BORIS

Cross BOrder RISk assessment for
increased prevention and preparedness in Europe

The Italian Civil Protection and the contribution of its Competence Centres

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PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile

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NATURAL HAZARDS IN ITALY

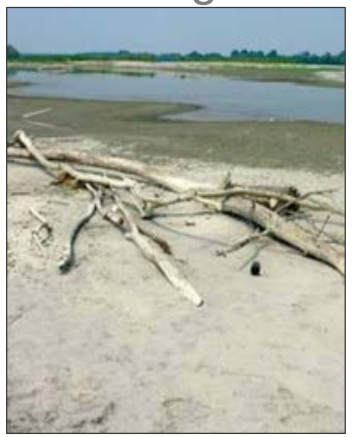
The **National Civil Protection Service** deals with several natural hazards such as **seismic, volcanic, tsunamis, hydraulic/hydrogeological, adverse weather phenomena, drought** and **forest fire**.

flood

earthquake

landslide

drought



forest fire

snow avalanche

tsunami

volcano

CIVIL PROTECTION DECISIONS

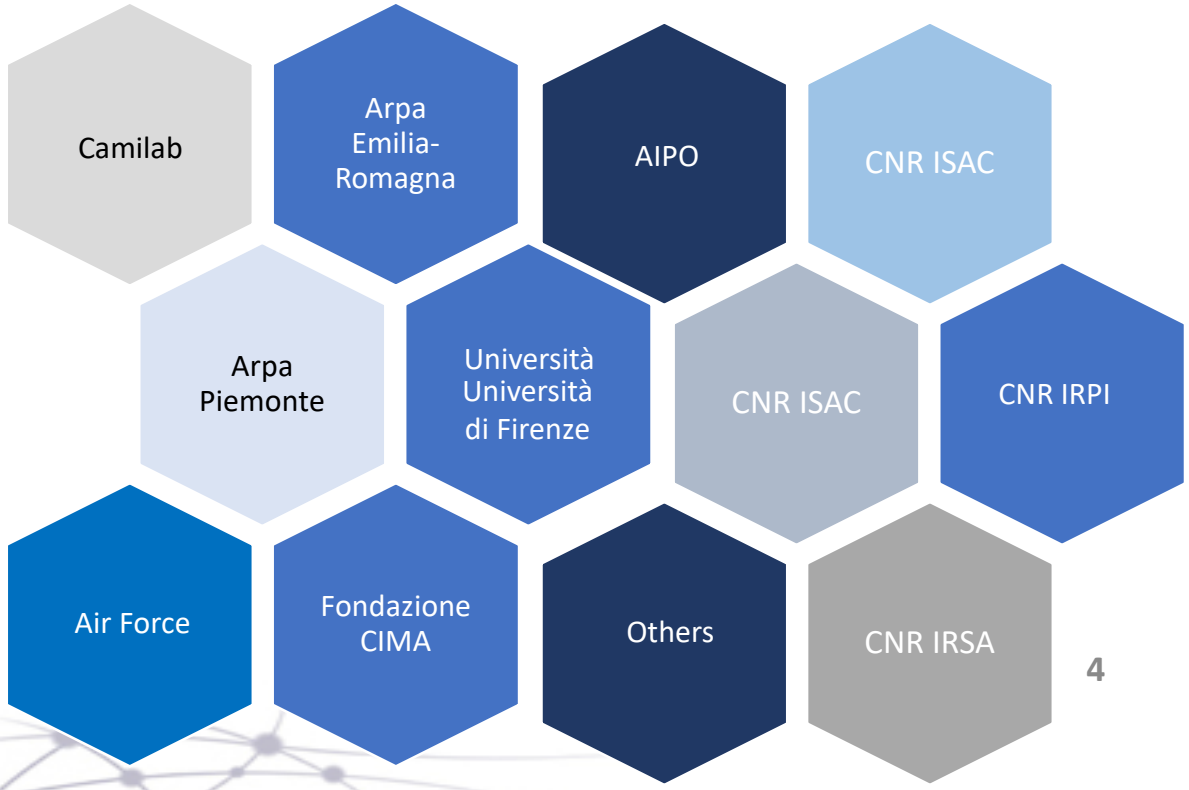
For all these hazards, the Civil Protection Department (CDP) and National Service of Civil Protection, are called every day to take **crucial decisions** for the protection of citizens' lives, goods, economic assets and for the country in general.

