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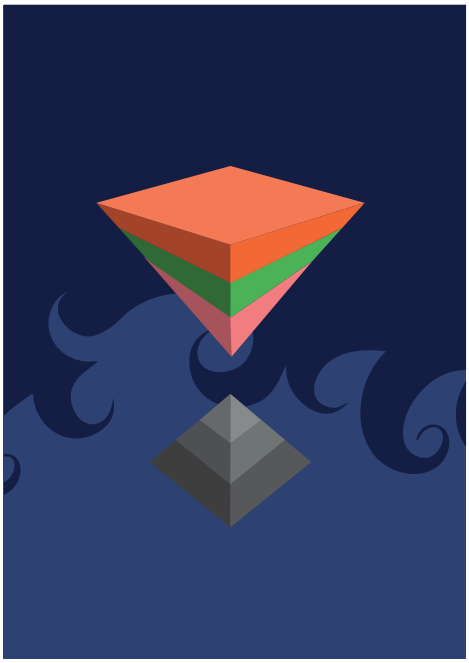
From Imagination to Practical Understandings

Meaning Making in Climate Change Adaptation

Gunnar Christoffer Söderlund Kanarp



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Gunnar Christoffer Söderlund Kanarp
Faculty of Natural Resources and Agricultural Science
Department of Urban and Rural Development
Uppsala

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Swedish University of Agricultural Sciences, Department of Urban and Rural Development, Uppsala, Sweden

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From Imagination to Practical Understandings: Meaning Making in Climate Change Adaptation

Abstract

The climate crisis calls for transformative responses, including transforming the governance and practices of adaptation and the purposes of adaptation actions. This thesis contributes to understanding the inertia that marks adaptation and provides empirically grounded reflections on how to move towards transformative adaptation. Combining Critical Future Studies, using imaginaries, with Social Practice Theory, this study explores meaning-making processes shaping adaptation governance, its purpose, boundaries, and how it is performed. This is done through an overview of globally circulating and competing climate adaptation imaginaries, and a layered case study of regional imaginaries and situated practices of adaptation governance in the Swedish public sector. The study finds that the dominant imaginaries and practices in the Swedish public sector assume that the future is predictable and controllable. These assumptions are intertwined with (often) unspoken ideals of economic growth, technological innovations and expert-led planning. This promotes proactive, but incremental adaptation strategies, where transboundary risks are ignored while transboundary benefits are assumed to remain. Consequentially, long-term perspectives, uncertainty, and plausible high-risk scenarios, are downplayed. Transforming society through transformative adaptation is a slow process, fraught with overcoming unequal power dynamics. From a practice perspective, it will begin through making space for joint critical reflection on the assumptions and ends that guide routine responses of 'doing' adaptation. This must be combined with explicitly debating and imagining desirable futures that accommodate the uncertainty generated by recognizing transboundary risks and long-term perspectives.

Keywords: Climate Change Adaptation, Transformative Adaptation, Governance, Imaginaries, Critical Future Studies, Social Practice Theory, Teleoaffective Structures, Practical Understandings, Public Sector, Sweden

Från framtidsvisioner till praktisk förståelse: Meningsskapande processer i klimatanpassning

