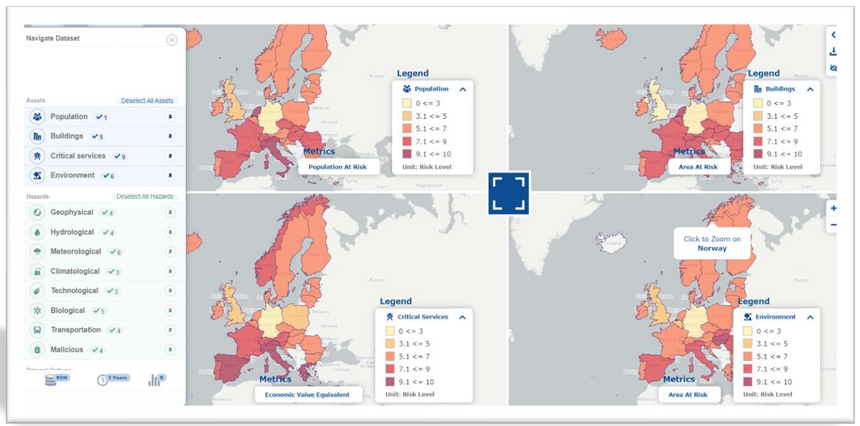
DRMKC Risk Data Hub

…"Just" a template …a call for collaboration



16/06/2021

Risk Data Hub - managing relevant information for CCA and DRM

SCOPE
-share-

Data

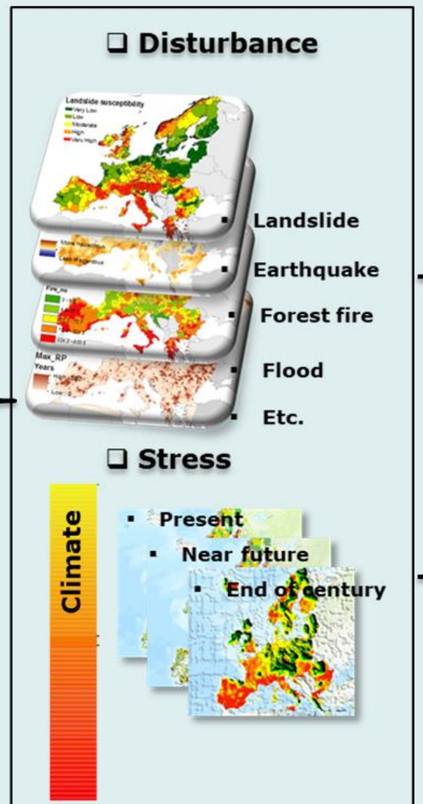
Methodologies

Tools

DRMKC
RDH

Risk Data Hub facilitates the transmission of EU-wide and/or National risk-related data

The Risk Data Hub is expected to be the point of reference for curated EU-wide risk data



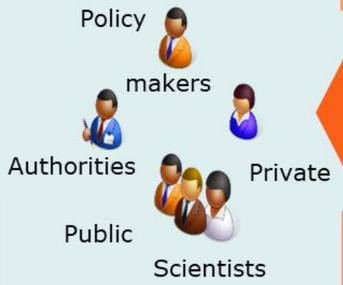
Interest: identification, implementation and evaluation of prevention and preparedness measures in the context of extreme events

Reduce vulnerability

All-hazard Disaster Loss Data recording and collections

Risk Data Hub

Robust Risk Assessments and Evidence-based Disaster Risk Data (Loss and damage)



