Imagination as a tool for climate action

Towards preparedness in the Swedish water sector

Scoping Report

2025-03-27

Sammanfattning

Projektet studerar hur visioner och föreställningar (imaginaries) om framtidens vatteninfrastruktur kan påskynda klimatanpassningen inom svensk vattensektor. Fokus ligger på fallstudier av sju kommunala VA-organisationer som anses kommit långt i anpassningsarbetet: Göteborg, Malmö, Lund, Helsingborg, Västerås, Gotland och Kalmar. Urvalet representerar olika organisationsformer, storlekar och utmaningar såsom skyfall, havsnivåhöjning och vattenbrist. Genom kvalitativa intervjuer och dokumentanalys undersöks hur aktörerna tänker kring klimatåtgärder, vilka hinder och möjligheter de ser, samt hur deras erfarenheter kan hjälpa andra kommuner. Projektet, som genomförs 2024–2027 i nära samverkan med sektorns aktörer, syftar till att ge ny kunskap om effektiva vägar till klimatanpassning.

1. Aims of the project

The Swedish water sector needs transformation to meet the rapidly changing climate, but despite overwhelming evidence, adaptation is currently not happening fast enough. We argue that the problem we are facing is not primarily about lack of knowledge. The problem is lack of imagination. A critical clue to make climate-related transformation happen is to critically review and revamp our "imaginaries": our ideas about how the world ought to be.

Our objective is to determine what kind of socio-technical imaginaries that can speed up climate action in the Swedish water and sewerage sector.

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We will investigate the following research questions:

1. When water sector actors take climate action, what are their underlying narratives about the future of water infrastructure?
2. How does climate science and the lived historical experience of extreme weather (e.g. floods and droughts) inform these narratives?
3. What are the actual mechanisms at play when imaginaries drive climate action (e.g. political directives, technical standards, budget allocations)?

We approach these questions from the field of the social sciences and the humanities and focus on water and sewerage utility actors in Sweden that have already started to take climate action. Throughout we have a close interaction with sector actors to make a lasting effect.

2. Overall approach and methods

We are interested in those water sector actors in Sweden which we broadly refer to as 'middle ground' professionals. They typically have to blend macro and micro perspectives and are therefore strategically situated in water bureaucracies. Examples of such professionals are mid-level managers, planning and investigation engineers, or company strategists. We also identify these actors as knowledge brokers that can provide us with insights on how 'climate action' is understood, imagined and translated into key actions.

The key methods that we employ in this empirical study include qualitative methods such as semi-structured interviews and document analysis (including project directives, climate adaptation strategies, web articles etc).

3. Empirical case studies

We have narrowed down our study to Swedish water utilities which we view as having already taken important steps towards climate action. This could be in the form of having a strong climate policy or strategy already in place or implementing improvements or adaptations to existing water and sewerage infrastructure, on a considerable scale. We are interested in these "fore-runners" and how they have accomplished to take action.

In order to identify suitable water utilities we started with a desk-based consultation of previous scientific studies[1] and publications of Svenskt Vatten, the Swedish Portal of Climate Adaptation (based at SMHI), and the Swedish Civil Contingencies Agency (MSB).

[1] Najar, N., & Persson, K. M. (2022). Assessing climate adaptation and flood security using a benchmark system: Some Swedish water utilities as good learning examples. Water, 14(18), 2865.

Storbjörk, S., Hjerpe, M., & Glaas, E. (2024). The necessity of pragmatic muddling. Ten Swedish early adopter cities navigating climate adaptation policy-implementation in the urban built environment. Environmental Science & Policy, 160, 103842.

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The purpose was to identify what kind of 'forerunners' of climate action are identified in the literature and by the main policy agencies involved in climate action work. We also consulted with a specialist at the water utility umbrella organisation Svenskt Vatten, to get additional input and a third-party assessment of what organisations are considered as forerunners. From this first inventory we sent out a short survey to an initial pool of water utility actors across Sweden to further delineate our choices. Here we asked the utilities some questions for purpose of validation, and also to assess their willingness to participate in the in-depth study. In total we contacted 20 municipalities across Sweden in this initial exploratory phase[2] of whom 11 responded positively. Based on these initial steps, we have selected the seven organisations below for our detailed empirical study, which have all graciously offered to collaborate with us in this study:

Table1. Selected "fore-runners" in climate adaptation of water and sewerage

	Water utility organisation and its urban centre(s)	**Type of organisation**
1.	Göteborg Kretslopp och Vatten (Göteborg city)	Municipal department for water, sewerage and solid waste
2.	VA Syd (Malmö)	Association for water, sewerage and solid waste, covering Malmö, Lund and four more municipalities
3.	VA Syd (Lund)	Association for water, sewerage and solid waste, covering Malmö, Lund and four more municipalities
4.	NSVA (Helsingborg)	Municipal company for water and sewerage covering eight municipalities
5.	Mälarenergi (Västerås)	Municipal company for water and sewerage in three municipalities and energy in four
6.	Gotland (Visby)	Municipal department for water and sewerage and regional water resources
7.	Kalmar Vatten AB (Kalmar)	Municipal company for water and sewerage

[2] Arvika, Ljungby, Ronneby, Värnamo, Ängelholm, Luleå, Växjö, Jönköping, Västerås, Linköping, Stockholm, Göteborg, Malmö, Helsingborg, Lund, Vellinge, Järfälla, Halmstad, Kalmar, Gotland.