Abstract

Klimatkrisen kräver transformativa åtgärder, inklusive i hur styrningen av klimatanpassning organiseras och syftet med anpassningsåtgärder. Denna avhandling bidrar till bättre förståelse av trögheten i omställningen av samhället genom klimatanpassning, och bidrar med empiriskt grundade reflektioner över hur vi kan röra oss mot transformativ klimatanpassning. Genom att kombinera teorier från kritiska framtidsstudier, med teorier om sociala praktiker, utforskar denna studie de meningsskapande processer som formar styrningen av klimatanpassning, dess syfte, hur det utförs och vad som konstrueras existera som bortom klimatanpassningens syfte. Studien finner att de dominerande framtidsvisionerna och praktikerna i Sverige, bygger på antaganden om att framtiden är förutsägbar och kontrollerbar, vilket är sammanflätat med (ofta) outtalade ideal om ekonomisk tillväxt, tekniska innovationer och expertledd planering. Detta leder till ett främjande av proaktiva och inkrementella anpassningsstrategier, där gränsöverskridande risker ignoreras — samtidigt som gränsöverskridande fördelar förutsätts. Följaktligen bagatelliseras långsiktiga perspektiv, osäkerhet och rimliga högriskscenarier. Att förändra samhället genom transformativ anpassning är en långsam process som kräver att ojämlika maktförhållanden övervinns. Ur ett ’sociala praktiker’-perspektiv börjar en sådan förändring genom att skapa utrymme för gemensam kritisk reflektion över de antaganden och mål som styr rutinmässiga beteenden för hur klimatanpassning görs och vad som prioriteras. Detta måste kombineras med att skapa utrymme för nya önskvärda framtidsvisioner som inkorporerar den osäkerhet som kommer med de gränsöverskridande risker som klimatkrisen medför.

Keywords: transformativ klimatanpassning, visioner, sociala praktiker, framtidsstudier, offentlig sektor

People are by nature similar;
it is our practices that carry us apart.

Confucius, Analects, 17.2

Acknowledgements

Writing this thesis has quite often felt like lonely work, sitting alone trying to formulate something intelligent about the existential crisis that climate change poses to our way of living. However, I have not been alone. Indeed, finishing this thesis would not have been possible without the support, suggestions and encouragement generously provided by family, friends and colleagues over the years I have worked on this project.

Klara Fischer has been indispensable in turning my work from too many different texts, and way too many ideas, into a coherent thesis. Klara, you have always been very generous with your time, above and beyond what I could have hoped for. Especially during the spring and summer of 2024, when I was writing, and rewriting, and rewriting, my cover essay, you have continually, and quickly, provided constructive feedback on my texts. Your help with maintaining a focus on what is actually needed for the thesis has not only helped me finish on time, but also made me feel confident (most of the time) that it will indeed be done and be more than good enough.

Lotten Westberg has perhaps more than anyone influenced my theorizing and approach to research by introducing me to the world of practice theories. I am very grateful for your continuous support, especially to follow my curiosity, and find my own way as a researcher. Your ability to pose thoughtful questions that get to the heart of the matter has improved both my thinking and writing over the years.

Annette Löf has been my guide into the jungle that is the adaptation literature. Finding one's place in there is difficult; the extent to which I have been able to do so (and believe in my own contribution), owes a lot to discussions with you. Additionally, our long conversations about ambitions, what impactful research really is, and how to combine this with family life, have been very important and valuable to me.

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for writing retreats, especially during the work with finalizing the thesis. Without the solitude and the tranquillity given by this place with an amazing view of the Gulf of Bothnia, the last couple of months would undoubtedly have been much more stressful. It has not been complete solitude though. I have thoroughly enjoyed the company of Carson (the grey heron), Nisse and Greta (the swan couple), Michel (the red fox), Greven (the badger), Lilla Klibbis (the adder), Peppe and Maud (the mice), and many other colourful characters that have kept me company, including Anna (my mom). The last has undoubtedly been most important.

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Lastly, Alve and Eira, my wonderful children, may not deserve acknowledgment for helping me finish this thesis. On the contrary, they are the main reason why it has taken me so long to finish. However, they are an invaluable reminder that there are more important things in life than work, even work with your own thesis. I love you more than anything in the world.

Contents

List of publications

This thesis is based on the work contained in the following papers, referred to by Roman numerals in the text:

I. Kanarp, G.C.S., Böhm, S. & Löf, A. (2024), Contested Adaptation Futures: The role of imaginaries in climate change adaptation governance. *Manuscript.* Revised and Resubmitted to Sustainability Science

II. Kanarp, G.C.S. (2024). "Your Research or My Tinkering Won't Help" – On the (lack of) Climate Adaptation Imaginaries in the Swedish Arctic. *Futures,* Volume 162, September 2024, 103433. https://doi.org/10.1016/j.futures.2024.103433

III. Kanarp, G.C.S. & Westberg, L. (2023). Adapting climate change — how government authorities in Sweden make sense of adaptation through a network practice. *Journal of Environmental Planning and Management*, 67(9): Environmental Communication in Planning, Natural Resource Management and Sustainability Transformations. https://doi.org/10.1080/09640568.2023.2171278

Papers II and III are reproduced with the permission of the publishers.