Increase (climate) resilience

Disaster Risk Management

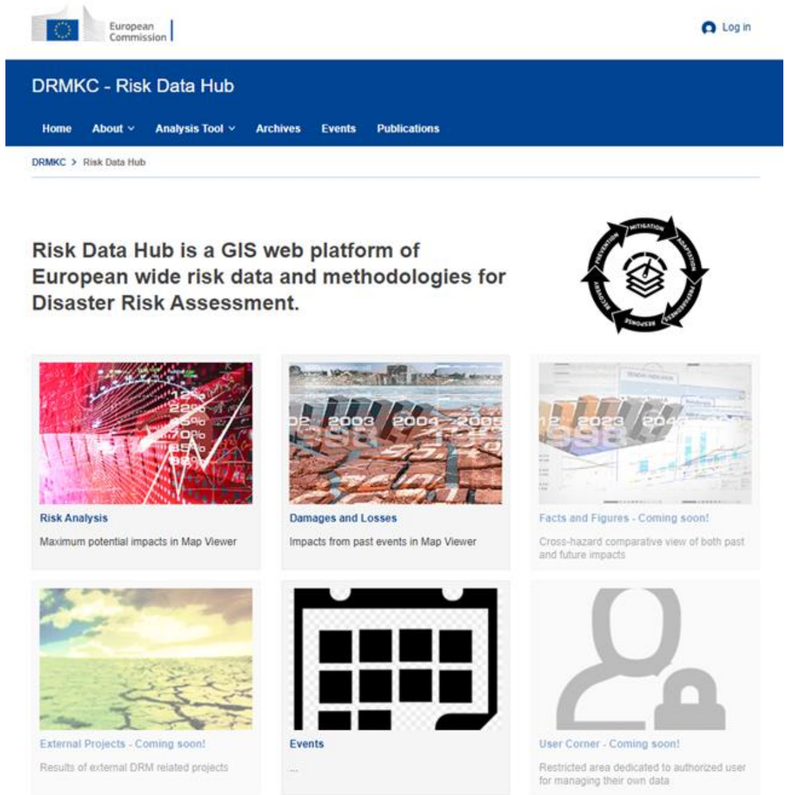
SUSTAINABLE DEVELOPMENT GOALS

Sendai Framework for Disaster Risk Reduction

Climate Change Adaptation and Strategies

Collection and structuring of disaster risk data, information and knowledge similarly for CCA and DRM (e.g. multi-hazards, across scales, asset level)

Risk Data Hub modules



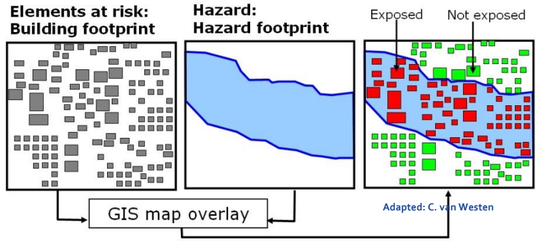
- Risk Analysis
- Disasters loss data
- Facts and figures (trends)
- Research Results
- User corner
- Events

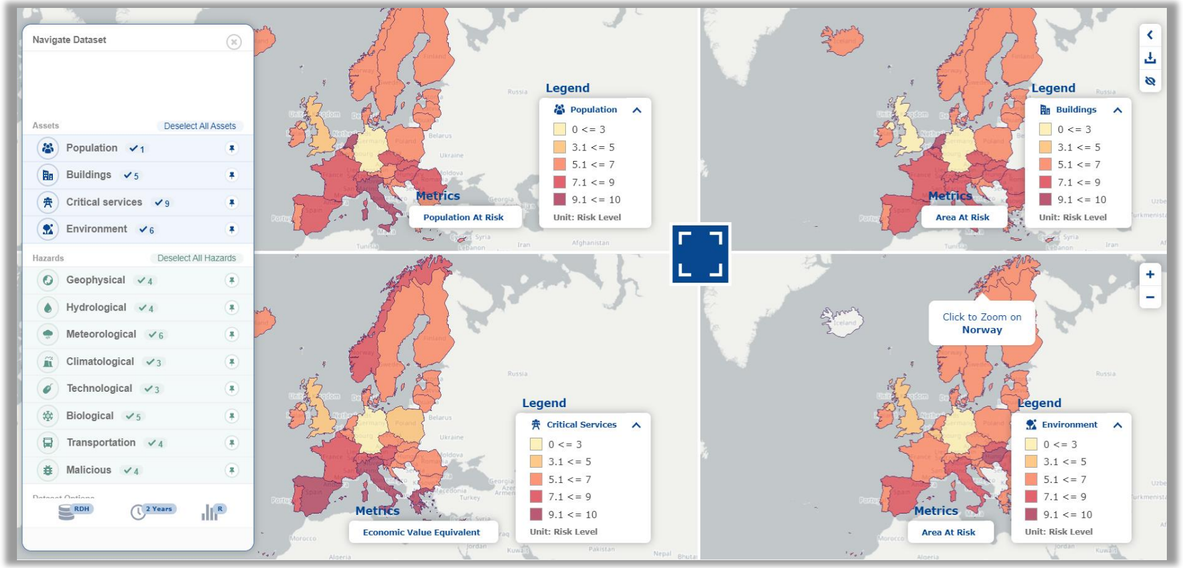
https://drmkc.jrc.ec.europa.eu/risk-data-hub/#/

