

FlomRisk

– user centered design to support impact-based flood warnings

Norwegian Water Resources and Energy Directorate

Kristine Ugstad

kbug@nve.no

ABSTRACT

The Norwegian Water Resources and Energy Directorate (NVE) has the national responsibility to manage flood, landslides, and avalanches by way of planning, protection, warning, emergency management and R&D. Since 1995 NVE has assessed the national risk for floods, with daily updates on the webpage varsom.no – and on yr.no in collaboration with the Norwegian Meteorological Institute and the Norwegian Broadcasting Corporation.

As a country with 1748 kilometer from north to south and 400 river basins NVE is limited to assess flood risk on a regional level, which means that our main target groups – local governments and emergency preparedness sector – must translate the regional warnings into potential local impacts.

In line with request by local government and recommendations by the World Meteorological organization NVE started up a 4-year pilot project in 2022 with the aim to develop an impact-based flood warning system. This includes developing a tool enabling local governments and emergency preparedness sector to execute actions at the right level based on the regional warnings. In doing so we have taken a user centered design approach, inviting the local governments in our five pilot municipalities into the process of identifying and developing the solution. The pilots each represent different flood challenges and systems and skillsets of responding to flood.

In collaboration with our five pilot municipalities and the consultant agency Comte Bureau we have embarked on a service design journey. During approximately 6 months, we will investigate, reveal, and understand the user needs, both the visible and underlying needs. We are using different methods (including, but not limited to interviews, workshops, observations, and simulations) to learn from our pilot municipalities, and personnel involved in emergency preparedness. We will continue to co-create with our pilot municipalities and iterate until we have a solution that is based on and developed together with the end-users.

Service design as methodology and a co-creating approach is not only pivotal to innovative processes, but emergency responses are also a unique psychological context where decisions need to be taken at a split second and the potential outcome of a decision or non-decision may have huge consequences. It is crucial that the right person get the right information at the right time in the right way. Thus, to truly understand such situations and what the users need, we must put ourselves in their shoes and invite the users to be a part of the entire process.

Keywords: flood warnings; natural hazards; flooding; avalanches; communication; impact-based warning; service design; user centered approach