

The European Commission's science and knowledge service

Joint Research Centre

A multi-disciplinary approach to Urban CIP

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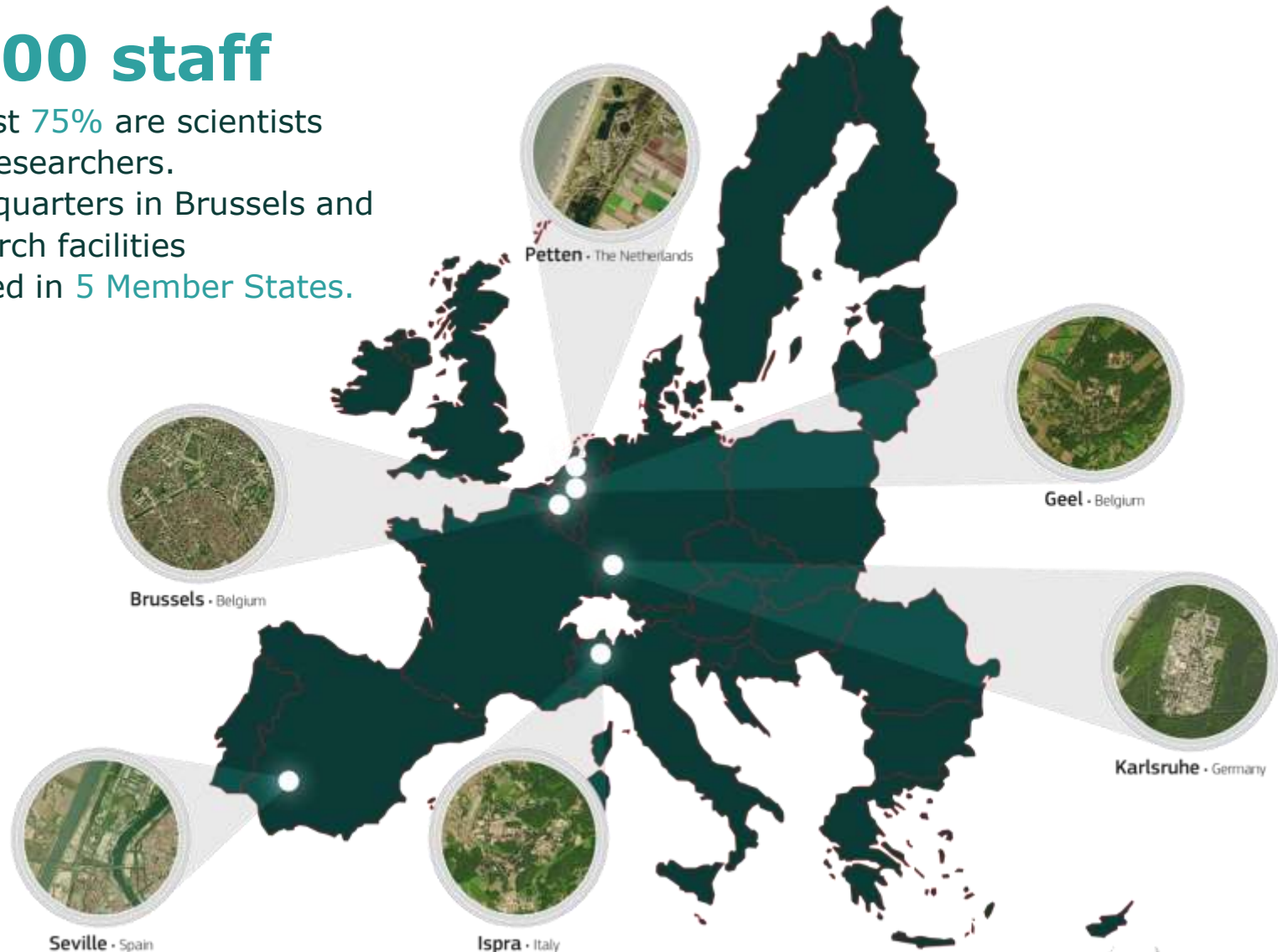