1. **Risk Analysis Module** - What could be lost? Where? Due to What?

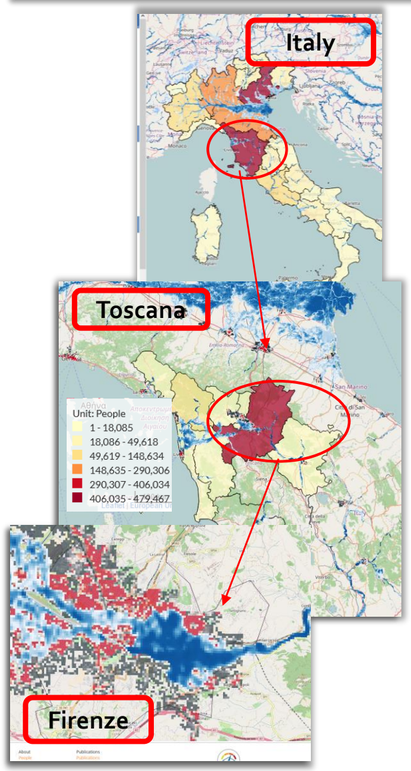
➢ Disaster risk assessment is set on **identifying the geographically** located **causal factors** of disasters

❖Exposure





❑ **Across geographical scales**



❑ **Multi-assets (economic sectors)**

Categories	Subcategories
People	
Critical services	Roads*
	Railways*
	Energy**
	Public water supply
	Health facilities**
	Education*
	Fire departments**
	Police departments
	Others
Buildings	Residential*
	Commercial*
	Industrial*
	Immovable Cultural Heritage: buildings, monuments and fixed infrastructures
	Administrative
Environmental	Agriculture*
	Livestock
	Forests*
	Protected areas*
	Natural cultural heritage*
	Soils

❑ **Multi-hazard**

Natural Hazard	
Categories	Subcategories
Geophysical	Earthquake*
	Landslide*
	Volcano**
	Tsunami
Hydrological	River Flood*
	Coastal flood*
	Avalanche
	Flash flood**
Meteorological	Cold wave**
	Heat wave**
	Hail
	Lightning
	Windstorm**
	Extreme weather (hot days, cold days, tropical nights, torrential rain)
Climatological	Drought**
	Wildfire*
	Subsidence*
Biological	Epidemics / Pandemics
	Insect infestation
	Animal and plant diseases

Man Made/Technological	
Categories	Subcategories
Technological hazard	Marine pollution**
	Air pollution
	Waste disposal
	Industrial accidents
	Nuclear**
	Structural collapse
	Power outage**
	Hazardous materials
	Transportation
Malicious	Crime
	Civil Disturbance
	Terrorism
	Cybercrime
Transportation	Road accidents
	Railway accidents
	Railway accidents

*assets analysis already uploaded

**assets analysis , work ongoing

1. **Risk Analysis Module** - What could be lost? Where? Due to What?

➢ Disaster risk assessment is set on **identifying the geographically** located **causal factors** of disasters:

❖Vulnerability

Multi-dimensional	Dimensions: social, economic, political environmental and physical.
Multi-hazard	Indicators are divided into **hazard-independen**t or **hazard-dependent**. The social, economic, environmental and political dimension primarily constitute hazard-independent dimensions. In contrast, physical dimensions shown as hazards depended.
Multi-Scale	**NUTS3**: an individual may prepare his/her house for a storm; **NUTS2**: community authorities may review evacuation plans; **Country**: the national government develops policies for defining roles for emergency cases.
Multi-asset	In order to gain a holistic view, vulnerability needs to approaches **sectors, categories and subcategories**.