Civil Protection decisions:

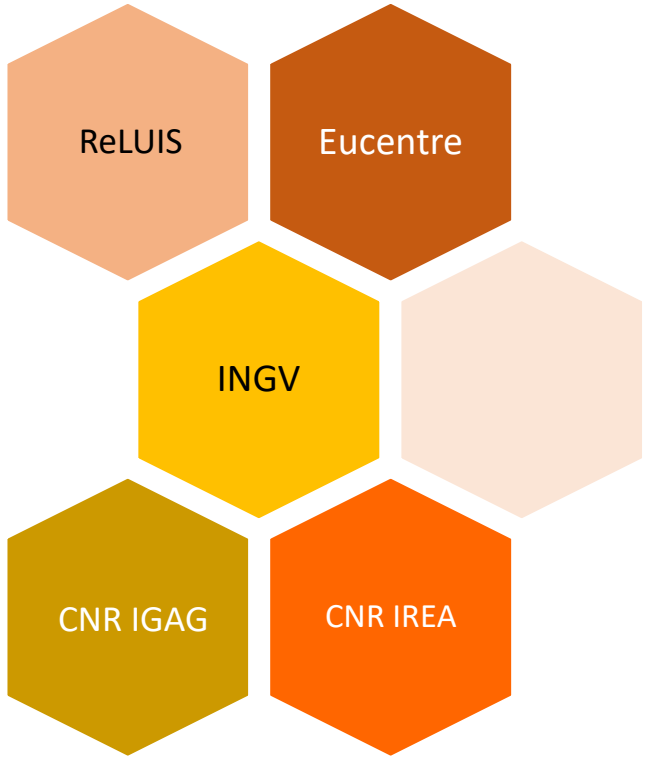
- concern the **entire risk management cycle**
- may have **immediate or long-term effects**
- must be often taken in the **immediacy of an event**, or in ordinary times, to prevent the event from occurring or having serious impact
- Imply **uncertainties or imperfect knowledge**, hence requiring the assumption of simplification hypotheses that can support the necessary choices.

THE COMPETENCE CENTRES NETWORK

The "**Competence Centres**" (mainly Universities and Research Institutes) are institutions which provide services, information, data, elaborations, technical and **scientific contributions** for specific topics, to **share the best practices** in **risk assessment and management**.



HYDRAULIC, HYDROGEOLOGICAL SECTOR



SEISMIC SECTOR

COMPETENCE CENTERS AND CIVIL PROTECTION NEEDD

Through the Competence Centers, the Italian Civil Protection Department grants **studies and research projects finalized to civil protection needs**

Support to **decision makers** is mainly addressed to:

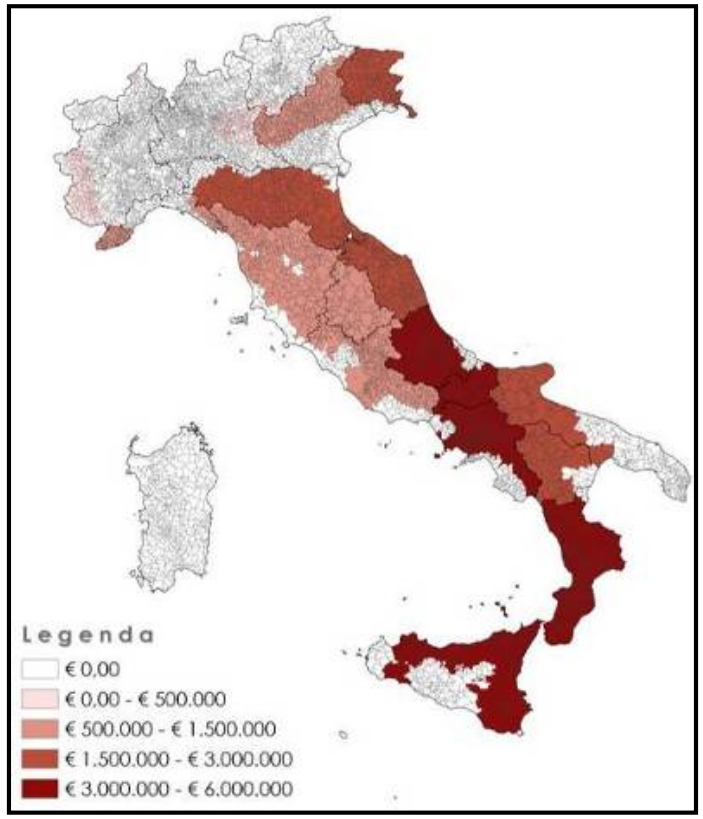
- **Risk mitigation strategies**
- **Emergency planning**
- **Decision taking**

Risk management cycle

RISK MITIGATION STRATEGIES

based on comparison of losses expected from a given hazard in different areas and /or for different assets at risk.

