1 Title of the chapter

Instructions are in grey and to be deleted

Author 1 (name and surname, affiliation, country, email),
Author 2 (name and surname, affiliation, country, email),
Author 3 (name and surname, affiliation, country, email).

We have prepared a template in MS Word for the authors to facilitate our expectations for the chapter contribution on specific risk for the "Recommendations for National Risk Assessment for Disaster Risk Management in EU". Predefined styles are available for all the necessary structures that are supposed to be included in the text.

**Length**: 5000 words (cca 10p without references). Figures (with identified sources) and Boxes allowed and welcomed.

**Requirements**: Authors are asked to

- Structure the contributions in a harmonized way, as much as appropriate, and to follow ISO 31030 for the stages of the risk assessment process: risk identification, risk analysis and risk evaluation.
- Follow the UNISDR terminology (https://www.unisdr.org/we/inform/terminology) regarding the risk concept.
- Ensure that the content support the EU guidelines (https://ec.europa.eu/echo/files/about/COMM_PDF_SEC_2010_1626_F_staff_working_document_en.pdf).

**Objective of the contribution** is to explain disaster risk assessment approaches specific for the chosen hazard/asset step by step that are usable in National Risk Assessment exercise and useful for Disaster Risk Management planning. Different hazards as well as different assets require very different analysis of their risk. Experts provide guidance for using existing risk assessment methodologies, terminology used for their understanding, data, knowledge and software needed for the analysis and what results can be expected/feasible for each of the methodologies. The users will gain better knowledge of how to:

- **quantify risk** (in risk metric to describe potential impacts with probabilities/likelihoods) for hazard addressed and
- **identify disaster risk drivers** to address a range of measure to reduce risk.

The overall aim is to maximize the national capacity of a country in achieving the objectives National Risk Assessment process. The objectives of National Risk Assessment (NRA) are to reach a **common understanding with all relevant stakeholders**, of the risks faced and their relative priority.

**Required structure of the chapter:**

1.1 Context of Risk Assessment
1.2 Risk Identification
1.3 Risk Analysis
1.4 Risk Evaluation
1.5 Risk Treatment
1.6 Gaps and Challenges
1.7 References
1.1 Context of Risk Assessment/Introduction

- Describing the hazard or asset specific risk addressed in this contribution in the context of the National Risk Assessment.
- Considering EU policies affecting it.

1.2 Risk identification

- Finding, recognizing and describing the risk (in terms of risk metrics) related to hazard/asset addressed using existing risk information.
- For each of the risks to be studied, it is necessary to gather the available information (and possible sources) on the risk components to prepare:
  - hazard models,
  - exposure models (population, buildings, infrastructure, natural areas),
  - vulnerability models and
  - relevant selection of risk drivers and capacities.
- Addressing the sources of uncertainty and
- Providing advices on scenario building.

1.3 Risk analysis

- Suggesting a set of methodologies fit to hazard and assets in question and providing the limitation and common assumptions in these methodologies. Risk analysis approaches vary in various degrees of detail depending on the purpose of the analysis and data available as well as on how they address uncertainties arising in different stages of the RA process.
- Describing step by step the most appropriate method for the risk analysis (qualitative, quantitative, semi quantitative) and which data are needed to run the model, final results obtained and metrics. Eventually, for every risk and risk scenario identified in the risk identification stage, risk analysis determines the potential impacts and the probability of occurrence.
- Explaining requirements and tools for carrying out the risk analysis based on the method(s) proposed.
- Providing range of relevant expertise/competences required for the risk analysis.
- Providing range of stakeholders/networks that can be advantageous to contact, based on their expertise, practical experience and roles in DRM.
- Discussing opportunities to link with other hazards and consider cascading effects.

1.4 Risk Evaluation

- Assuring the correct usage of the risk analysis results in decision making process for Disaster Risk Management planning:
  - Explaining the outcomes of risk analysis to be compared with risk criteria.
  - Suggesting different formats of the risk analysis results for the communications outside the expert group, i.e. risk mapping, risk matrix, risk curves, risk indices, ...
Providing advice on how to interpret the results.
- Discussing possible comparability of the risks results (arising from other hazards)

1.5 Risk treatment
- Using the opportunity to explain how specific risk assessment provides risk information to addresses specific range of activities to reduce risk through underlying risk drivers.
- Providing examples to show how to use the results in DRM planning.

1.6 Gaps and Challenges/Conclusion
- Areas of further research and which are those that need to be developed urgently.
- Challenges in pulling together the resources: expertise, networks, time, budget, data...
- Gaps detected for carrying the analysis and suggestions for the way forward, (e.g., decrease the level of detail, increase uncertainty, change the methodology, and provide qualitative results still useful for the risk treatment).

1.7 References

Reference Citations in the text:
Cite references in the text with author name/s and year of publication in parentheses ("Harvard system"): 
- One author: (Miller 1991) or Miller (1991)
- Two authors: (Miller and Smith 1994) or Miller and Smith (1994)
- Three authors or more: (Miller et al. 1995) or Miller et al. (1995)

Reference List (examples):


Final checklist for the content
The main purpose is to:
- to ensure consistency and completeness in preparation of the NRA
- to ensure that the contributions support the objectives of EU guidelines

Does the text consider risk assessment in the context of NRA reporting?
Does the text contribute to the common understanding of disaster risk:
  - In terms of the terminology (the benchmark should be definitions provided in the EU guidelines and UNISDR terminology)
  - In terms of the concept (hazard, exposure, vulnerability)
  - In terms of the underlying disaster risk drivers
  - In terms of the risk metrics/impacts

Does the text provide the NRA context:
  - What country needs to protect (selecting the assets)
  - What is the time window for the impacts to consider as the consequence of the event (short-term vs long term).
  - Which are the potential impacts and what is the risk metrics to measure them
  - Relation with existing policies and initiatives

Does the text provide useful information for technical team preparing risk assessment in terms of networks and groups to involve?
Risk assessment is performed by technical team as well as conducted collaboratively with stakeholders and drawn on the knowledge and views of all involved. We are asking for recommendations on actors, stakeholders, sector to engage in order to
  - Get the relevant, appropriate and up-to-date information and input data for the analysis,
  - Identify the risk, apply proper risk metrics and be aware of risk criteria which are largely political decision: understand which are the assets to be protected, which are the possible impacts (loss database) that are of main concerns, what is the acceptable risk, how and how much to reduce the risk
  - To design realistic risk scenarios and eventually provide useful results.

Does the text addresses all stages of risk assessment process (identification, analysis, evaluation) in sufficient detail?
Risk assessment process is an approach to estimate the impacts/damage/losses, their magnitude and the probability of occurrence.