The contribution of Gunnar Christoffer Söderlund Kanarp to the papers included in this thesis was as follows:

I. Description of contribution to Paper I. Christoffer and Steffen jointly developed the idea for the paper, with input from Annette. The collection and curation of data was a joint effort between Christoffer and Steffen. The theoretical and analytical framework was develop by Christoffer, with support from Steffen and Annette. The formal analysis was a joint effort between Christoffer and Steffen, with Christoffer as the lead. Christoffer drafted the paper, with input from Steffen and Annette. Steffen and Christoffer edited the paper, with support from Annette.

II. Description of contribution to Paper II. Christoffer is the sole author of this paper.

III. Description of contribution to Paper III. Christoffer and Lotten developed the idea for the paper jointly. The generation and curation of data was a joint effort, with Christoffer as lead. Christoffer developed the theoretical framework and analytical concepts used in the paper. The formal analysis was also a joint effort, with Christoffer as lead. Christoffer did the majority of writing and editing of the paper, with support from Lotten.

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Abbreviations

CAB	County Administrative Board
CFS	Critical Future Studies
COP	Conference of the Parties (to the UNFCCC)
AR4	IPCC's Fourth Assessment Report
AR5	IPCC's Fifth Assessment Report
AR6	IPCC's Sixth Assessment Report
FAR	IPCC's First Assessment Report
MASA	Making Sense of Adaptation (A Formas project)
NNfA	National Network for Adaptation
SAR	IPCC's Second Assessment Report
SEPA	Swedish Environmental Protection Agency
SMHI	Swedish Metrological and Hydrological Institute
SPT	Social Practice Theory
STS	Science and Technology Studies
TAR	IPCC's Third Assessment Report
UNEP	United Nations Environmental Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. Introduction

The climate is changing, and we need to adapt. This was acknowledged at the highest political level when the Paris Agreement was adopted, and adaptation for the first time was put on a par with mitigation within the UNFCCC legal regime (Horowitz, 2016). In other words, the signatories of the Paris Agreement, nation-states around the world, recognized that mitigation efforts have not been, and will not be, enough. Climate change is already affecting people and ecosystems around the globe (Birkmann *et al*., 2023), and continued dangerous changes are already locked-in, even if mitigation efforts were to drastically increase (Wang, Zhao & Wang, 2018). There is no shortage of reminders of the frightening world we are creating, and what we have in front of us, in both the short and long term. We face deadly heatwaves (Ward *et al.*, 2016; Ma & Yuan, 2023), extreme rainfall and devastating floods (Blöschl *et al.*, 2020; Martel *et al.*, 2021), more frequent forest fires and droughts (Pausas and Keeley, 2021; Senande-Rivera, Insua-Costa & Miguez-Macho, 2022), sea level rise (Tebaldi *et al.*, 2021; Calafat *et al.*, 2022), mass-migration (Kaczan & Orgill-Meyer, 2020; Xu *et al.*, 2020; Smirnov *et al.*, 2023) and increasing pressures on global food production (Gowdy, 2020; Molotoks, Smith and Dawson, 2021; Muluneh, 2021; Ortiz-Bobea *et al.*, 2021). All these changes compound and cascade to create an existential crisis for our complex, interconnected societies (AghaKouchak *et al.*, 2020; Gu *et al.*, 2022; Simpson *et al.*, 2023).

