How science can help in the preparation of National Risk Assessments

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CRITIS 2019, Linköping - Sweden

European Commission

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- Limitations and opportunities found in National Risk Assessment reports
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- Other activities of the Joint Research Centre

Joint Research Centre

Science and knowledge service of European Commission

Support EU policies with independent evidence

3000 staff
Almost 75% are scientists and researchers.
Headquarters in Brussels and research facilities located in 5 Member States.

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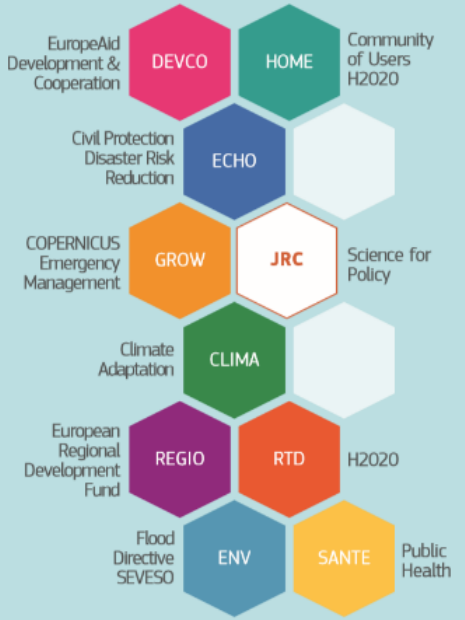
DRMKC PROVIDES A **NETWORK APPROACH** TO THE **SCIENCE POLICY INTERFACE** IN DISASTER RISK MANAGEMENT

OUR ROLE

EC DIRECTORATES



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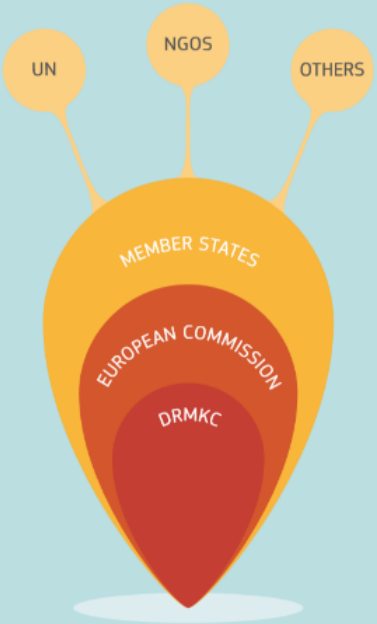
PARTNERSHIP

KNOWLEDGE

INNOVATION

SERVING



NRAs as a tool for prevention and preparedness

New Union Civil Protection Mechanism

Decision No 1313/2013/EU
Decision (EU) 2019/420

To strengthen the **cooperation** between the Union and the Member States and to facilitate **coordination** in the field of civil protection

Member States to develop **risk assessments** at national or subnational level and make available to the Commission a summary of the relevant elements every 3 years

Critical Infrastructure disruption was identified by most of Participants States, usually in relation to transport and energy sectors
(Overview of risks EU may face, 2017)

