Mapping challenges and opportunities for aggregating information on systemic risks from multiple stakeholders

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Abstract

The Sendai Framework for Disaster Risk Reduction highlights the importance of all-hazard and multi-stakeholder approaches. This requires exchange and integration of risk information across sectorial and administrative borders. This paper focuses on challenges and prerequisites for aggregating risk information from multiple stakeholders in disaster risk management systems. Aggregation is here understood as comprising the sub processes of identifying one's information needs as well as retrieving the information and making sense of the assembled material. Using Sweden as a case, this study is based on participatory workshops with risk management officials at all 21 Swedish County Administrative Boards. Being positioned at the regional level, these officials are central to the quest of aggregation as they are tasked to relay risk management directives from national to local authorities, whilst conveying reports on societal risks to national authorities based on municipal risk and vulnerability assessments. Drawing on their collective experiences from aggregating risk information, the study reveals challenges in all sub processes involved where impediments relate to both structural and behavioral factors (e.g. lack of or conflicting regulations as well as motivation, trust, prestige, and accountability). Ideas on how to overcome some of these challenges are presented as well.

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1. Introduction

The Sendai Framework for Disaster Risk Reduction stresses the need of all-hazard and multi-stakeholder approaches to understand and manage risks for societal disasters [1]. This requires exchange and integration of risk information across societal sectors and administrative borders [2-4]. How this is done affects prioritizations on which risks to address and how and, consequently, which consequences that hazards may bring about.

This article focuses on challenges and prerequisites for aggregating risk information from multiple stakeholders in disaster risk management (DRM) systems[1]. It uses the Swedish disaster risk management system as a case, but similar aspirations to aggregate risk information exist in many other countries and on an international level as well. Since 2011 all European Union (EU) member states have to conduct national risk assessments as basis for an overall appreciation of risks to societal safety in the Union [6]. Individual member states have also enacted regulations and structures of their own to ensure that they are able to assemble and synthesize the needed information [7].

1.1. The Swedish disaster risk management system

In Sweden, all municipalities, regional county administrative boards and county councils and a number of national authorities are obliged to conduct risk and vulnerability assessments (RVA) and share the results with one another [8, 9]. These assessments focus on so-called extraordinary events[2], which are akin to systemic risks, i.e. associated with great uncertainties and serious disruptions in multiple systems that are vital to societal functionality [10, 11]. The RVA-system is based on a bottom-up approach where assessments from municipalities are input to analyses at the regional level and assessments from county boards and councils are used when conducting national RVAs. Authorities at regional and national levels are also expected to provide feedback on the information they receive from authorities at lower administrative levels and communicate the aggregated risk assessments to external stakeholders. Commissioned by the government, the Swedish Civil Contingencies Agency (MSB) supports other authorities with their RVA-work and produces the national RVA-report in line with EU-regulations (a structural view of the Swedish RVA-system is provided by fig. 1. For more in-depth information about the Swedish risk management system, see [12].

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[1] Disaster risk management (DRM) is 'the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster' [5]. The term *DRM system* is used to describe the stakeholders, technical systems and mechanisms that implement or support DRM activities.

In this context, the word *aggregation* implies the processes of identifying one's needs of information as well as the quests of retrieving it and making sense of the assembled material.

The terms *stakeholders* and *actors* are used interchangeably in this paper to denote organizations and interest groups rather than individuals. Here, the attention is focused on risk communication between public authorities with a formal responsibility for sustaining societal safety, whilst acknowledging the importance of attaining inputs from other types of stakeholders in these endeavors (e.g. private companies, voluntary groups and the general public).

[2] The Swedish government defines *extraordinary events* as events that "diverge from what is normal, means a serious disturbance or an evident risk for a serious disturbance in vital societal functions and calls for prompt action by a municipality or county council" [8].