Multi-hazard Vulnerability Index

Hazard Independent Index

	Social	Economic	Political	Environmental
COUNTRY	• Population change • Children at risk of poverty	• GDP/capita • Income inequality	• Government stability • National adaption strategy	• Environment vulnerability index • Natura 2000 protected areas
NUTS2	• Life expectancy • People with tertiary education	• Household income • Employment rate	• Regional quality of government index	…
NUTS3	• Population density • Large families	…		…

Hazard Dependent Index

Physical EQ	Physical CF	Physical RF	…
• Fatalities • Economic losses • Insurance penetration	• Fatalities • Economic losses • Insurance penetration	• Fatalities • Economic losses • Insurance penetration	
…	…	…	
• Dwellings built until 1970 • Buildings with no code • Fatality-events frequency	• Dwellings built until 1970 • Protection level • Economic loss frequency	• Dwellings built until 1970 • Protection level • Fatality-events frequency	

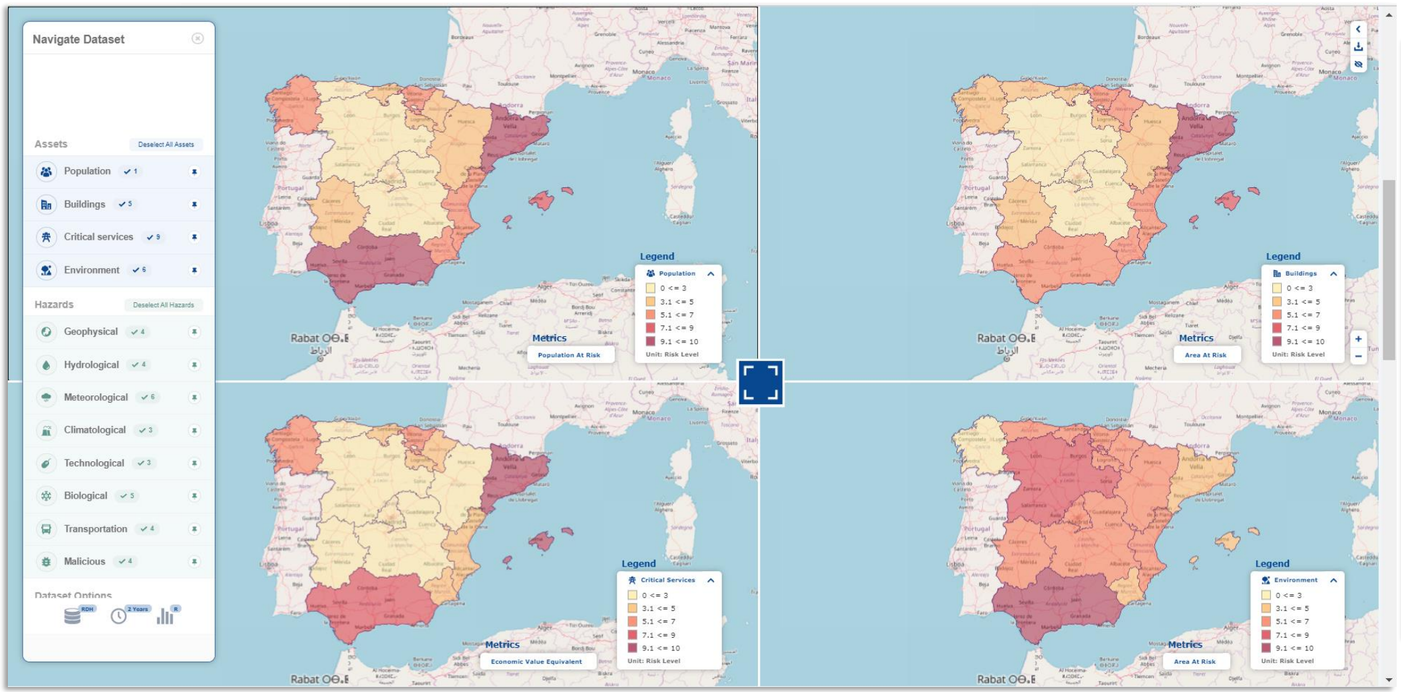
ITALY		
ITC3	Liguria	7,0
ITH5	Emilia-Romagna	6,8
ITF6	Calabria	6,8
ITH4	Friuli-Venezia Giulia	6,8
ITI4	Lazio	6,7
ITF5	Basilicata	6,7
ITI1	Toscana	6,7
ITF2	Molise	6,5
ITF1	Abruzzo	6,4
ITH3	Veneto	6,4
ITI3	Marche	6,4
ITF4	Puglia	6,3
ITG1	Sicilia	6,2
ITC1	Piemonte	5,8
ITF3	Campania	5,8
ITC4	Lombardia	5,7
ITG2	Sardegna	5,7
ITI2	Umbria	5,6
ITH1	Provincia Autonoma di Bolzano	4,9
ITH2	Provincia Autonoma di Trento	4,7

