

Societal Resilience Assessment in the Context of Critical Infrastructure Protection

Authors : Hannah Rosenqvist, Fanny Guay

Abstract : Critical infrastructure protection has been an important topic for several years. Programmes such as the European Programme for Critical Infrastructure Protection (EPCIP), Critical Infrastructure Warning Information Network (CIWIN) and the European Reference Network for Critical Infrastructure Protection (ENR-CIP) have been the pillars to the work done since 2006. However, measuring critical infrastructure resilience has not been an easy task. This has to do with the fact that the concept of resilience has several definitions and is applied in different domains such as engineering and social sciences. Since June 2015, the EU project IMPROVER has been focusing on developing a methodology for implementing a combination of societal, organizational and technological resilience concepts, in the hope to increase critical infrastructure resilience. For this paper, we performed research on how to include societal resilience as a form of measurement of the context of critical infrastructure resilience. Because one of the main purposes of critical infrastructure (CI) is to deliver services to the society, we believe that societal resilience is an important factor that should be considered when assessing the overall CI resilience. We found that existing methods for CI resilience assessment focus mainly on technical aspects and therefore that it was necessary to develop a resilience model that takes social factors into account. The model developed within the project IMPROVER aims to include the community's expectations of infrastructure operators as well as information sharing with the public and planning processes. By considering such aspects, the IMPROVER framework not only helps operators to increase the resilience of their infrastructures on the technical or organizational side, but aims to strengthen community resilience as a whole. This will further be achieved by taking interdependencies between critical infrastructures into consideration. The knowledge gained during this project will enrich current European policies and practices for improved disaster risk management. The framework for societal resilience analysis is based on three dimensions for societal resilience; coping capacity, adaptive capacity and transformative capacity which are capacities that have been recognized throughout a widespread literature review in the field. A set of indicators have been defined that describe a community's maturity within these resilience dimensions. Further, the indicators are categorized into six community assets that need to be accessible and utilized in such a way that they allow responding to changes and unforeseen circumstances. We conclude that the societal resilience model developed within the project IMPROVER can give a good indication of the level of societal resilience to critical infrastructure operators.

Keywords : community resilience, critical infrastructure protection, critical infrastructure resilience, societal resilience

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