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The selected municipalites are represented by different organisational forms and sizes (from ~50,000 to >500,000 p.e.). Moreover, while several municipalities face challenges with cloudbursts, stormwater management and sea water rise, some also face serious water shortages (notably Kalmar and Gotland). See map below in Figure 1.

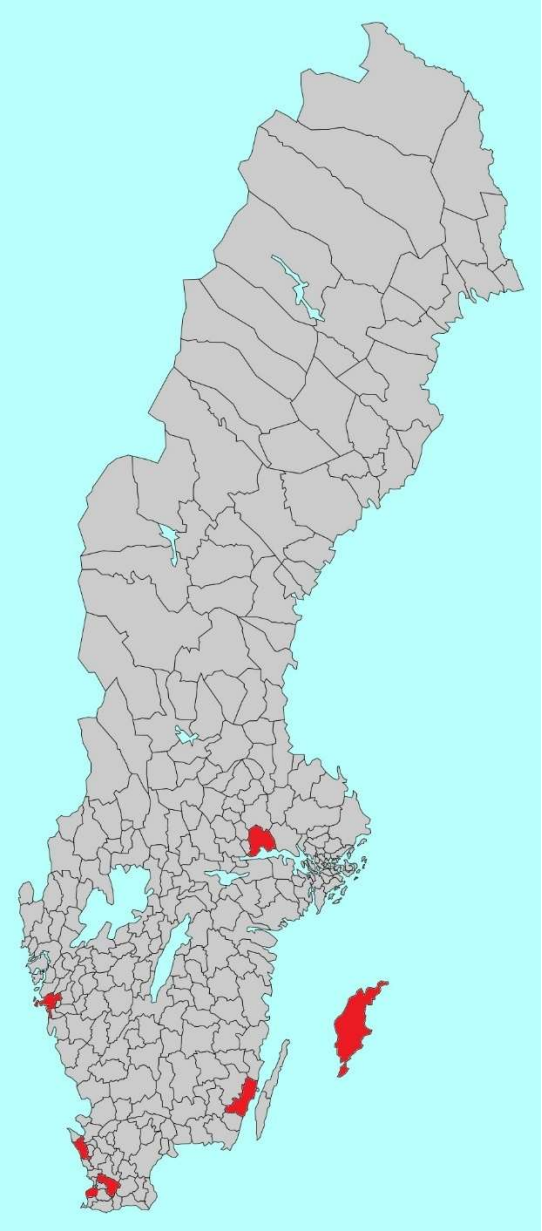

Figure 1. Map of the selected case studies

There is a strong bias towards the south of Sweden in the selection. Of the 20 municipalities initially contacted, only one was in the northern part. This could reflect where most climate related problems appear (and therefore most climate action). It could also reflect a reporting bias in our material, or uneven capacity in municipalities across the country. For each case study we aim to carry out 5-7 interviews with different 'middle-ground' professionals, as well as top management, experts, and political trustees. Hence a total of around 40 interviews are expected to be collected as part of the empirical case study investigations. Furthermore, for each utility we will also collect documents related to understanding climate action from the perspectives of both climate science and historical experiences.

Our interviews are semi-structured following an "interview guide". The interview guide covers four themes: (1) the interviewee's role in climate adaptation, including responsibilities and collaborations; (2) how climate adaptation has become a focus area in the water sector; (3) decision-making processes for implementing adaptation measures; and (4) future challenges and visions for a climate-resilient water system. All interviews are done via online face-to-face meetings, they are around 1 hours long and are digitally recorded and transcribed for subsequent analysis.

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4. Study feasibility and limitations

Given our emphasis on imaginaries in the water sector we have selected municipalities across Sweden that will allow us to understand what imaginaries look like in relation to different challenges (stormwater management, water and wastewater planning, water scarcity etc.). Our selection of cases also captures all the most common organisational forms for public water and sewerage service provision in Sweden: municipal department, municipal company with single owner, co-owned municipal company, and multi-municipality association. Hence, our focus is on exploring the variety of imaginaries rather than an exact evaluation of progress in the different organisations towards climate action. We want to explain why certain imaginaries become more dominant, why other imaginaries might be less dominant and how actors' reason around the different imaginaries.