Yet, the Adaptation Gap Reports[1] of the United Nations Environment Programme (UNEP) have repeatedly described how the adaptation measures taken almost everywhere around the world are too limited to achieve the adaptation goal of the Paris Agreement, which is formulated as: "enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate response in the context of the temperature goal" (UN,

[1] Published by the United Nations Environment Programme annually and focused on global financing of adaptation, especially the nation-states' work with adaptation financing, planning and implementation.

2015, Article 7). From a technical perspective, this can be understood as an 'adaptation gap', i.e. "the difference between actually implemented adaptation and a societally set goal" (UNEP, 2014, p. xii). Essentially, this gap is the difference between what the nation-states have said that they are going to do (through the Paris Agreement and national policies) and what they are actually doing. What the Adaptation Gap Reports show is that too little is being done in terms of finance, sharing knowledge, adopting legal frameworks (especially with targets), implementing concrete measures (as opposed to only adopting policies), and working together globally. Additionally, there are increasing concerns of maladaptation or simply ineffectual adaptation measures in terms of reducing vulnerabilities (UNEP 2021; 2018; 2017; 2014; Berrang-Ford *et al*., 2021; Eriksen *et al*., 2021). Worse still, the latest UNEP Adaptation Gap Reports show that planning and implementation efforts are slowing down, and even regressing in terms of financing adaptation measures (UNEP, 2022; 2023).

How can this be? Why are we not treating climate change as a crisis? Why are so many actors with insight into the problem and the means to act, not doing more? These questions encompass the issues that drive my research interest. To the extent that these questions can be answered, they do not have one answer, but many. Nonetheless, in my thesis project I aspire to contribute to understanding these complex questions. I do this through a study of meaning-making processes shaping climate change adaptation governance, combining an overview of globally circulating and competing imaginaries with a layered case study of the national imaginaries and situated practices of adaptation governance in the Swedish public sector.

Research on climate change adaptation started as early as the late 1970s and has since grown steadily (Nalau & Verrall, 2021), picking up speed at the turn of the millennium (Bassett & Fogelman, 2013). It is now an established academic field with an astounding quantity of publications (Bauriedl & Müller-Mahn, 2018). So much so, that the field of adaptation research has grown and fragmented to the point of being almost impossible to keep track of (Nalau & Verrall, 2021; Sietsma *et al.*, 2021). Perhaps due to this fragmentation, the field of adaptation research has been criticized for lack of debate on theory and theorization (Nalau & Verrall, 2021; Nalau *et al.*, 2021; Kuhlicke *et al.*, 2023), especially in ways that can be translated to useful generalizations and or practical guidance beyond the specific case (Arteaga *et al.*, 2023). Given the urgency and magnitude of the problems associated with adapting to a changing climate, and the slow implementation of transformative measures, there are calls for a wider set of social theories to address and explain this inertia (Arteaga *et al*., 2023; Kuhlicke *et al*., 2023; Keskitalo & Preston 2019; Berrang-Ford *et al*., 2021). In this thesis, I

respond to these calls by approaching adaptation governance through a combination of Critical Future Studies and Social Practice Theory.

The adaptation research field has, since its inception, been divided into research on the Global South and Global North, with limited exchange and largely different focuses (Sietsma *et al.*, 2021). In the Global North, where this study is situated, there has been a focus on technical solutions and engineering, institutionalisation of adaptation (Nalau & Verrall, 2021), and barriers to adaptation (Moser & Ekstrom, 2010; Lee, Paavola & Dessai, 2022). As a result there has been a shortage of studies focused on practitioners, decision makers and civil servants, exploring the on-the-ground processes, planning and implementation efforts (Lesnikowski *et al.*, 2015; Tompkins *et al.*, 2018; Patterson, de Voogt & Sapiains, 2019; Berrang-Ford *et al.*, 2021; Sietsma *et al.*, 2021). However, there is now a growing body of literature in this area (c.f. Hausknost *et al.*, 2018; Carstens *et al.*, 2019; Wamsler *et al.*, 2020; Schrage, Haarstad & Hidle, 2023), to which this thesis contributes by providing insights through participant observations and interviews with civil servants working with adaptation at different levels in the Swedish public sector.

