

Title: The use of flood and stormwater data in Norway: review and recommendations

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Floods and stormwater events are the costliest natural catastrophes. Costs are expected to increase due to urbanization and climate change. Mitigation is needed, and is already on-going in certain cases. Different stakeholders with different motivations unfortunately often evaluate vulnerability by using fragmented and incomplete data sources. This study intends to review the different approaches for collecting and analysing data, and to evaluate their usefulness within a well-defined framework for a "smart" use of data. The scope of the study is limited to Norway.

The main objectives have been:

- to review qualitatively and quantitatively a selection of national inventory databases,
- to define a framework for assessing about the "smart" use of data
- to evaluate the current Norwegian situation with respect to this framework, and
- to propose measures for improvement.

Methodology was based on questionnaires and face-to-face interviews with relevant stakeholders. Results show that data are spread around a heterogeneous community of stakeholders concerned with different motivations, different needs, and different levels of data processing. In general, the needs of the different stakeholders have not been surveyed and defined systematically enough. There is therefore a substantial potential in upgrading from the delivery of passive raw data to the delivery of knowledge-driven decision-support tools.

The discussion identifies the following opportunities for further work:

- Exploiting more efficiently available sources of urban data and exploring alternative sources of data such as participatory sensing technologies,
- Achieving a more efficient transformation of data into knowledge via the development of analytical tools that match the identified needs of relevant end-users by efficiently processing several relevant sources of data,
- Providing ergonomic and user-friendly digital solutions to support workers in their daily tasks and to efficiently document the actions within the system, and
- Triggering the implementation of evaluation processes within the national agencies for business purposes, and at a national scale for providing the policymakers with useful knowledge about the societal risks associated with climate changes.

The study concludes by distinguishing technical challenges from organisational challenges. Technical challenges can relatively easily be solved by digitization and its opportunities for improvement of the workflow and for higher quality of data. Organisational challenges must be solved by an end-users-focused approach to identify needs and expectations.

This study was funded by the Centre for Research-based Innovation Klima 2050 and intends to trigger the development of a global data-driven evaluation system to provide policymakers with knowledge on societal risk associated with climate change, and to strengthen national agencies and private companies' innovation capacity for addressing climatic changes.