A key concern for the feasibility of our study has been to have a representative sample of actors from the water sector. This we have achieved through a systematic selection process discussed earlier that has allowed to us to focus on water utility organisations in primarily 7 municipalities. A limitation of this approach is that we have taken the water utilities as our analytical entry point, while many different actors influence, and have an interest in climate action in the water sector. This is a strategic choice, partly to maintain a manageable sample of actors for interviews. We also want to understand how imaginaries influence climate action precisely in the water utility organisations in Sweden, which we find to be gravely underexplored. While our entry point in the studies consequently are key individuals (managers, specialists, planners) within the selected water organisations, we fan out our investigations by means of "snowball sampling" to identify and interview important actors in other organisations, such as municipal planning, housing, parks and streets, private developers and property owners.

5. Early observations

An early observation is that **organisational responsibilities** are in a state of flux. From interviews and other conversations, we learn that many actors are now grappling with climate change adaptation since it cuts across organisational boundaries in new ways. Part of the deliberations concern the division of responsibilities between municipal departments, but as well involves the role of the state and its agencies, the regional authorities, municipalities, property owners and citizens. This fluidity has been noted also in a public inquiry (SOU 2024:82) published in November 2024. Several interviewees point to the sharp learning curve their organisations are in, and one reminded us that *"You have chosen us as being one of the 'forerunners'. But I believe that all of us 'forerunners' have not really gotten that far."*

In particular, **how to manage risk and uncertainty linked to finance** for adaptation measures and damages, are issues coming to the fore. Sector actors from across Sweden and Denmark convened in a conference in December 2024 (which we attended) to discuss precisely this. Actors point to the need of balancing functional demands

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against cost-efficiency analyses before venturing into adaptation measures. Large-scale spectacular adaptation measures can attract political and media attention, but *"..they can cost a damn lot of money and give damn little effect"* as one sector professional confided. Re-assessing what risks must be tolerated by society, and what measures gives best payback seems to be part of the steep learning curve for the sector.

Figure 2. Example from Lund of local water retention. Photo Kristina Hall

Another theme emerging from our initial interviews concerns **expectations and cognitive relationships with nature** and the built environment. For example, we find initiatives among some of the forerunner utilities portraying the city and its built-up infrastructures as "being in the way of the water". We are curious if this could signal a shift away from earlier professional viewpoints, where nature was perceived to be in the way of the expanding city and thus had to be engineered, controlled, or removed. As a key municipal professional said to us: *"...when the water needs this space, it must be allowed to have the space. It's that simple."*

Moreover, acquiring and using **different types of knowledge and practices** in design of urban spaces, infrastructure and building also seems to be a salient theme: *"...we risk doing a bloody lousy job just because of lack of competence– it would not had cost us much to do things differently"*, as a professional with long experience told us.

Figure 3. Redesigning road space for collection and infiltration of water in Lund. Illustration by Johan Nilsson, WSP

These are just some of the interesting material and themes that we will be pursuing further, in greater depth and in a systematic way, as the project proceeds.

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6. Moving forward: planned activities, outputs and communication

Our project runs during 2024-2027 and external partners can follow our progress on the project website (https://liu.se/en/research/imagineaction) where we publish news, activities and outputs, including an updated communication plan. Interested parties can follow the team members on LinkedIn:

Timos Karpouzoglou, LiU, project leader

https://www.linkedin.com/in/timos-karpouzoglou-64293825/)

Linus Ekman Burgman, LiU, researcher

https://www.linkedin.com/in/linus-ekman-burgman-0b50266a/

David Nilsson, Framverket, sector collaboration

https://www.linkedin.com/in/david-nilsson-engineer-and-historian/

A summary of the main planned activities and outputs:

2025

- Scoping, selection and securing participation from case study actors (done)
- Conducting interviews with actors in case studies (ongoing)
- Collection of key documents in the selected case studies (ongoing)
- Online research seminars co-organised with Environmental Humanities Lab at KTH in Stockholm (April, Oct)
- Paper presentation at Water conference NordIWA in Oslo (September)
- Workshop no 1 to discuss empirical findings with key actors (fall)
- Analysis of collected material in terms of research questions no. 1
- Drafting a scientific journal paper no. 1
- Collaboration with Svenskt Vatten towards climate conference (December)

2026

- Finalisation of interviews with actors from the selected case studies (Jan-Apr)
- Two Workshops to discuss findings with key actors (May and August)
- Online research seminar co-organised with Environmental Humanities Lab at KTH in Stockholm (spring)
- Industry (water sector) conference, e.g. Vattenstämman (May, TBC)
- Analysis of interview material and documents for research questions (2) and (3)
- FORMAS conference (Fall)
- Writing Scientific (journal) paper 2 and 3
- Develop web-based interface for inspiration of sector actors
- Curriculum for short-course developed (fall 2026)
- Short summary report of the three workshops with sector actors

2027

- Web-based interface launched
- Final project report to FORMAS
- Scientific paper 4, synthesis paper

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- Policy brief
- Final presentation at sector conference, e.g. Rörnät & Klimat (Feb, TBC)

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