RISK MAPS



For the **seismic risk**, since 2010 **regional seismic risk indicators based on probabilistic approaches (DPC, ReLUIS, Eucentre)** have been used by CPD for the **allocation of annual resources** of the National Seismic Prevention Plan.

NATIONAL /REGIONAL LEVEL

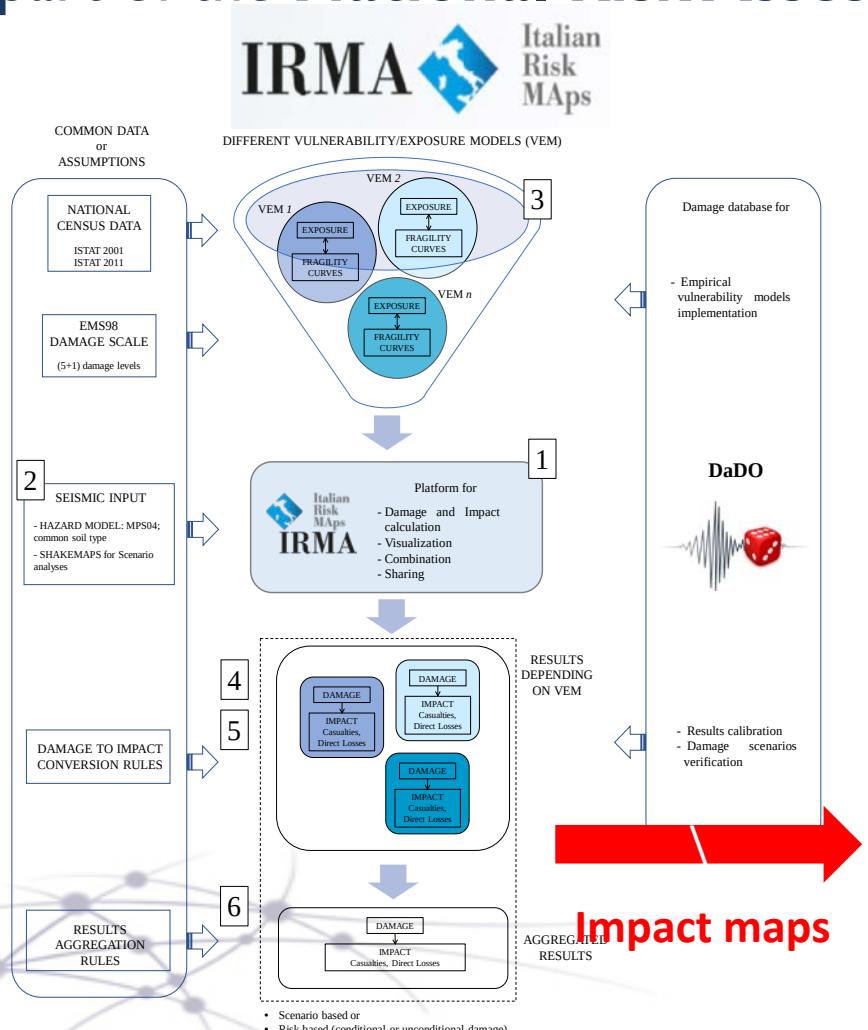
Long term-decisions

LOCAL SCALE (UOM)

For the **flood risk, in compliance with the** Floods Directive 2007/60/EC, Flood Risk Assessment performed at **local scale** is processed within a **Flood Risk Management Plan** (PGRA), to define **necessary measures and their prioritization**

SEISMIC RISK MAPS – residential asset

In 2018, the CPD, with the support the competence centers ReLUIS and Eucentre, updated the **seismic risk estimates for the residential asset, based on a probabilistic approach**, as part of the **National Risk Assessment** for the EU.



