

EFFECTS OF RISK GOVERNANCE  
TRENDS ON SPATIAL PLANNING  
DECISIONS – A CASE STUDY FROM  
THE ITALIAN ALPS

# STRUCTURE



## RISK MANAGEMENT- ITALY

- **Monitoring & prevention framework**

Cap**Haz**-Net

Social Capacity Building  
for Natural Hazards  
Toward More Resilient  
Societies

## SPATIAL PLANNING AS PREVENTION TOOL

- **Focus on hydro- geological risk**
- **PAI**
- **PRGC**



## CASE STUDY – MALBORGHETTO VALBRUNA

- **How the approach to risk governance influences choices of spatial planning**



# CASE STUDIES

[www.caphaz-net.org](http://www.caphaz-net.org)



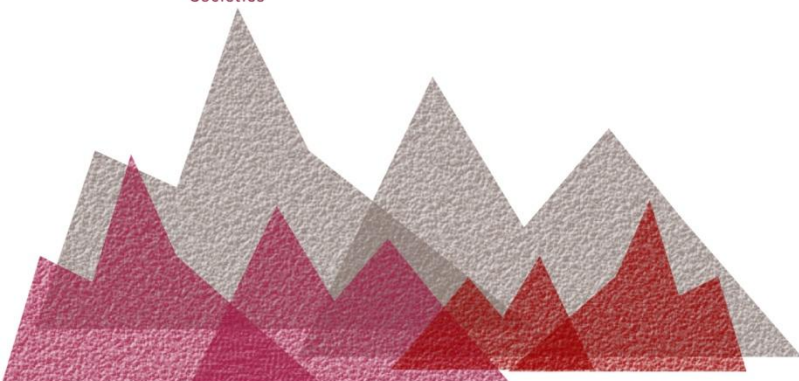
[www.isig.it](http://www.isig.it)

CapHaz-Net

Social Capacity Building  
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Toward More Resilient  
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## REGIONAL WORKSHOP: SOCIAL CAPACITY BUILDING FOR ALPINE HAZARDS

CapHaz-Net

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## SEMINARIO REGIONALE: RAFFORZAMENTO DELLE CAPACITÀ SOCIALI PER AFFRONTARE I RISCHI NATURALI NELLE ALPI

# HOW IS RISK MANAGED IN ITALY?

## - LEGAL FRAMEWORK -



- Italy is divided into 20 administrative regions, 103 provinces and 8,102 municipalities
- The Italian Constitution (1947) established decentralisation of certain powers to Regions (art. 116) – divided into Regioni a Statuto Speciale, also known as Regioni Autonome (5), and Regioni a Statuto Ordinario (15)
- Responsibilities for risk management are distributed among different actors