National Risk Assessment

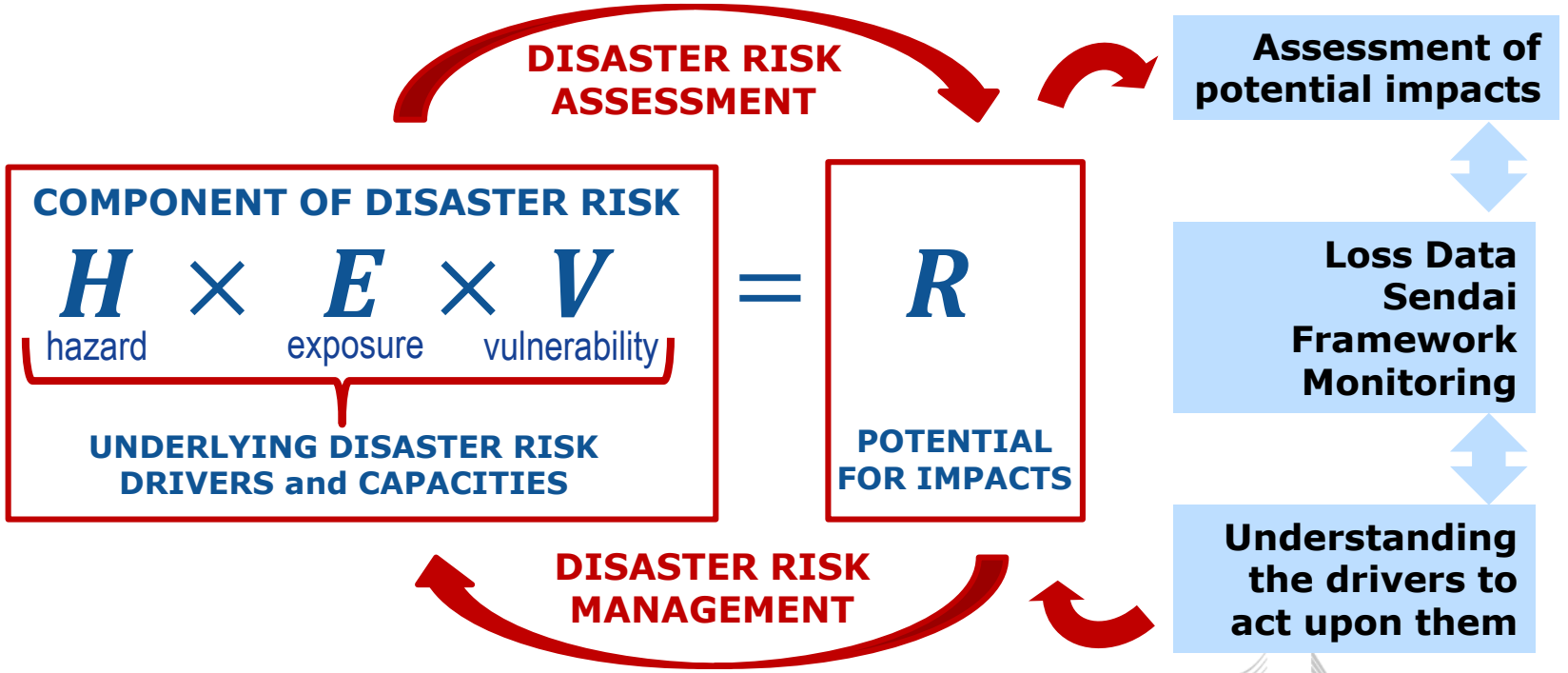
'Risk assessment' means the overall cross-sectoral process of risk identification, risk analysis, and risk evaluation undertaken at national or appropriate sub-national level;

Decision No 1313/2013/EU

National Risk Assessment

- Common understanding among stakeholders
- Of national or supra-national level relevance
- Relative importance of different risks
- Underlying disaster risk drivers relate to components of risk

Risk Assessment meets Risk Management



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NRAs as a tool for prevention and preparedness

A challenge for Memeber States

- Governance frameworks within Europe
- Level of information available
- Past experiences
  - Dynamic nature of risk
  - Emerging risks
  - Scope
  - Quantitative approaches

Overview of natural and man-made risks European Union may face

SWD (2017) 176 final
SWD (2014) 134 final

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NRAs as a tool for prevention and preparedness

Science for Disaster Risk Management 2017

Knowing more and losing less

More **collaboration** is needed across sectors

More tools for prioritizing and for risk mapping to **help policymakers** to develop disaster risk reduction frameworks