6 different fragility models from **ReLUIS** and **Eucentre** were processed and risk results combined in a **consensus model** in **Platform IRMA** (Italian Risk Maps)

Risk maps at a national scale, for temporal frames of **1 year and 50 years,** were produced for **different indicators**

- N. of victims
- N. injured people
- N. homeless
- Direct economic losses
- N. buildings unusable in the short/long term
- N. of buildings collapsed

Impact maps

! Maps update in 2022 by ReLUIS Project MARS 2

SEISMIC RISK MAPS – further assets

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reluis

EUCENTRE
FOR YOUR SAFETY.

- ✓ Comprehensive risk assessment
- ✓ Shared methodology

Residential buildings

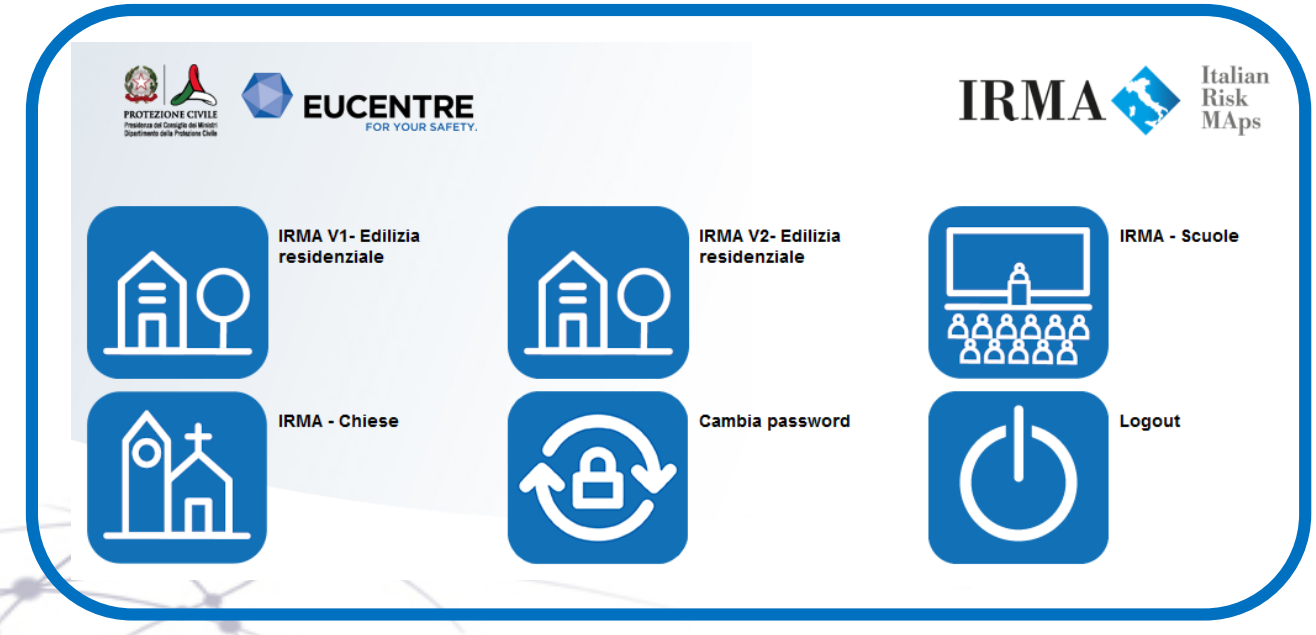
School buildings

Hospitals

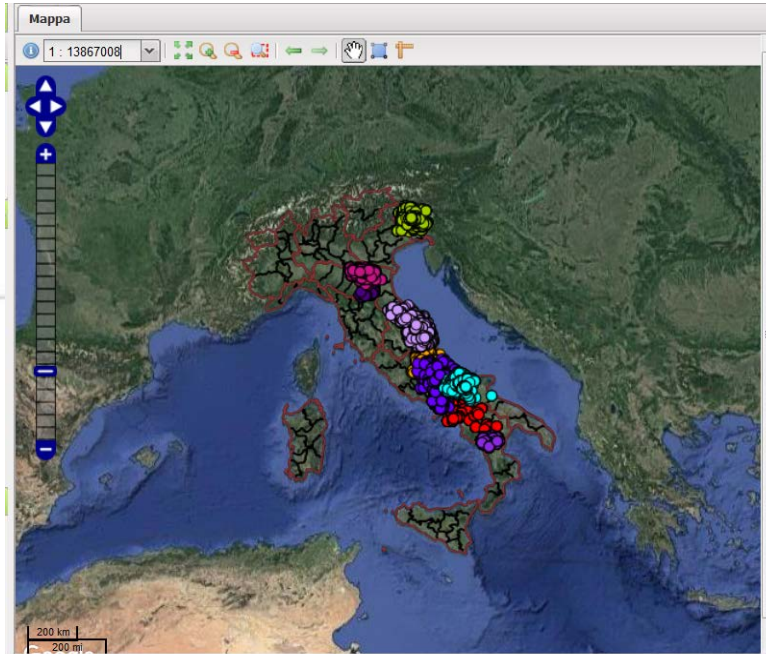
Churches

Infastructures

Industrial buildings



Da.D.O.
Observed Damage Database



EMERGENCY PLANNING & DECISIONS TAKING

DAMAGE SCENARIOS

REGIONAL/LOCAL SCALE

Long term-decisions

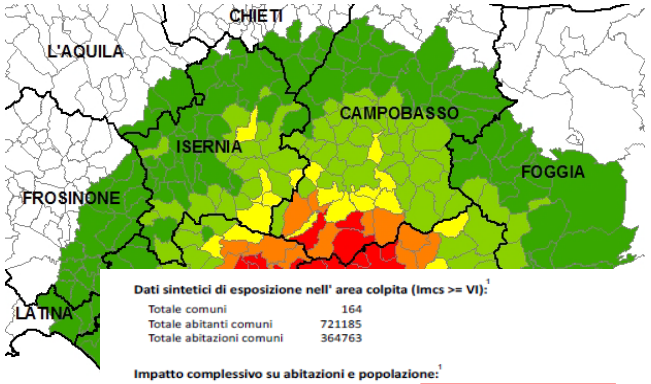
Damage scenarios at Regional/Lo ne potential losses to be expected for **tailoring preparedness measures**

Immediate decisions

After of a **seismic event**, **damage scenarios** to have an **estimation of the impact**, allow the **best decisions** in term of **response**.

Immediate decisions