The Joint Research Centre at a glance

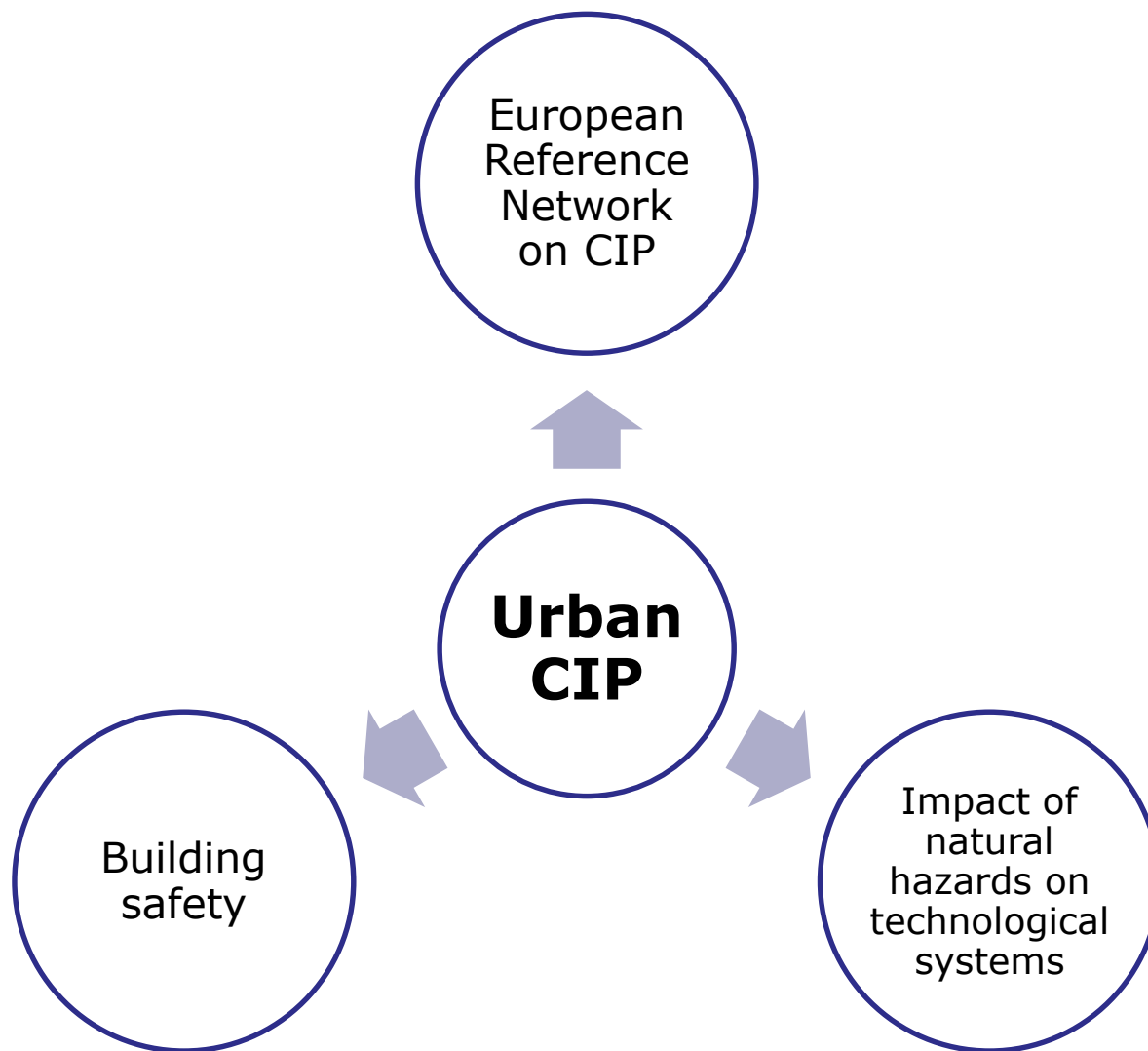
3000 staff

Almost 75% are scientists and researchers.

Headquarters in Brussels and research facilities located in 5 Member States.