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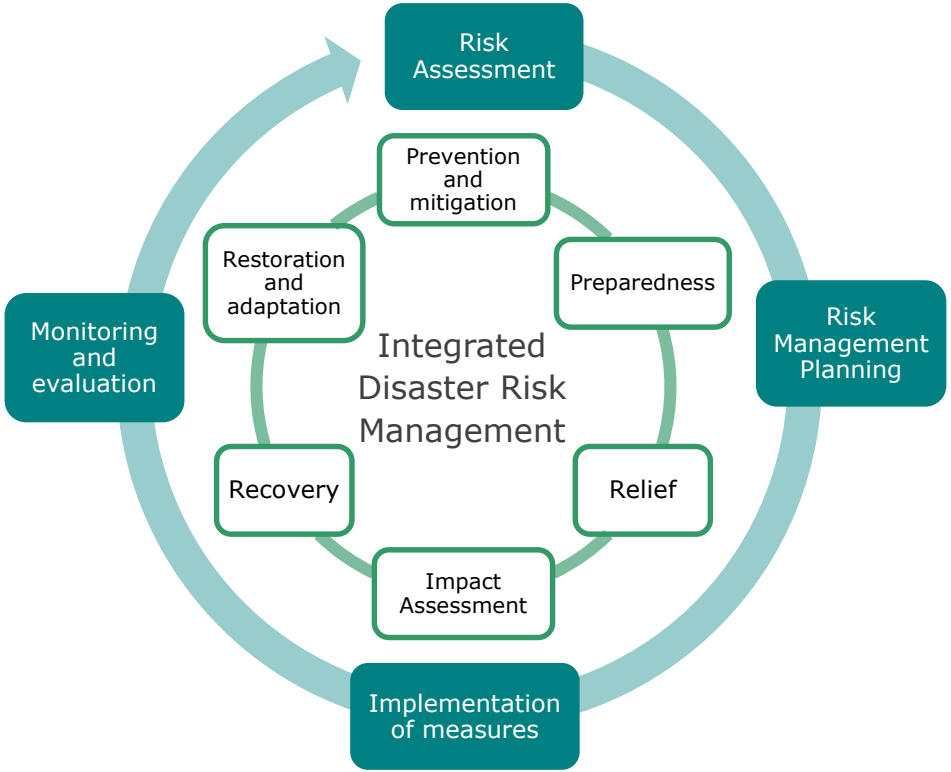
NRA for reducing disaster risk

Risk Assessment as an input for planning measures to prevent risk, but also for raising awareness, informing land use, updating Early Warning systems, etc.



Monitoring and evaluation of measures implemented improves the next NRA round.

