

1st IAVCEI/GVM workshop  
From volcanic hazard to risk assessment

# Volcanic risk and civil protection implications in Italy

*Geneve, 27-28 June 2018*

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## THE NATIONAL CIVIL PROTECTION SYSTEM

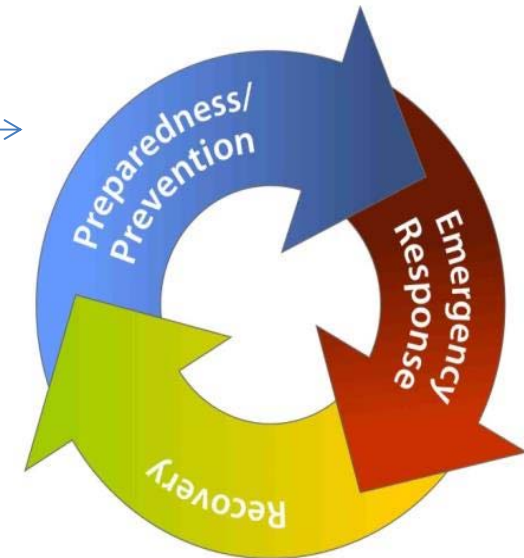
The civil protection system is composed by a framework of authorities, operational structures (i.e. fire-fighters, police, army...), scientific components and volunteers operating at different territorial levels in a coordinated way.

The aim of the activities is to preserve and protect the human life, the settlements, and the environment from the hazards.



