

## **Local variations in the management of critical dependencies in municipal risk and vulnerability analyses**

This thesis explores how municipalities in Sweden work with identifying and managing connections between critical infrastructures in our society. The study concludes that municipal work with critical dependencies varies across the country, with some municipalities having more profound work with critical dependencies than others.

Critical infrastructures can be dependent on services from another critical infrastructure to function. For example, infrastructure that treats water may be dependent on electricity from another infrastructure to work properly. Understanding such connections between infrastructures is important. This can help to build preparedness and minimize potential damage to both infrastructures and society. According to Swedish crisis management regulations, municipalities are most often the responsible actor to handle a crisis when it emerges. Every fourth year, municipalities produce risk and vulnerability analyses (RVAs) to assess risks and critical dependencies within the municipality. Drawing from previous studies, there is a suggested lack of understanding of how municipalities are working with critical dependencies within the RVA process. Therefore, this thesis aims to further explore the subject. To be able to explore the research questions, the thesis takes on a qualitative case study approach. It examines RVAs from twelve different municipalities, and 16 interviews were performed with preparedness coordinators, security coordinators, and heads of security from a total of 16 municipalities in Sweden.

This thesis suggests that while most municipalities follow standardized national methods and guidelines in the identification and analysis of critical dependencies, municipalities seem to use these guidelines differently. What method is used within municipalities is depending on available resources and knowledge in terms of staff background, and the level of cooperation with other municipalities. Several municipalities face similar challenges in deciding delimitations of the analysis of critical dependencies within the RVA process, but also in monitoring results from the RVAs and in applying identified measures for continuity. These challenges seemingly arise due to a lack of capacity or staff turnover, but it is also connected to a lack of detailed guidelines for the analysis. Generally, municipalities wish for more targeted support for the analysis of critical dependencies and broader actor engagement in the assessment and follow-up of critical dependencies.

Currently, some issues are hindering support and collaboration in the analysis of critical dependencies. There is a need to find methods that promote collaboration between municipalities and actors on different levels. The methods must also be able to support municipal processes with RVAs while avoiding the security and confidentiality issues currently hindering the engagement of different actors. Moreover, an analysis of critical dependencies beyond local impacts is currently hindered. This is due to factors such as the complexity and confidentiality surrounding critical infrastructure, but also because of the use of different methodologies for analysis, monitoring, and follow-up, and the fact that municipalities only are responsible for risks within their geographical area. However, the perceived value within municipalities of conducting an analysis and having the knowledge of critical dependencies is generally high. The findings of this research contribute to an understanding of how Swedish municipalities are working with critical dependencies in the process of doing an RVA. Potentially, this knowledge could also be used in other contexts than Sweden and be used to streamline the management of critical dependencies in a broader setting.