Requires involvement of all the sectors and many of domestic stakeholders

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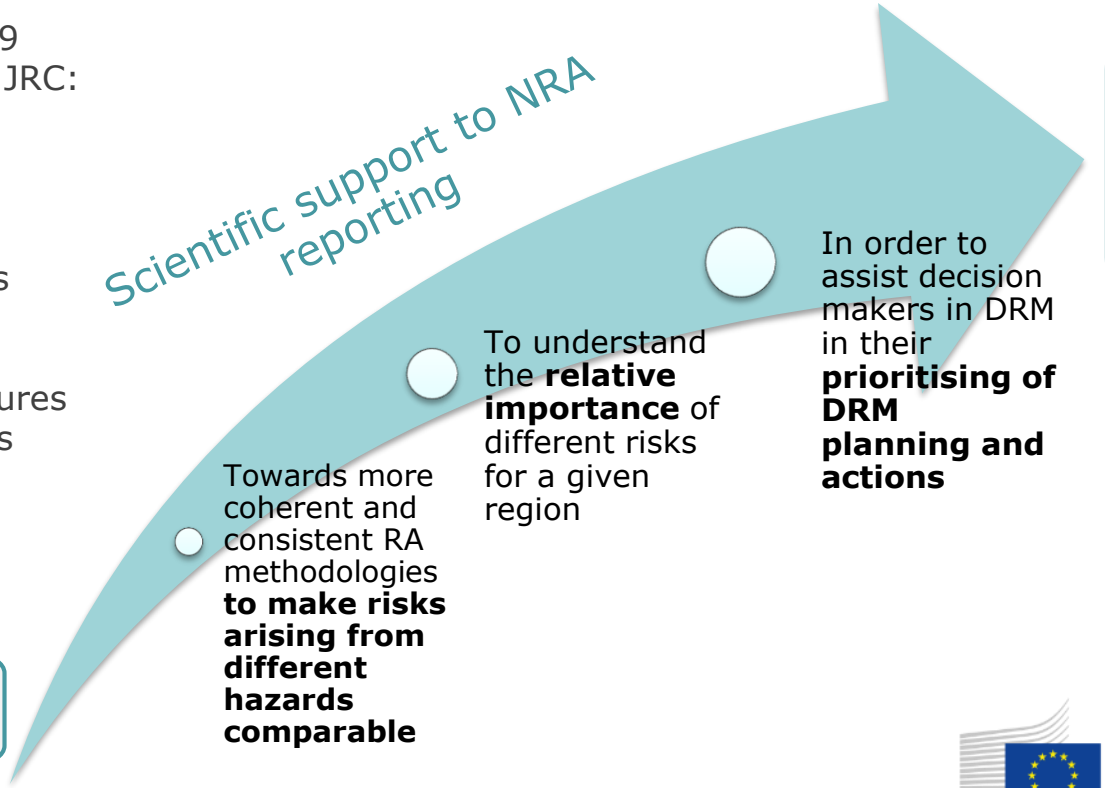
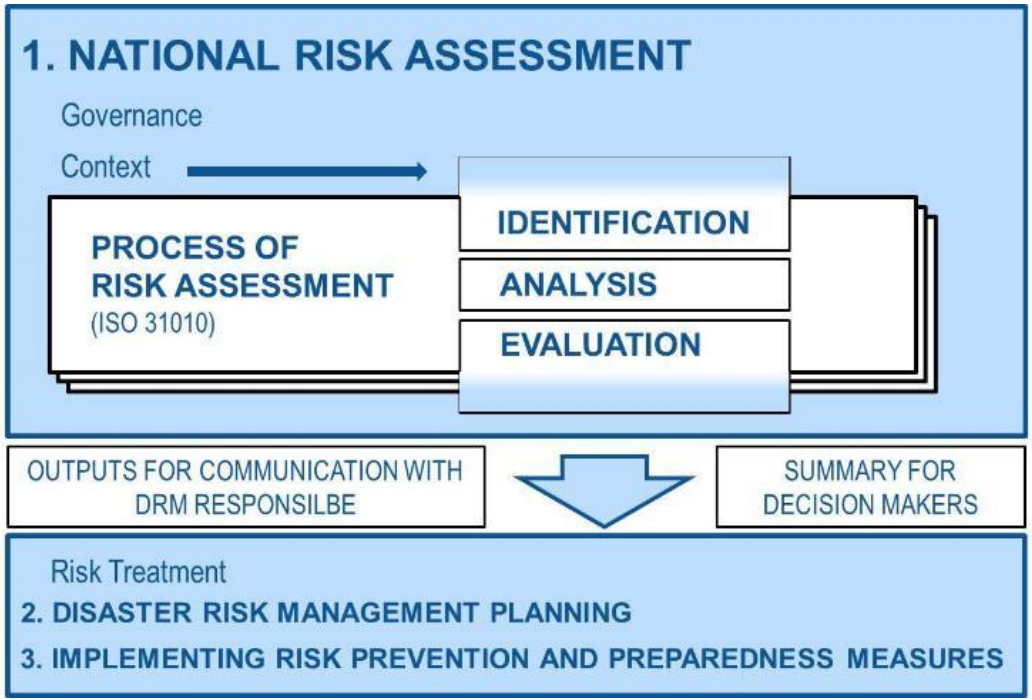
Recommendations for NRA for DRM in EU

Direct contribution of 9 research groups from JRC:

- Droughts
- Earthquakes
- Floods
- Biological disasters
- Terrorist attacks
- Nuclear Accidents
- Critical Infrastructures
- Chemical Accidents
- Natech



Recommendations for NRAs in the EU



1. Governance

To ensure there is coordination among all parties involved in the NRA

Data-providers, technical experts and end-user (practitioners and policymakers) from different sectors at the same table