Coordination

Main tasks





# CHARACTERIZATION OF EVENTS



**A** Natural or man made events that could be faced by single local administrations in an ordinary way

**MUNICIPALITY**

**B** Natural or man-made events that could be managed locally in coordination by more than one local administration;

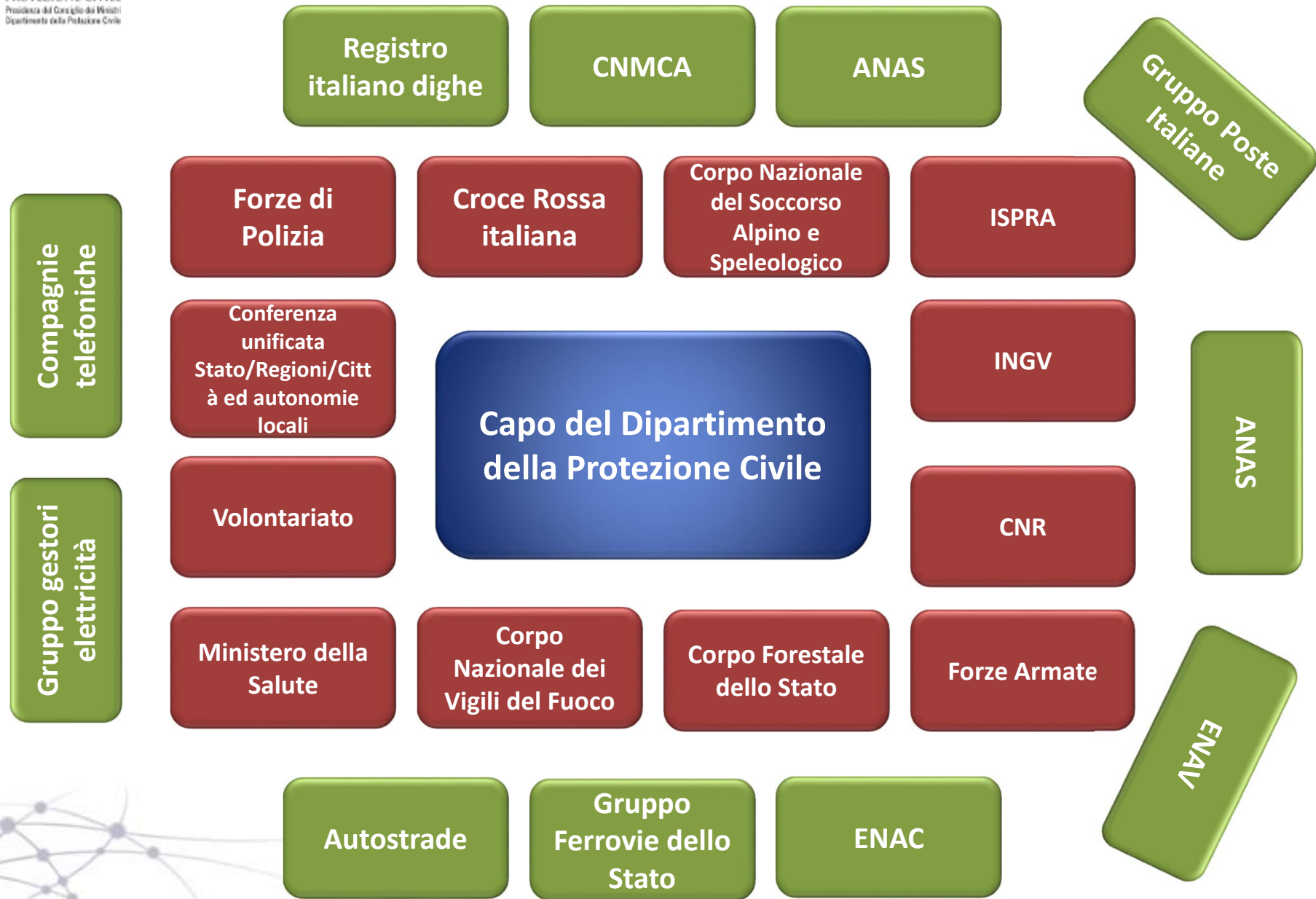