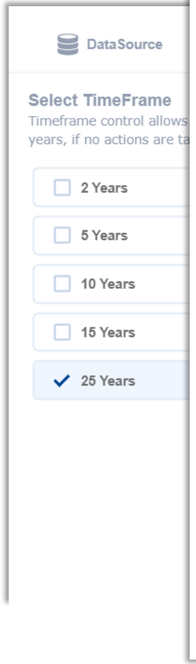
LIGURIA, LOMBARDY		
ITC4C	Milano	5,9
ITC34	La Spezia	5,9
ITC31	Imperia	4,9
ITC32	Savona	4,9
ITC46	Bergamo	4,9
ITC4D	Monza e della Brianza	4,6
ITC42	Como	4,6
ITC33	Genova	4,2
ITC4B	Mantova	4,1
ITC4A	Cremona	4,0
ITC47	Brescia	3,9
ITC44	Sondrio	3,8
ITC41	Varese	3,8
ITC43	Lecco	3,7
ITC49	Lodi	3,7
ITC48	Pavia	3,6

1. **Risk Analysis Module** - What could be lost? Where? Due to What?

- $\mathcal{R}=f$(Time, Hazard, Exposure [$_g$(hazard)], Vulnerability [$_i$(hazard, asset, capacity)])

❖Risk



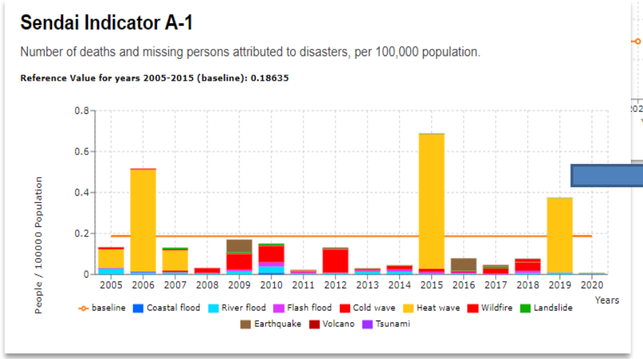


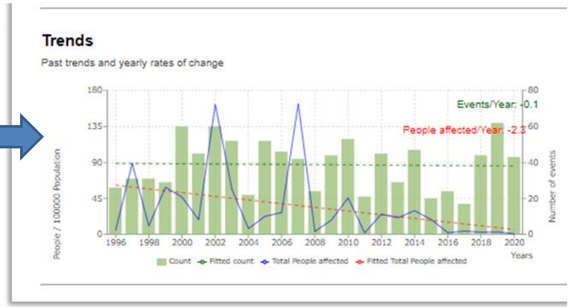
2. Disaster Loss and damage Module - What has been lost? Where? Due to What?