Each RA is performed by technical team

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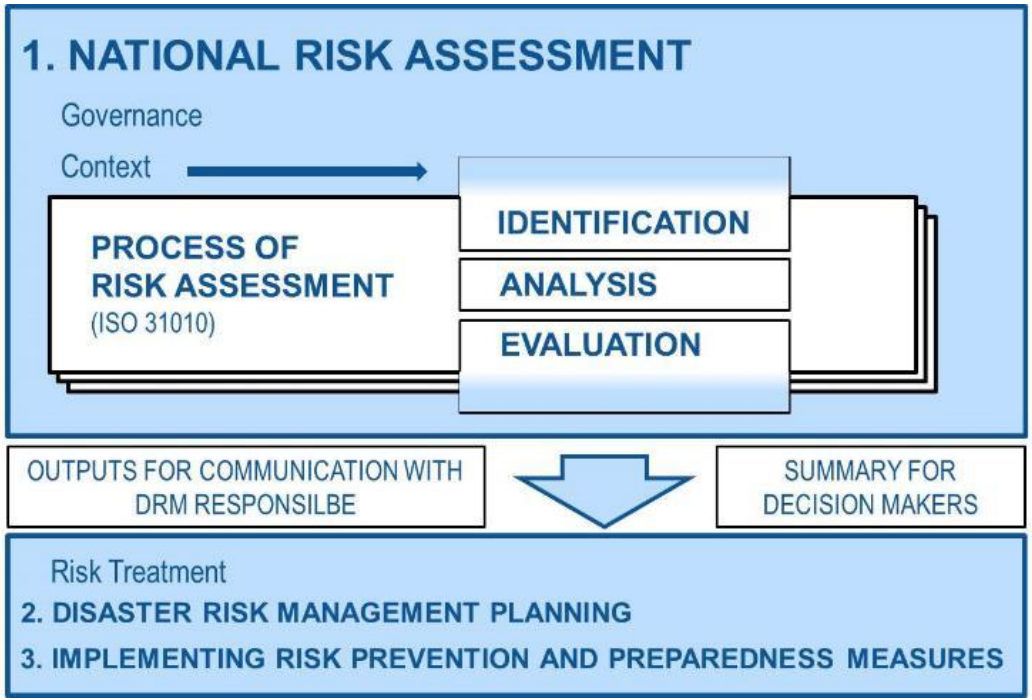
Recommendations for NRAs in the EU



2. Context of National Risk Assessment

To define the needs of the exercise and establish the commonalities of the RAs to ensure consistency and comparability of results

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Recommendations for NRAs in the EU