**MORE MUNICIPALITIES, PROVINCES, REGIONS**

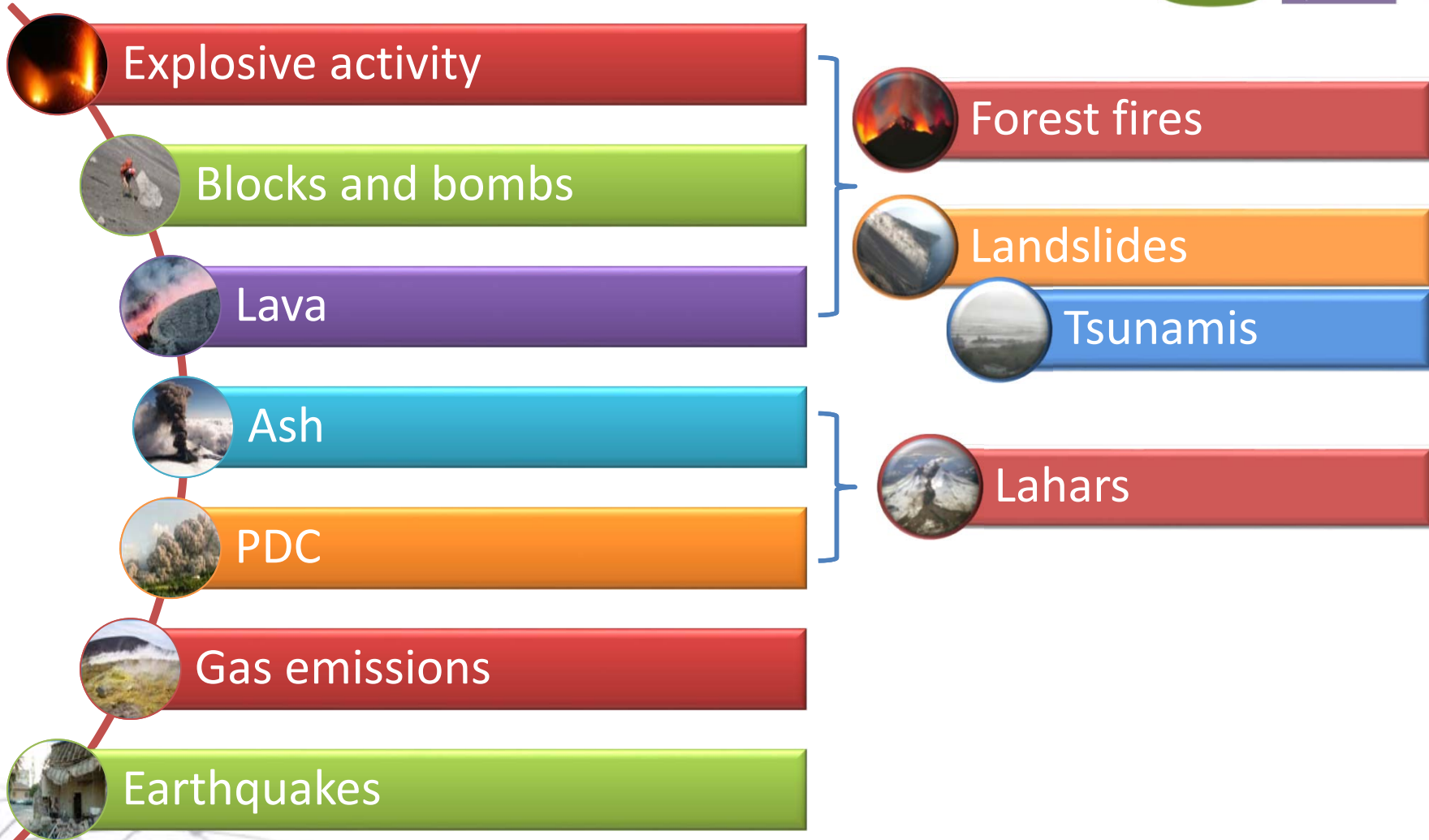


**C** Natural or man-made calamities that given the size and impact, must be managed rapidly with extraordinary efforts for a limited period of time.

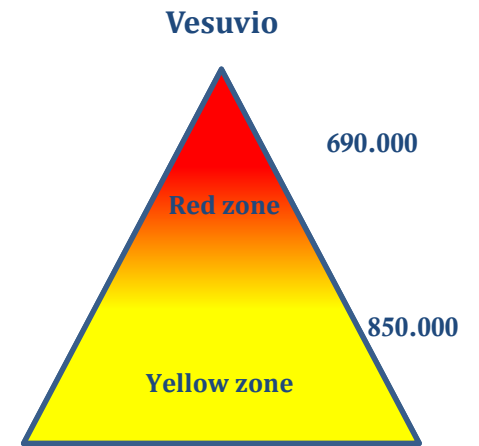
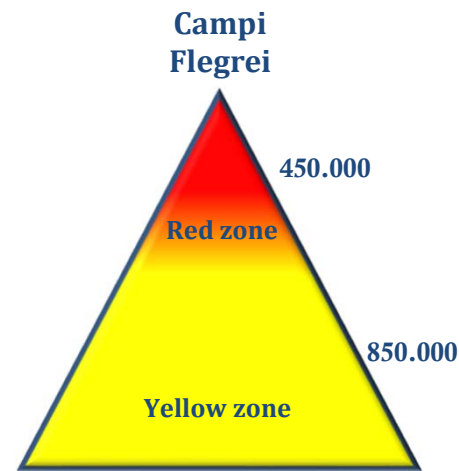
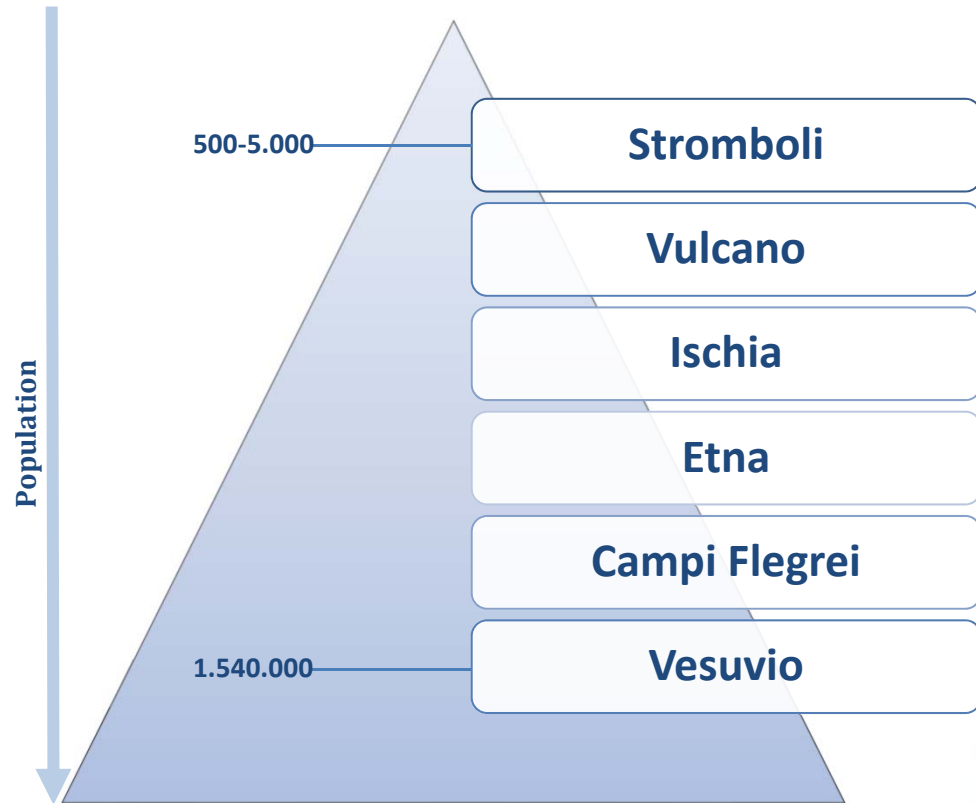
**GOVERNMENT**