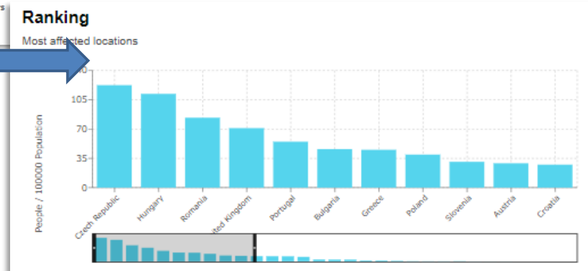
- RDH offers an overview of currently available (open source) **collection of extreme events and related Disaster Losses**, Europe - wide

❑ Disaster damage data typology (metric) - Economic losses

Disaster data Category	Damage type	Sendai target
Direct Economic losses	Aggregated	C-1 Direct economic loss (**compound indicator**)
	Aggregated insured Aggregated private	
	Sectors disaggregation	C-2 Direct **agricultural loss**
		C-3 Direct economic loss destroyed **productive assets**
		C-4 Direct economic loss in the **housing sector**
		C-5 Direct economic loss resulting from damaged or destroyed critical infrastructure
		C-6 Direct economic loss to cultural heritage



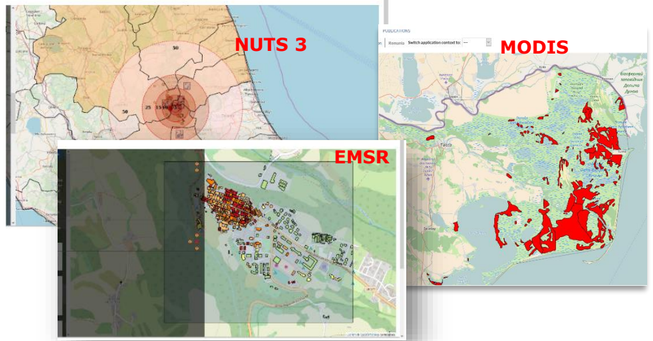


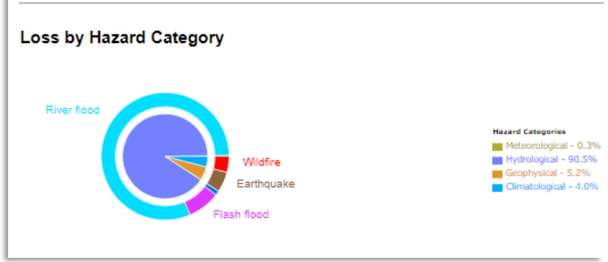


❑ Disaster damage data typology (metric) – Human losses

Disaster data Category	Damage type	Damage sub-type
Human losses	Fatalities	Killed
		Missing
	Affected	Affected
		Evacuated
		Homeless
		Relocated
		Displaced
	Injured	Injured

❑ Disaster damage data typology (metric) – non-economic losses (e.g. area, number of buildings etc.)