2. Context of National Risk Assessment

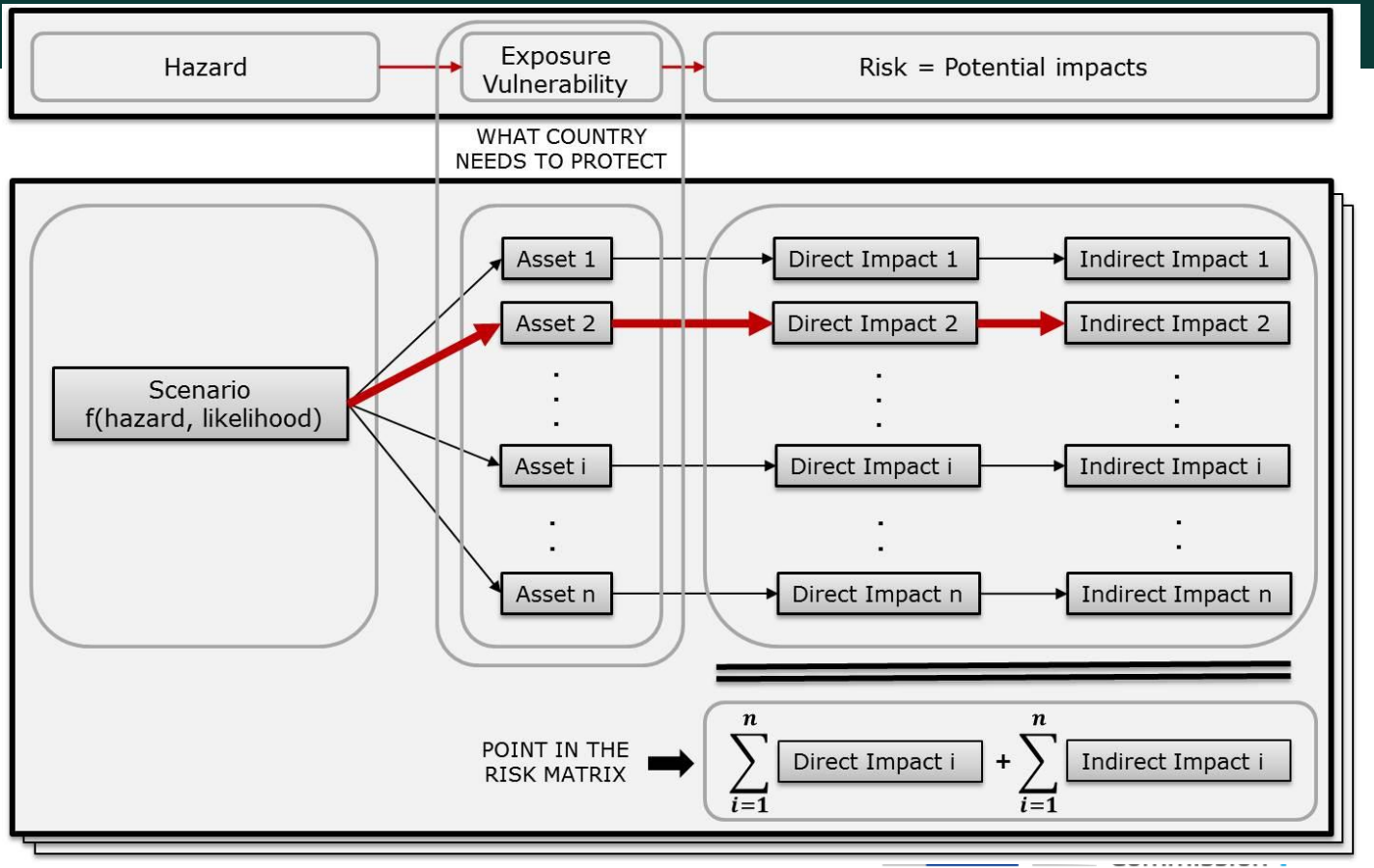
- What needs to be protected?
- Which are the hazards that the country is exposed to?
- Which are the risks to be considered, the potential impacts?
- What is the time window for the potential impacts?
- If required, how impact and likelihood levels should be defined?
- Quality criteria
- Protocol for the use of experts opinion
- Risk criteria?