## THE OPERATIONAL COMMITTEE





# POPULATION EXPOSED



**Over 2 Million people are exposed to volcanic hazards**



## THE SCIENTIFIC COMMUNITY

Directive of the Prime Minister of 27 February 2004 *“Operational guidelines for the organization and functionality of the National Warning system”*

### CENTRI DI COMPETENZA

Monitoring and surveillance, data, elaborations, technical and scientific support, hazard, vulnerability



Links:

<http://www.ct.ingv.it/it/>

<http://www.ov.ingv.it/ov/>

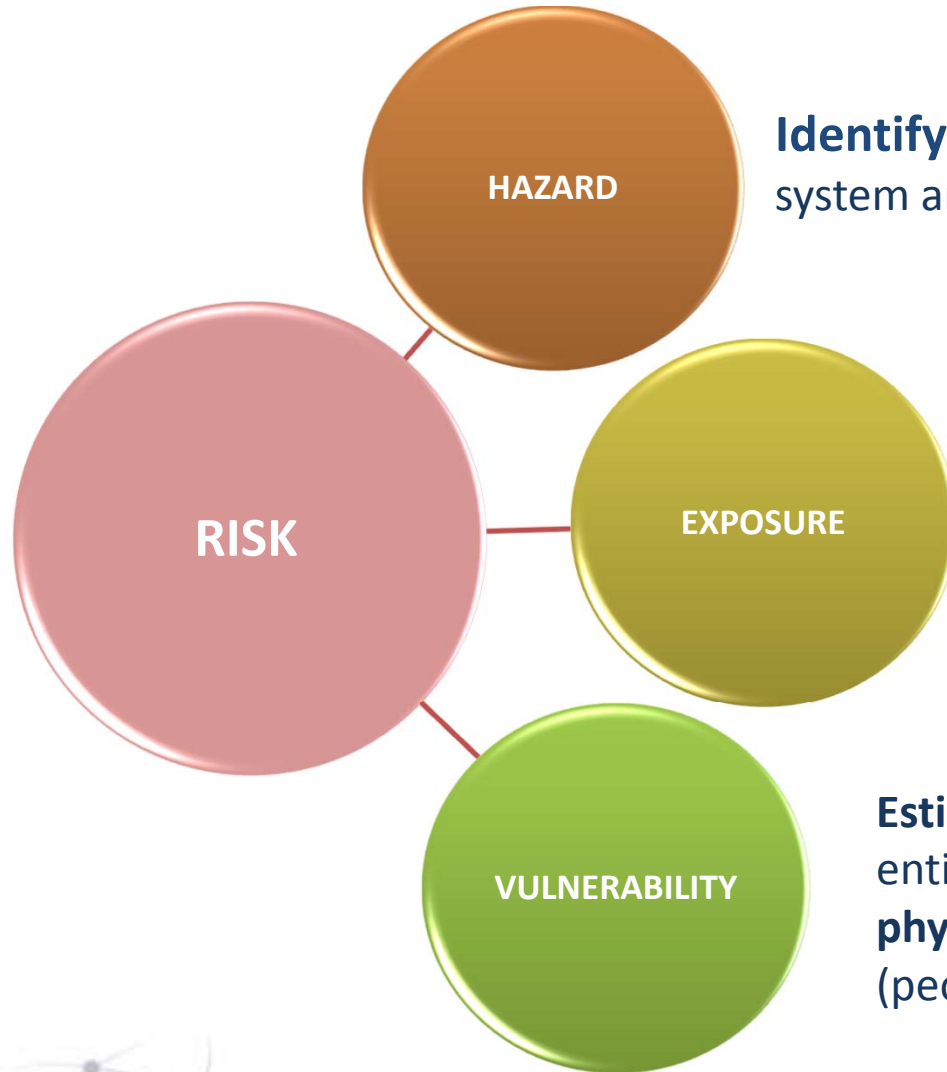
<http://lgs.geo.unifi.it/>

<http://www.asi.it/>

