

## Anticipating climate risk in local level adaptation plans

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### Abstract

Local governments are under pressure to adapt communities, infrastructures, and societal functions under their jurisdiction to climate-related risks, both short-term and long-term. At the same time, the implementation of adaptation measures at the local level is associated with great challenges: On the one hand, local authorities may suffer from a lack of government funding which typically leads to short-term and inadequate adaptation measures. On the other hand, present and potential future effects of climate change are characterized by insufficiency of sure knowledge. Hence, in the absence of reliable or complete information, and in the presence of great uncertainty over the implications, it is difficult to conduct proper risk assessment (Guidotti, 2021). As noted by Garschagen and colleagues, failing to capture the full spectrum of risk drivers may lead to maladaptive outcomes if adaptation measures are directed at reducing some risk drivers while amplifying others (Garschagen et al., 2021). Consequently, adaptation measures are often reactive, responding to acute and concrete effects of climate change and other environmental problems, while proactive measures and actions focusing on abstract or slowly emerging risks are deprioritized. So how do responsible municipal actors and local authorities relate to uncertain future risks linked to climate change adaptation? In this study, I explore how potential future risks related to adaptation measures are imagined and articulated in local level adaptation plans in Sweden. To complicate matters, climate adaptation measures may interfere with systems, services and infrastructures which are essential to the functioning of society. Likewise, vital systems and critical infrastructures – like transport, health and social care, management of fresh- and wastewater, and energy supply – are particularly vulnerable to the consequences of climate change. Therefore, the exploration of local adaptation plans will be guided by two interrelated questions: First, how do local governments relate to vital systems, services and infrastructures in their adaptation plans and, second, what future risks are anticipated, explicitly and implicitly, in these plans? In brief, the study aims to shed light on the intersection between effects of climate change on vital systems, services and infrastructures on the one hand, and potential future risks as driven by climate adaptation on the other. For the theoretical framing, I employ social theories of time and temporality (Ruwet, 2021). The empirical material consists of ten local level adaptation plans which are supplemented by interviews with ten municipal environment or climate strategists. Analysis of the material suggests five points of convergence regarding climate adaptation, vital systems and future risk: local governments' resourcefulness; localization of vital systems, services and infrastructures; accessibility/trafficability; contamination/pollution; and local government's interlacing of adaptation and preparedness. These points are then discussed in relation to time stratification and knowledge uncertainty.

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