Recommendations for NRAs in the EU

3. Aggregation process

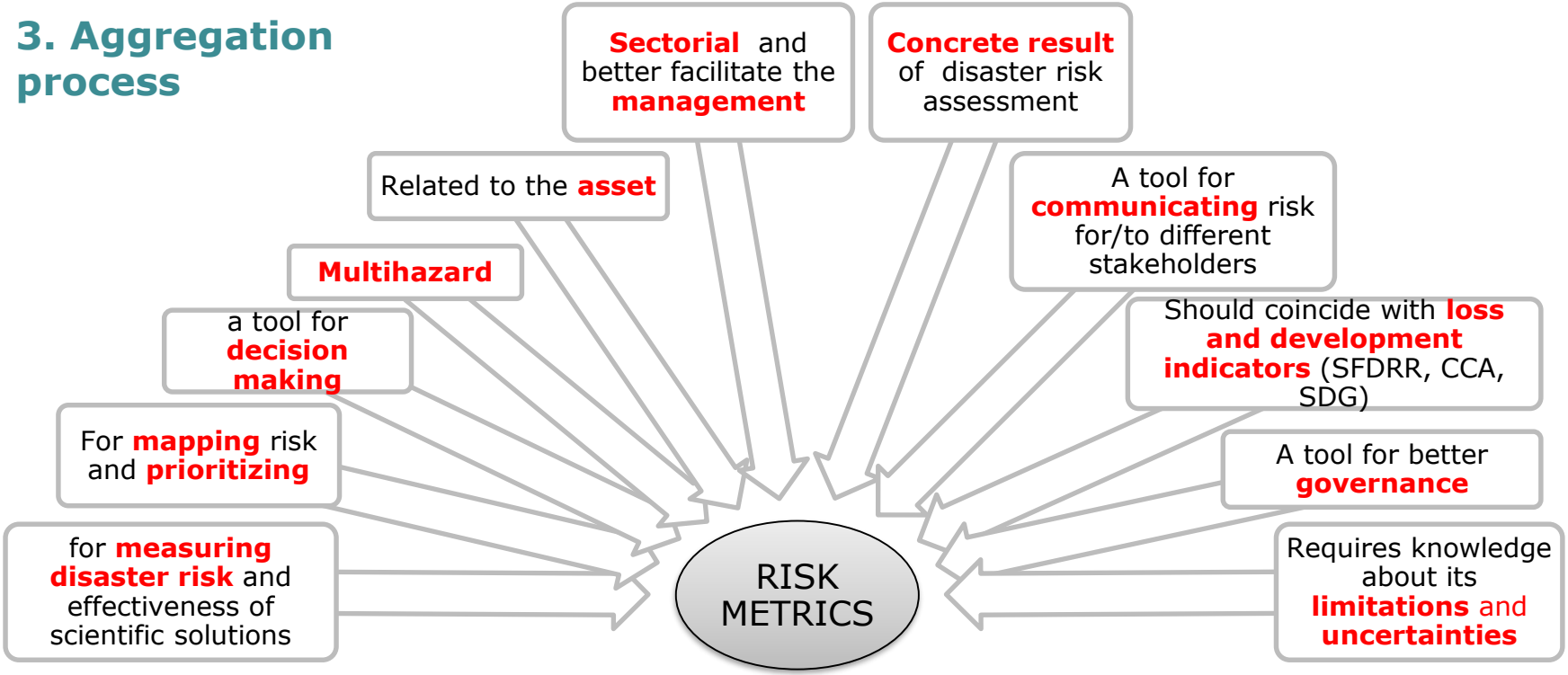
To derive to the potential impacts at the national level of different hazard types and different probability of occurrence.

Scale and scope
List of assets



Recommendations for NRAs in the EU

3. Aggregation process



Recommendations for NRAs in the EU

2010 - Risk Assessment and Mapping **Guidelines** for Disaster Management

NRA Context

1. List the assets to protect
2. Decide risks to study:
   - Hazards
   - Potential impacts
   - Time window
3. Select the minimum quality criteria
4. Design protocols for expert opinion
5. Define risk criteria

Risk Identification

1. Characterize risk:
   - hazard,
   - exposure,
   - vulnerability,
   - capacities
2. Build scenario(s)

Risk Analysis

Calculate the likelihood and the related impacts of the event.
- Qualitative
- Semi-quantitative
- Quantitative
  - Probabilistic
  - Deterministic

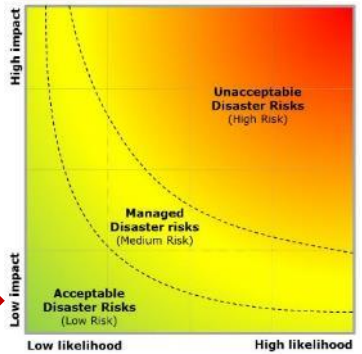
Risk Evaluation

1. Share Risk Analysis outputs:
   - Maps
   - Curves
   - Indicators
   - Risk Matrix
2. Compare and confront risk to the risk criteria