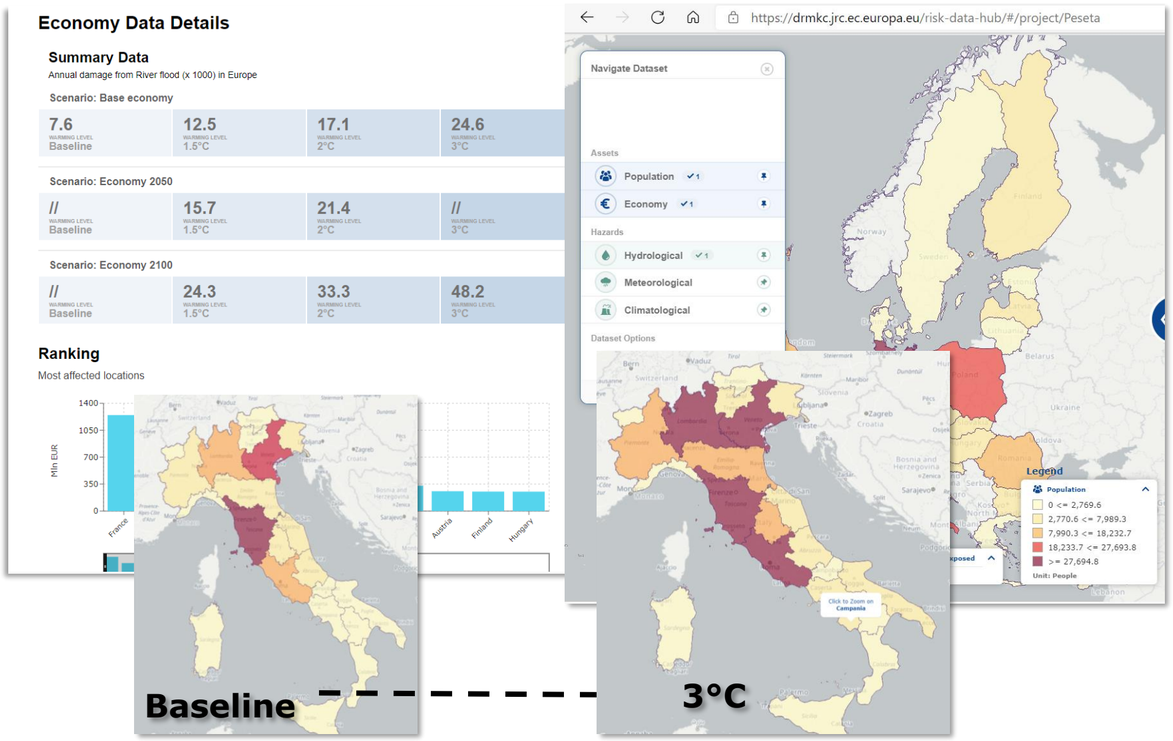


*Heat waves and Cold waves already included (EM-DAT)

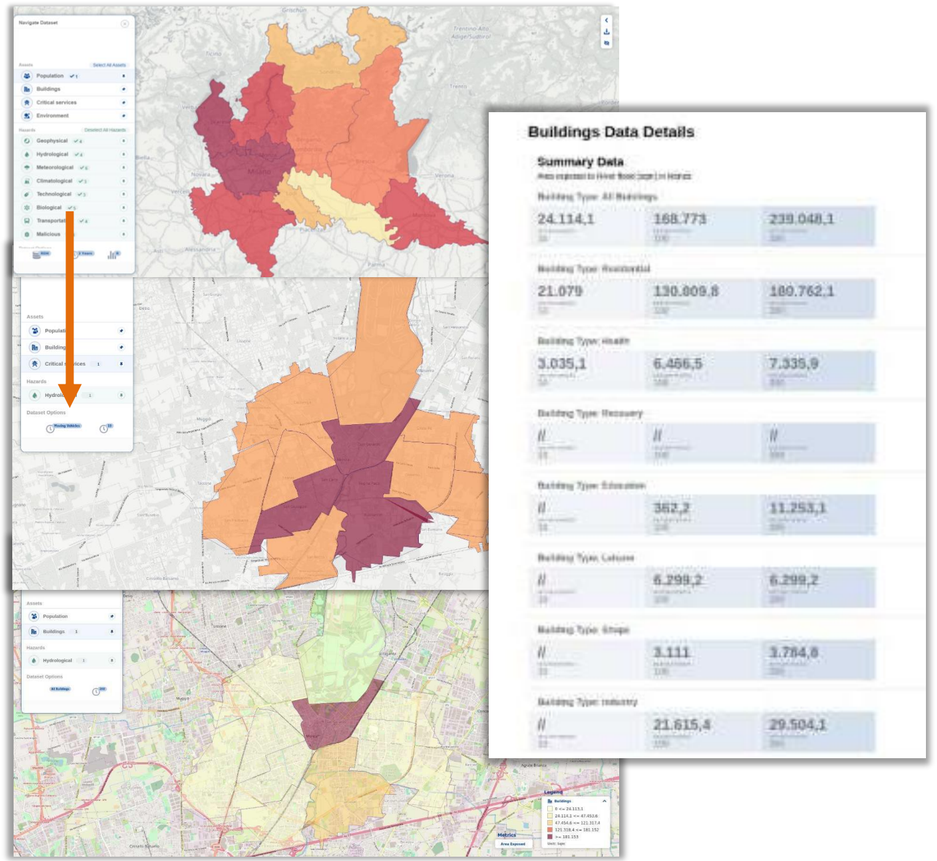
3. Results from Research programs

➢ **Bridge the gap** between science and policy/decision makers

PESETA IV – European project, assessing potential impacts considering climate change scenarios