# HOW IS RISK MANAGED IN ITALY?

## Monitoring and prevention framework 1/2

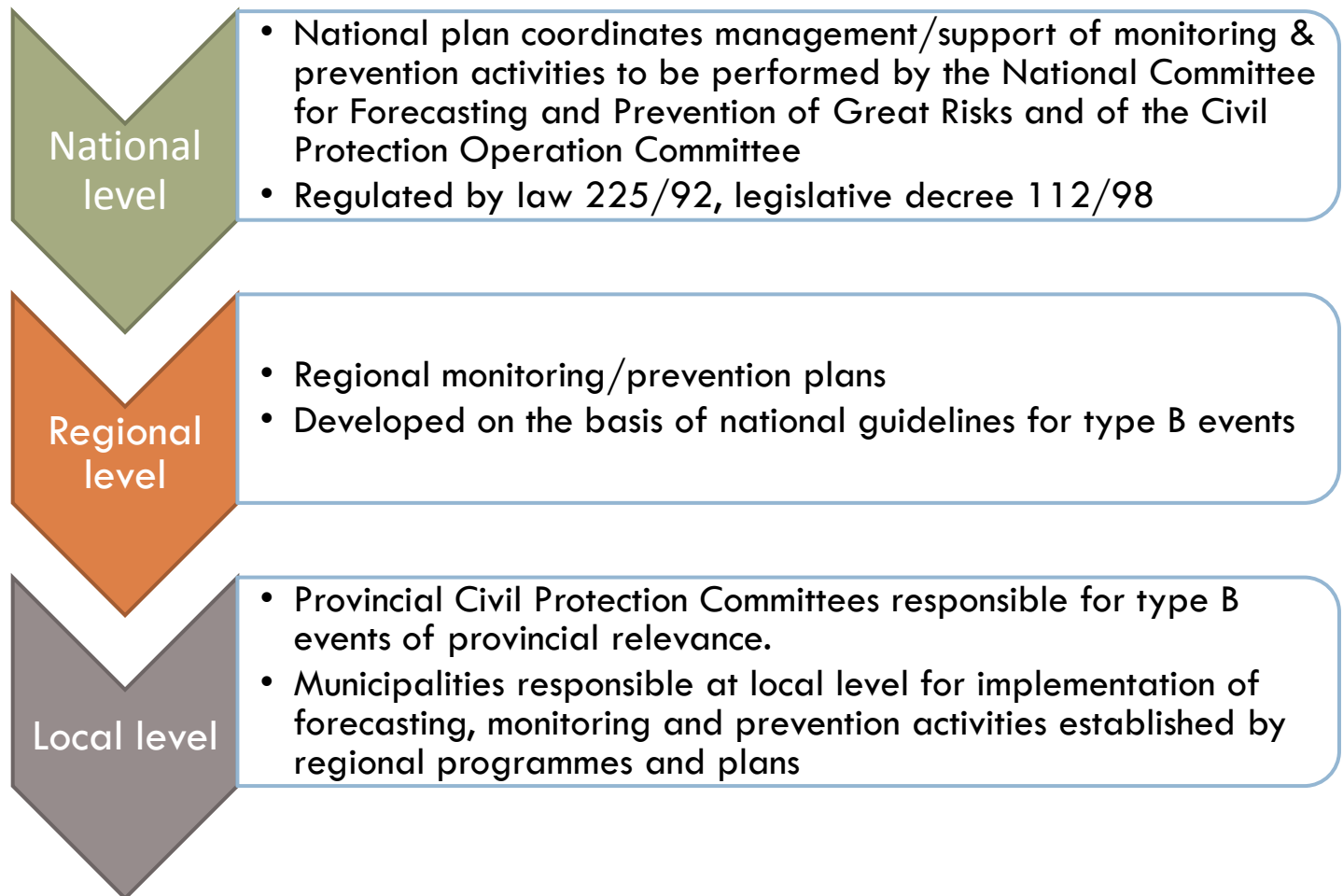


### Hazardous events are classified as:

- Type A: events that can be managed by local authorities as part of their routine duties
- Type B: events that require coordinate intervention of more authorities at local and regional level, as part of routine duties
- Type C: events of great intensity and extent that require coordination and intervention at national level

# HOW IS RISK MANAGED IN ITALY?

## Monitoring and prevention framework 2/2



# HOW IS FLOOD RISK MANAGED IN ITALY?

## Mapping hazard & planning accordingly



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### □ **EU FRAMEWORK**

- Water Framework Directive (2000/60/EC) creation of 'district basins'



### □ **INTEGRATION IN ITALIAN LEGISLATION**

- Law-decree 152/2006 introduced hydrographical basins (i.e. water bodies) and districts (i.e. soil or sea area which correspond to one or more hydrographical basins and their surface or underground waters)

# HOW IS FLOOD RISK MANAGED IN ITALY?

## Mapping hazard & planning accordingly



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Italy is  
divided in 8  
hydrographic  
districts



# HOW IS FLOOD RISK MANAGED IN ITALY?

## Mapping hazard & planning accordingly 1/3



Evaluation of **flood risk** is conducted at the level of each hydro-  
graphic district

- Special Plans (*Piani Straordinari*) include areas exposed to higher risks, as resulting from historical data, on-site evaluations and hazard/risk assessment
- The River Basin Plans (PAI: *Piani per l'Assetto Idrogeologico*) comprise areas at high hydraulic risk according to return times compatible with those indicated in the EC "Floods Directive"
- These plans contain indications concerning both structural and non-structural risk mitigation measures

# HOW IS FLOOD RISK MANAGED IN ITALY?

## Mapping hazard & planning accordingly 2/3



- The **hydro-geological risk assessment** is aided by further data specifically produced (on demand) by:
  - by the Regional Agencies for the Environment (ARPA),
  - National Research Council (CNR)
  - “Functional Centres” of the National Department of Civil Protection
  - research centres of universities
- At national level, the Presidency of the Council, under coordination of Ministry of Environment (MATTM) and in agreement with other Ministries/Departments sets out guidelines for land use planning for areas at risk of landslides and floods.

# HOW IS FLOOD RISK MANAGED IN ITALY?

## Mapping hazard & planning accordingly 3/3



- At **local level** the responsibility for the implementation of these land use planning criteria is given to the region, the province and the municipality
- The municipalities integrated these land use criteria in the PRGC – Piano Regolatore Generale Comunale
- Local authorities are responsible for implementation of measures contained in the Basin Plans, adopted by the Basin Authorities under the supervision of MATTM

# CASE STUDY: MALBORGHETTO VALBRUNA



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- ❑ Municipality (1036 inhab., six hamlets) in the Region of Friuli Venezia Giulia
- ❑ located in an Alpine valley (Valcanale) bordering Austria and Slovenia
- ❑ at the confluence of the River Fella and the streams Malborghetto and Uque
- ❑ Multi hazard location
  - debris flows
  - landslides
  - floods
  - earthquakes



# CASE STUDY: MALBORGHETTO VALBRUNA



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- ❑ A severe flash flood hit Malborghetto-Valbruna on the 29th of August 2003
- ❑ Combination of two extreme events: a storm (355 mm of rainfall within three to six hours) and the anomalous dryness of the soil due to an excessively dry summer
- ❑ Water transported sediments, stones, shrubbery, trees into the village
- ❑ Evacuation: ~600 residents
- ❑ Total damage: ~200 million Euros