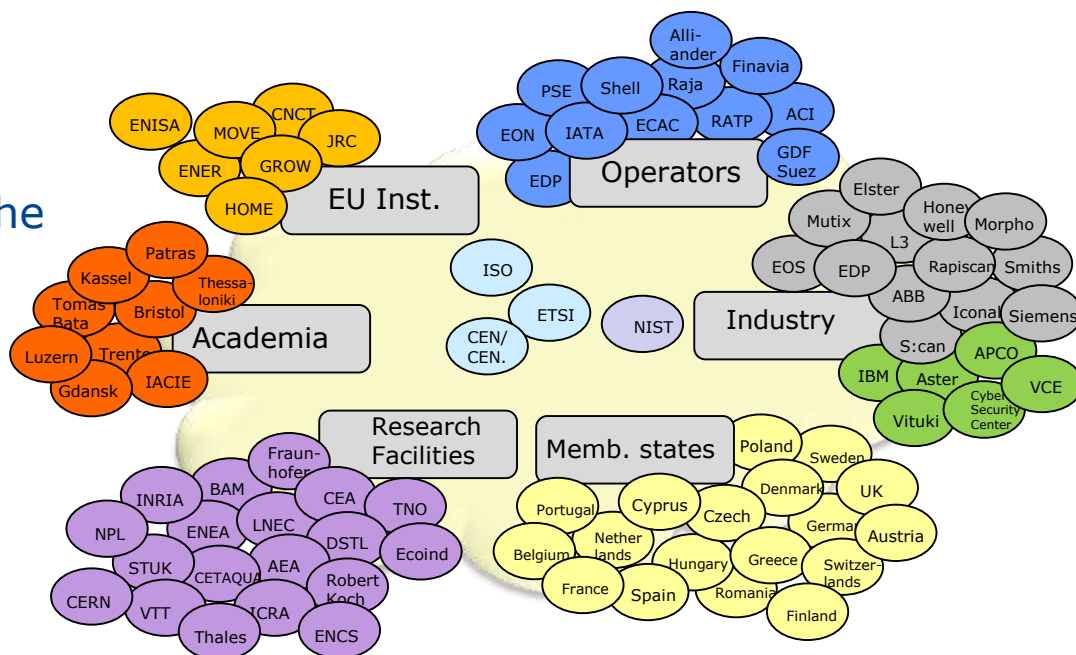
Outline



What is ERNCIP?

A JRC-facilitated **network** of security-related **experts** volunteering to address

issues of **pre-standardization** at **EU-level** towards fostering the development of **innovative and competitive security solutions**



<https://erncip-project.jrc.ec.europa.eu/>

ERNCIP deliverables

We have three main types of deliverables from ERNCIP:

1. Recommendations for standardisation and research activities
2. Recommendations in support of EU policy
3. Guidance to infrastructure operators on protective security

Plus the ERNCIP Inventory: an online database of facilities in the EU with capabilities for testing security solutions

ERNCIP core activities

1. Develop and Operate the ERNCIP Inventory

135 experimental facilities from 24 Member States are registered in the ERNCIP Inventory



ERNCIP core activities

2. Facilitate Thematic Groups

– currently seven active



450+ experts from 200+ organisations in 18 Member States have participated in ERNCIP thematic groups

Thematic Groups 2017-2018

Chemical & Biological Detection

- Chemical/Biological(CB) Risks to Drinking Water
- Detection of Indoor Airborne CB agents

Weapons & Explosives Threats

- Detection of explosives and weapons at secure locations
- Resistance of structures against explosive effects

Radiological & Nuclear Threats

- Radiological/Nuclear threats to critical infrastructure

Physical Security

- Early Warning Zones (video and biometric technologies)

Cybersecurity

- IACS components Cybersecurity Certification Framework

Sponsors

DG HOME B4
Innovation and
Industry for Security,
June 2017 to May 2019

DG HOME D2 Terrorism
and Radicalisation,
April 2017 to March
2019

DG CNECT,
March 2017 to February
2018

Impact of natural hazards on the power grid

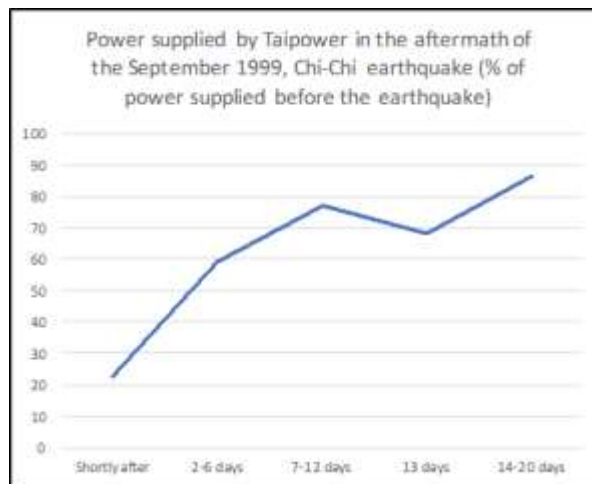


Source: Queensland Government (2017)