For **weather-hydrogeological and hydraulic** events functional centres network provide monitoring, surveillance of their impact on the territory but also forecasting and **nowcasting** activities so as to define the impact on the territory. When given thresholds of alarm are exceeded, **weather warnings are released.**



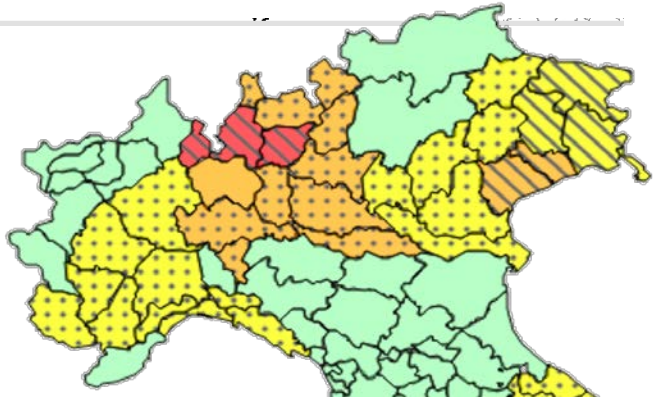
Dati sintetici di esposizione nell' area colpita (Imcs >= VI):[1]

Totale comuni	164
Totale abitanti comuni	721185
Totale abitazioni comuni	364763

Impatto complessivo su abitazioni e popolazione:[1]

	Val.16%	Val. med	Val. 84%
Abitazioni con danno D1	25978	98670	242347
Abitazioni con danno D2	13635	47868	117819
Abitazioni con danno D3	4517	16725	44668
Abitazioni con danno D4	877	3515	10806
Abitazioni con danno D5	65	299	1129

	Val.16%	Val. med	Val. 84%
Totale abitazioni crollate (D5)	65	299	1129
Totale abitazioni inagibili (D5+D4+D3)	5459	20539	56603
Totale residenti in abitazioni crollate	51	351	1542
Totale residenti in abitazioni inagibili	5502	29617	89133
Somma prodotti superf.x liv. di danno (mq)	1044230	4177514	10929566



CONCLUSION

Interest on **Boris Project results**:

- ✓ **Support to mitigation strategies in cross-border regions**
- ✓ **Development of a harmonized multi risk assessment model for cross- border regions**
- ✓ **Attention to stakeholders and to civil protection needs**

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THANK YOU FOR THE ATTENTION

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