# MALBORGHETTO VALBRUNA: contextualisation



- ❑ Rescue teams from Austria and Slovenia (volunteer teams) arrived before the regional Civil Protection (the road was blocked)
- ❑ Good contacts between CP volunteers of Malborghetto Valbruna and rescue volunteer teams from AU – SLO is guaranteed by a in informal, constant contact on yearly basis
- ❑ The village of M-V has a very high % of citizens involved in territorial maintenance/risk management on volunteer basis (1 person per family)
- ❑ This is due a traditional involvement established at the time of the Austro Hungarian Empire (i.e. most families have been settled there for centuries)

# MALBORGHETTO VALBRUNA: after the disaster 1/3



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- Damage to basic services (water, electric power, road conditions, and telecommunication)
  - Drainage and the electric systems had to be completely restored, while the aqueduct was blocked for several days
- Few months after the event, a “Flood Office”, coordinated by regional authorities, was set up in every municipality in the Valcanale
  - organisation of compensation procedures for people affected by the flood
  - technical assistance to other municipal departments



# MALBORGHETTO VALBRUNA: after the disaster 2/3



- The recovery phase highlighted issues related to
  - equity in the distribution of compensation payments
  - disagreements among local people about relocation of houses and structural risk mitigation measures
  
- Risk mitigation decisions had to be taken very quickly, so as to be integrated in the reconstruction process



# MALBORGHETTO VALBRUNA: after the disaster 3/3



- The salient features of the decision making process can be synthesised as follows:
  - mayor/leading political party and Civil Protection engineers proposed the construction of new protection works
  - citizens constituted a 'Safety Committee' asking for more structural mitigation measures
  - political opposition argued in favour of local and traditional knowledge as a means to taking more informed and pertinent decisions about safety
  - voluntary fire brigades expressed their perplexity on the building of new structural measures, considered a potential source of danger in case of extreme events.

# MALBORGHETTO VALBRUNA: negotiation over reconstruction choices



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- a process of negotiation and constant communication was started between mayor and private citizens
- the mayor took a clear assumption of responsibility in the decision-making, based on the work and expertise of the regional Civil protection
- this approach, while seemingly a simple top-down decisional process, implied instead a constant work of negotiation in the background



# MALBORGHETTO VALBRUNA: negotiation over reconstruction choices



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This was possible because:

- M V is a small municipality
- There is a strong involvement of population in daily territorial management,
- There is a sense of belonging, historical and traditional presence of qualified volunteers of civil protection in the area

A formally 'interventionist' process turned in practice into a decision making involving the whole community (consulted informally but constantly throughout the reconstruction and mitigation processes)



# How does the approach to risk governance affect spatial planning decisions?



- Local (municipal) spatial planning is influenced by:
  - Risk assessment; geological studies
  - Priority choices in land use destination
- Malborghetto is:
  - A multi hazard location
  - A small municipality and a 'historical settlement'
  - A municipality where people have lived for generations and know the territory and its risks well
  - A municipality where citizens are actively involved in territorial maintenance

# PRGC of Malborghetto Valbruna 1/2



- The geological study determined the impossibility to use:
  - Areas at risk of landslide
  - Areas interested by surface hydrographic phenomena
  - Areas of RIVER PERTINENCE – this is also determined by the PAI of the Fella River (June 2012)
- The PAI prescribes for the municipalities along the Fella river the need to:
  - Present proposals for mitigation measures to the Region and await Basin authority permission before proceeding
  - Respect, in their urban planning, the river flows as estimated in the river basin evaluation (e.g. control runoff and discharge from urban activities)



- The environmental measures prescribe:
  - Constant maintenance and clearing of canals
  - Maintenance of river bed, also through (regulated) removal of gravel
- Flood mitigation measures:
  - Prescribe the realization of bioengineering solutions
  - Have to be integrated in the local landscape and where not possible, local materials have to be used
  - Need to be planned with adequate consideration of necessary maintenance



# CONCLUSIONS 1/2



- Concluding:
  - Local planning in Malborghetto is both influenced by risk assessment considerations (PAI, geological survey) and by local risk governance trends
  - In fact, construction in certain areas is made possible only if constant maintenance of canals/river bed is guaranteed
- This is possible only due to :
  - The high percentage of civil protection volunteers among citizens of the municipality
  - The high degree of awareness/knowledge of the territory among inhabitants



# CONCLUSIONS 2/2



- Concluding:
- Choices on risk mitigation are the product of the negotiation that took place during reconstruction process
- Structural mitigation and attention to environment/tradition are merged in this PRGC choices

**Successful local territorial planning is shaped both by physical and social factors and is embedded in the context it aims to regulate, protect and aid in development.**





**CHANGES**  
Risk=HVA



THANK YOU FOR YOUR  
ATTENTION!

QUESTIONS?