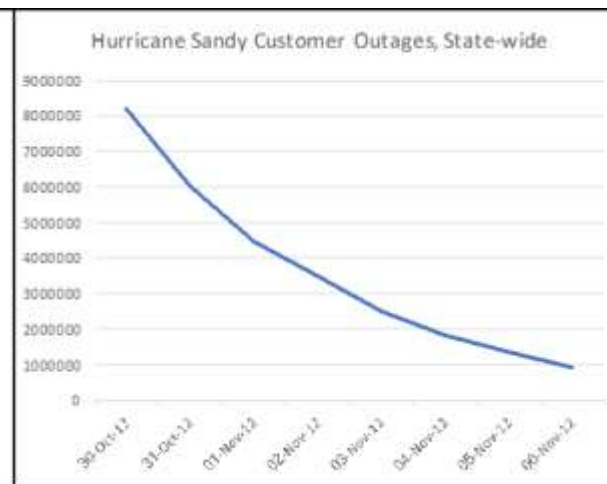
Resilience

- Recovery is progressive

Earthquake
Taiwan, 1999



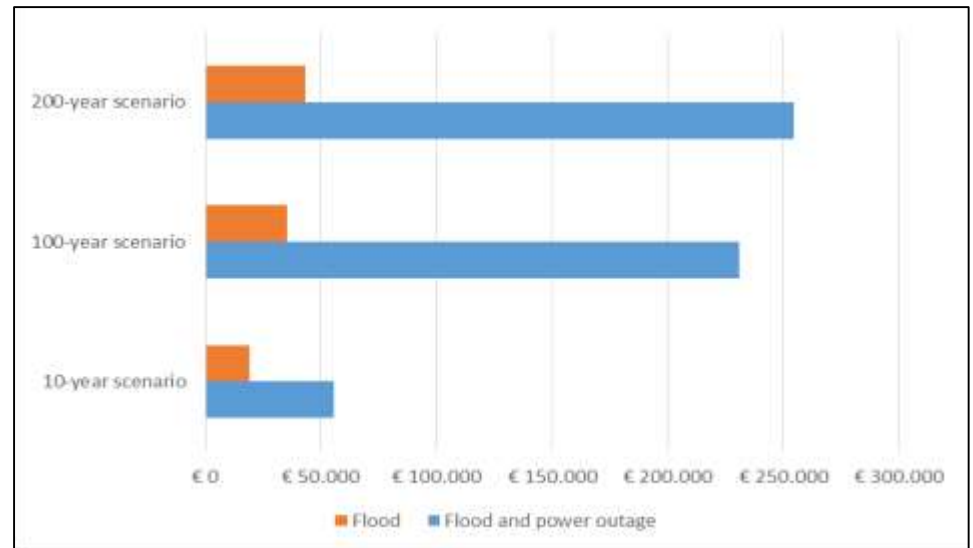
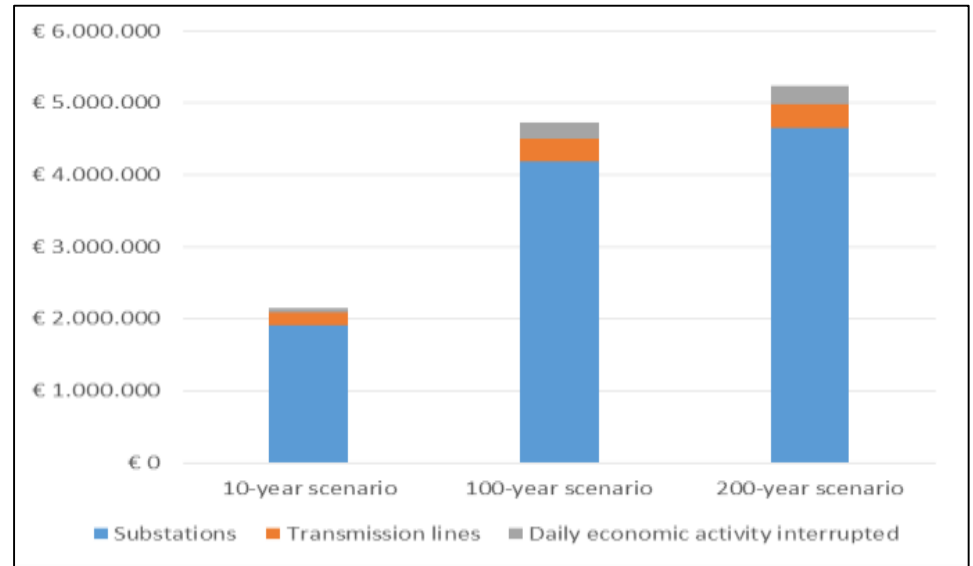
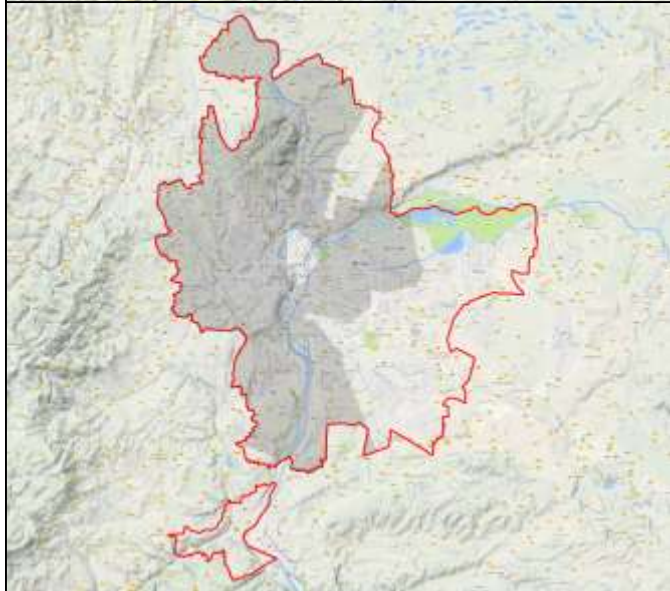
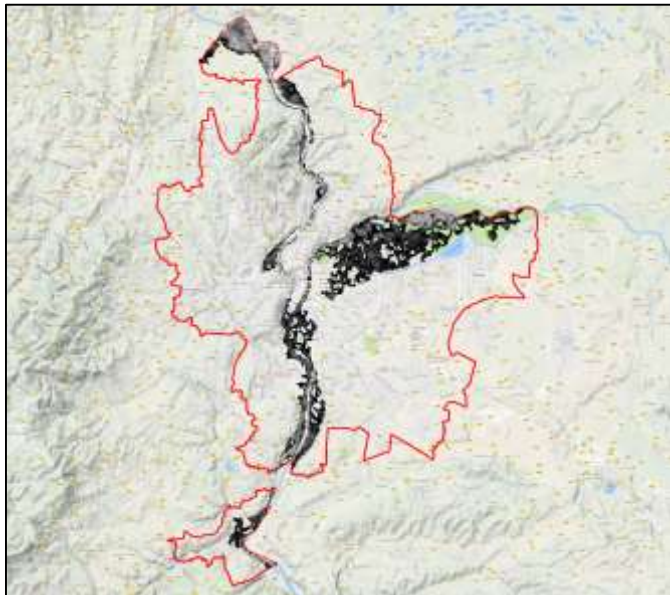
Hurricane Sandy
USA, 1999



- Factors affecting resilience:

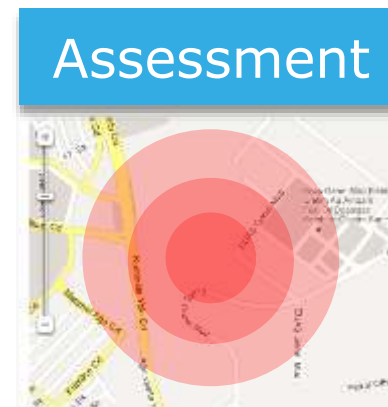
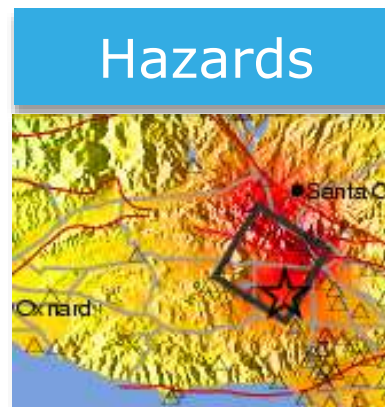
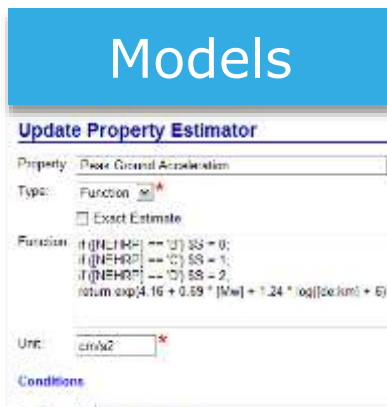
- Robustness of individual network components to external shocks
- Network interconnections increase resilience by providing alternative power supply routes
- Network configuration
- Capability to meet response-generated demands
- Availability of spare parts and equipment items