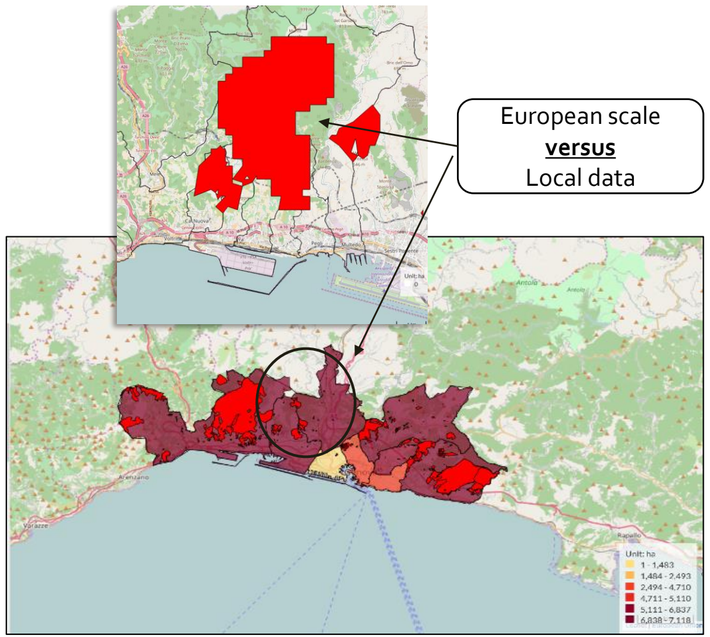
NEWFRAME - Local project, assessing potential impacts from floods (MONZA)



3. User corner

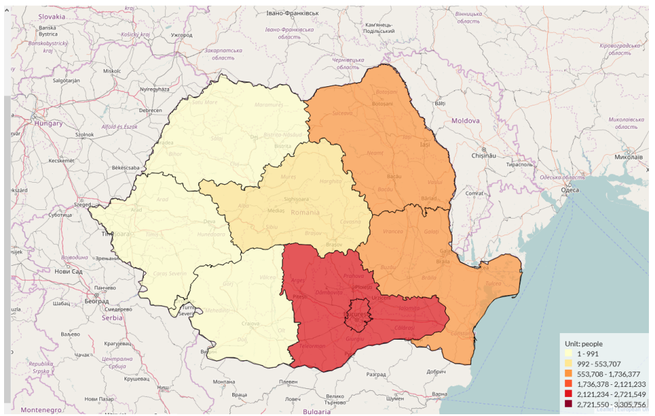
➢ …"Just" a template …a call for collaboration

Genoa municipality



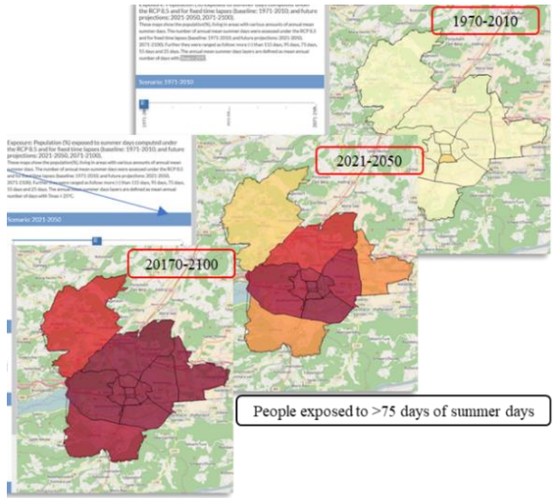
Romania

Department of Emergency Situation (authoritative) data collection



Austria

Analysis considering climate scenarios – **local** exposure **data**



Conclusions

- DRMKC RDH…”Just” a template …a call for *collaboration*
- Offering the *space for data management* from local to *Europe-wide* scale
- Supporting the development of *harmonized European risk and disaster loss data*
- Addressing the need of *accessing the relevant disaster risk data* as a coordinated and collaborative network of institutions and governances with common scope
- Based on *scientific research* risk methodology and referenced *authoritative datasets*

Thank you!

https://drmkc.jrc.ec.europa.eu/risk-data-hub/#/