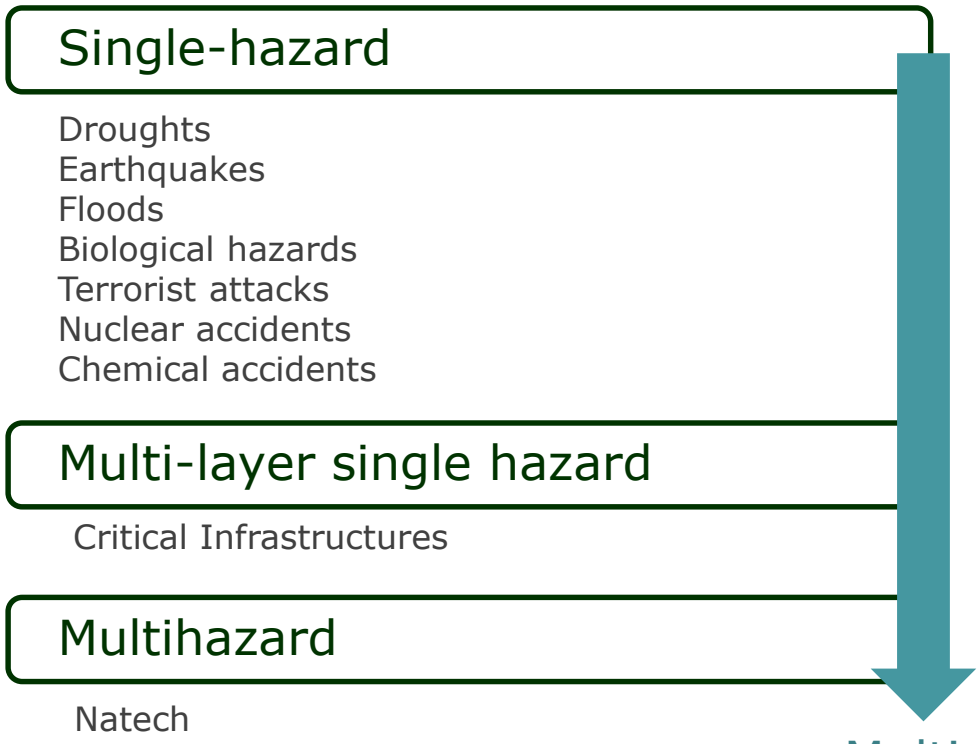
Risk treatment

Decide which risks need to be reduced and possible paths of action

…risk prioritization



Where do we stand?



Many advances in the last decades in risk assessment but…

- Data quality and availability
- Scenario building
- Reach the impact
- Transparency on limitations and assumptions

Way forward

Version 1

- New scientific communities engaged, such as forest fires or cyber security
- Consultation of scientists from outside JRC and risk managers with experience in the field

Open for Public Consultation

Until the 30th September!

https://drmkc.jrc.ec.europa.eu/knowledge/SCIENCE-FOR-DRM/Recommendations-for-National-Risk-Assessment-for-Disaster-Risk-Management-in-EU

Version 1 to be published by December 2019

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Other activities at the DRMKC

SCIENCE *for* DRM 2020

The Report centres its analysis on the impacts of disasters across several sectors and human activities, such as Critical Infrastructures.

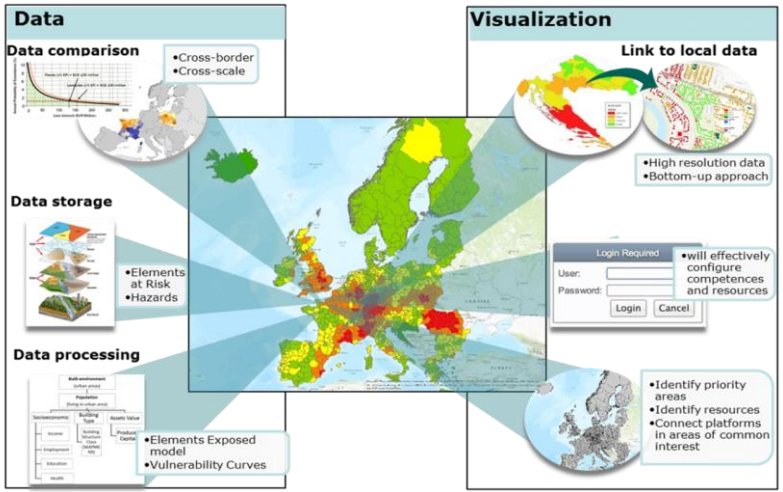
More than 250 participants acting as Advisor, Authors or Reviewers.

Currently open for External Review.

https://drmkc.jrc.ec.europa.eu/knowledge/SCIENCE-FOR-DRM/Science-for-Disaster-Risk-Management-2020

Risk Data Hub

A Web GIS platform for exchanging and sharing geospatial data. It provides tools and methodologies for data collection, dissemination and visualization.



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

Any questions?

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