<https://www.cnr.it/>



## RISK ASSESSMENT – WHAT WE NEED



**Identify the hazards** which might affect the system and assess their likelihood or probability.

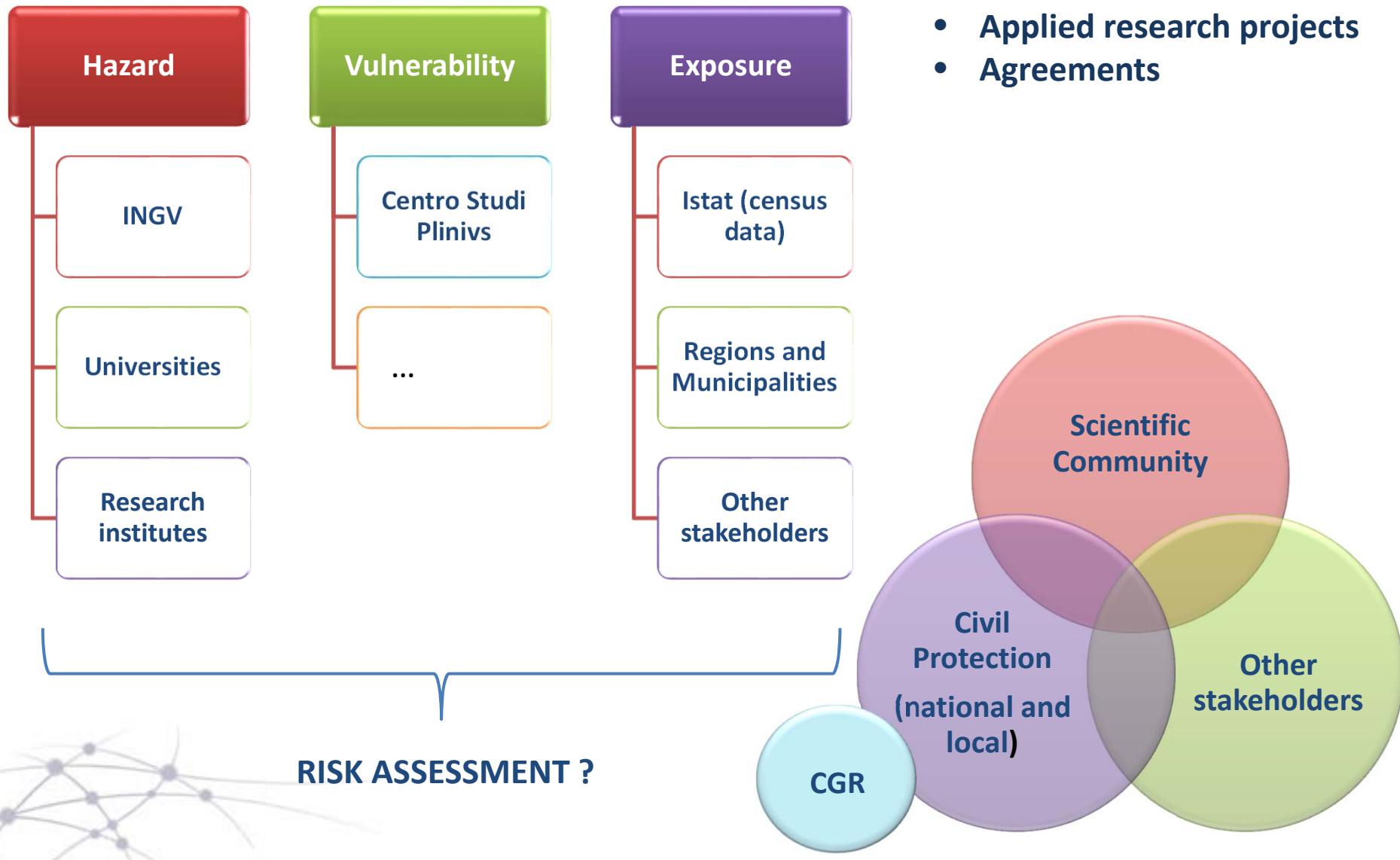
**WHO and what is at risk?**

**Estimate the vulnerability** of the hazard to the entity exposed in order to calculate the **physical or financial impact** upon that entity (people, objects, systems)

Estimate the potential financial or social consequences of different magnitudes



## RISK ASSESSMENT – WHO DOES WHAT?



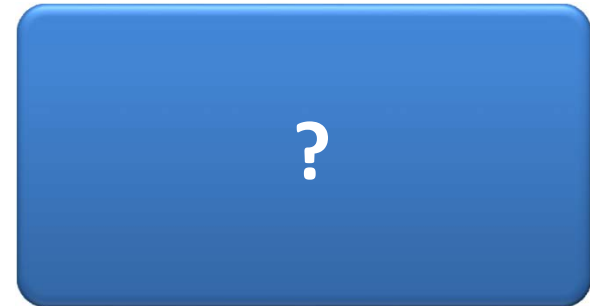
# RISK ASSESSMENT – WHERE ARE WE?