Climate change and critical infrastructure: floods



Natech Risk Assessment

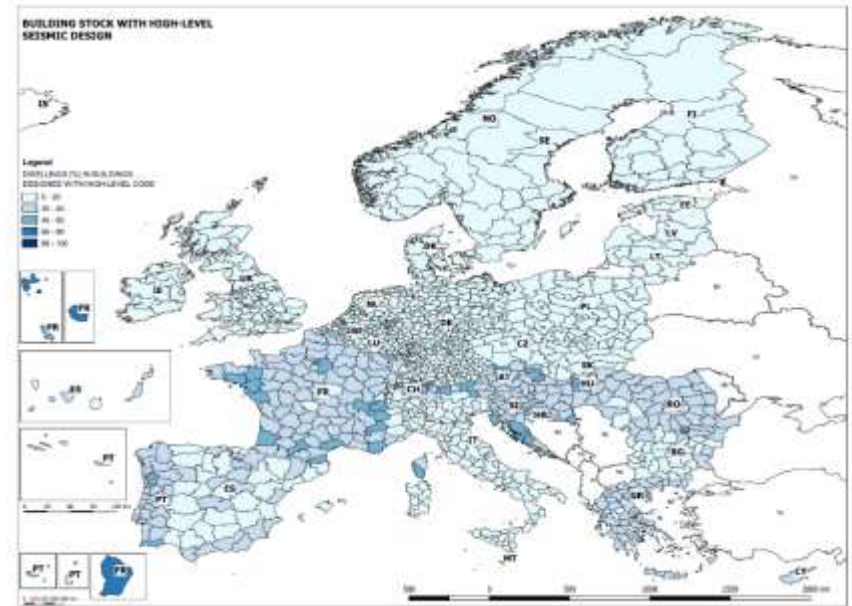
- **N**atural hazard triggered **tech**nological accidents
 - Simultaneous hazardous releases from multiple sources over wide areas
 - Simultaneous response needs to cope with the natural and technological events
 - Hazardous material releases hampering emergency response activities
 - Greater physical, economic, and environmental damage due to cascading events
- JRC Rapid Natech Risk Assessment and Mapping System (**RAPID-N**)
 - Integrated natural hazard impact and hazardous consequence assessment
 - Rapid local and regional analysis with dynamic model building
 - Useful for land use planning, emergency management, and early-warning purposes
 - World-wide data availability (e.g. refineries, power plants)
 - Publicly available at <http://rapidn.jrc.ec.europa.eu>



Database of European building stock

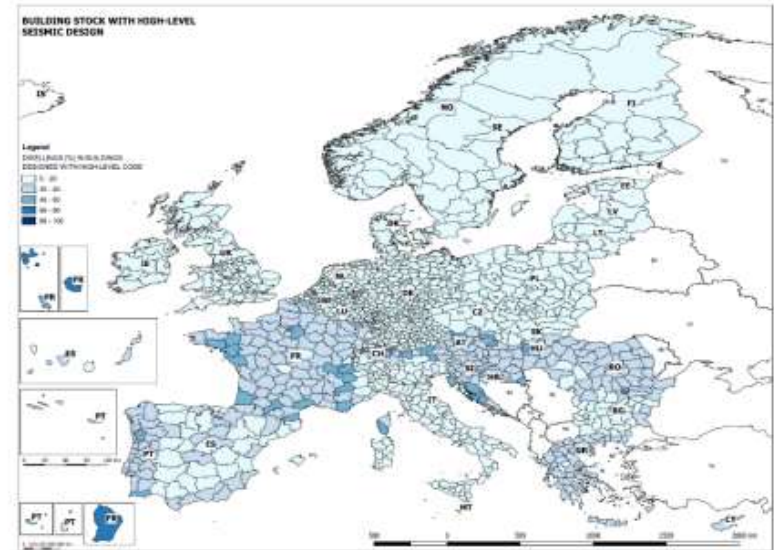
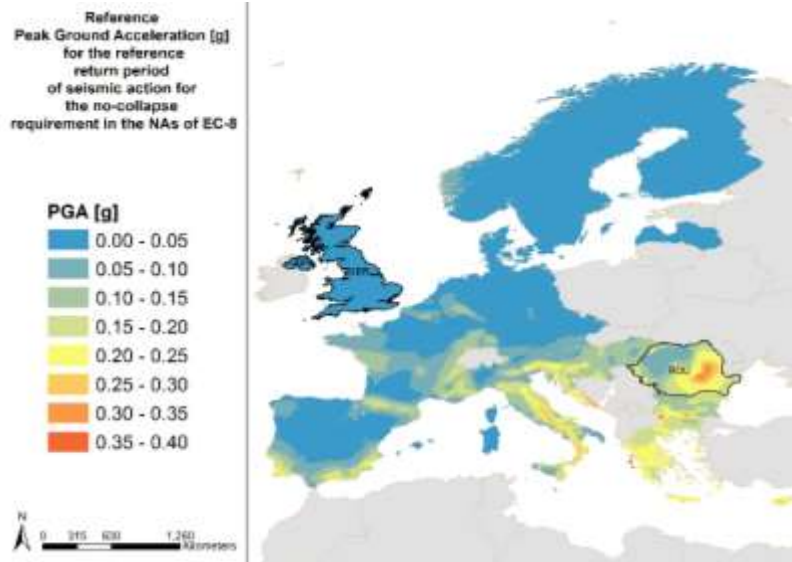
Data from Eurostat Census Hub

- dwellings by period of construction
- total number of buildings / dwellings
- population
- dwellings in low/medium/high seismic vulnerability class
- reference peak ground acceleration (PGA)



The majority of buildings in Europe are reaching or have exceeded their service life

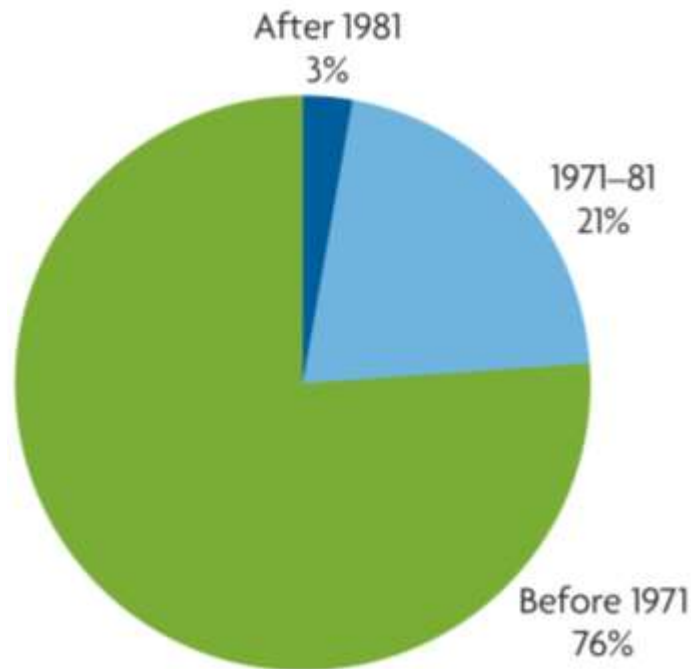
Seismic classification of EU building stock



In seismic-prone regions, the majority of buildings were designed without provisions for earthquake resistance or with moderate-level seismic codes

Vulnerable buildings may impact a large part of the population

Standards for long-term resilience of buildings



Share of houses that collapsed in the 1995 Kobe earthquake, by year of construction (World Bank, Learning from Megadisasters)

The Eurocodes

- complete set of state-of-the-art standards for the structural design of buildings and infrastructures
- prevent the creation of new and reduction of existing risks related to natural and man-made disasters
- tool to Build Back Better through post-disaster recovery

<http://eurocodes.jrc.ec.europa.eu>

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Thank you for your attention!