## LONG TERM ASSESSMENT

## SHORT TERM ASSESSMENT

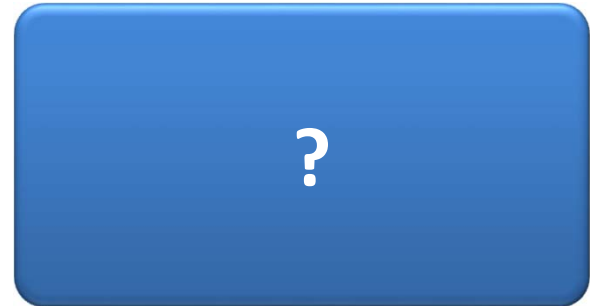
**VESUVIO**

- Identified the hazards
- Determined the exposure (in terms of population number)
- Estimated the vulnerability for ash-fallout and seismic events
- PDC and ash-fallout risk zones have been determined
- National emergency plan under construction



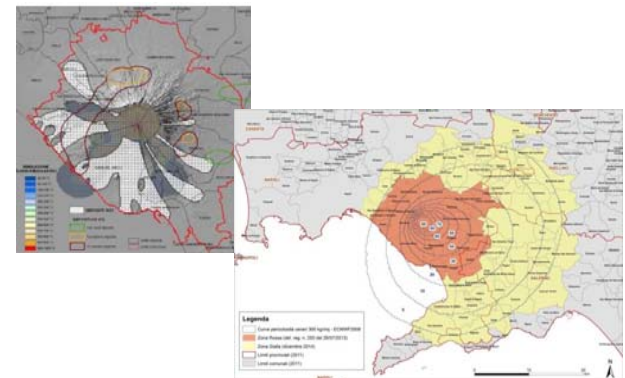
**CAMPI FLEGREI**

- Identified the hazards
- Determined the exposure (in terms of population number)
- Estimated the vulnerability for ash-fallout and seismic events
- PDC and ash-fallout risk zones have been determined
- National emergency plan under construction



**ISCHIA AND VULCANO**

- Identified the hazards



# RISK ASSESSMENT – WHERE ARE WE?

## LONG TERM ASSESSMENT

## SHORT TERM ASSESSMENT

**STROMBOLI**

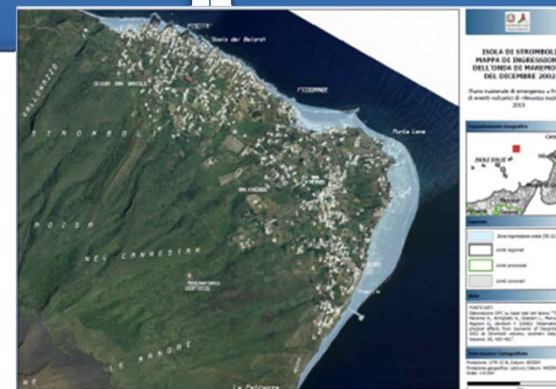
- Identified the hazards (tsunami)
- hazard zones have been determined (Stromboli island)

- Identified the hazards (explosive activity)
- Hazard zone has been determined

**ETNA**

- Identified the hazards (lava flows threatening cities)

- Identified the hazards (explosive activity)
- Hazard zone has been determined



## RISK ASSESSMENT – CIVIL PROTECTION PERSPECTIVE

### VOLCANIC RISK

#### LONG TERM ASSESSMENT

- ✓ for national impact scenarios;
- ✓ useful for the development of the national emergency plans and connected procedures;
- ✓ it could be used for policy making in terms of risk reduction (landuse policies, no building zones);
- ✓ involves a large number of stakeholders (national civil protection, scientific community and the entire national civil protection system stakeholders);
- ✓ useful for the deployment of sector plans

#### SHORT TERM ASSESSMENT

- ✓ active volcanoes (e.g. Stromboli and Etna);
- ✓ useful for the development of the regional and local emergency plans and connected procedures;
- ✓ better support to local authorities in order to develop effective policies for people who are exposed everyday to hazards in volcanic touristic areas;
- ✓ supports local civil protection authorities in decision making;