Adaptation is not just any governance problem. It is a thoroughly political predicament, predominately treated as a technical apolitical problem (Eriksen, Nightingale & Eakin 2015; Termeer, Dewulf & Breeman 2013). Adaptation is a political issue since it is always entangled with considerations of what to protect, whose interests are prioritised, and how to go about it. Adaptation governance is further complicated as adaptation to human-induced climate change is fundamentally intertwined with assumptions about the future (Bauriedl & Müller-Mahn, 2018; Wissman-Weber & Levy, 2018). We are not just adapting as climate change is happening, we are at least supposed to be taking actions that accommodate future developments of both society and climate change. This means that what scenarios are relied upon, what timeframes are adopted and what kind of society is considered a desirable one are of great importance for shaping what becomes the preferred adaptation strategies. It is in relation to these aspects of adaptation governance that I draw on Critical Future Studies (CFS). CFS holds that the future is plural and, by its very nature, political (Godhe & Goode, 2018). Central questions then become: Whose visions of the future dominate? What ideals, values and assumptions underpin these visions? Who would want to live in the envisioned future? Developing the concept 'Climate Adaptation Imaginaries', I critically explore the visions of desirable societies relating to climate change, assumptions and values underpinning these visions, and the associated adaptation strategies to realize the vision. Thus, the preferred adaptation strategies are inseparable from the visions and assumptions of the

future. Crucially, it follows that what becomes the preferred adaptation strategy does not only (or often not even primarily) respond to an anticipated climate risk; it is also shaped by political struggles as it aims to create (or maintain) a desired society.

To stave off potential confusion right away, I do not use Governance Theory in this thesis. Rather, I use 'governance' to describe the context and approach to making decisions and implementing adaptation efforts. That is to say, that 'adaptation' is in the literature predominantly construed as a problem that needs coordination and collaboration between different societal actors. Furthermore, it is an emic term to the extent that the civil servants I have worked with and followed, also describe their work much more in terms of governance, to support and collaborate with citizens, NGOs and the private sector — rather than to govern them.

The other theoretical framework I do use in this thesis is Social Practice Theory (SPT). In the context of adaptation governance, SPT implies that it is central to understand the situated practices where adaptation governance is actually performed, as the performances are largely guided through the routines, norms and embodied understandings reproduced in the practice.

As a type of cultural theory, SPT locates meaning-making in the social, and offers a way to move beyond the dualism of agency and structure by proposing 'practice' as an organising concept of social life (Reckwitz, 2002; Behagel, Arts & Turnhout, 2019). SPT suggests that structures are not external to any situation, but are constantly (re)produced and made relevant in practice for, and by, the performers of the practice. At the same time, actors are not free as (the theoretical abstraction) homo economicus, but bound (and enabled) by the practice they are currently performing. This means the practice in itself becomes the unit of analysis, instead of systems or individuals (Arts *et al*., 2014). A practice always has a purpose, it is meaningful in the most basic sense; it shapes bodily movements, ways of talking and even thinking (through its teleoaffective structure); it is often dependent on and 'carried' by artefacts; and a practice always incorporates (implicit) knowledge and practical understandings guiding actions toward the shared ends of the practice (Schatzki, 1996, 2002; Reckwitz, 2002; Bueger, 2014). Practices can be understood as the "nuanced performances of everyday life" through which consensus of what is normal in a given context is formed, negotiated and reproduced (Birtchnell, 2012, p. 497). In my study, the focus is on *the practices* civil servants reproduce in key sites where adaptation strategies and priorities are negotiated, rather than on the civil servants themselves. SPT thus poses questions such as: What are the meaning-making processes, assumptions, and routines in the practices of adaptation governance? In addition, and most importantly, what comes to

serve as relevant knowledge and the purpose of the practices? Alternatively, what is the problem formulation that the practices work with, and what then becomes the correct response?

Research taking a practice approach to studying and understanding societies and human actions has steadily increased in quantity since what sometimes has been referred to as "the practice turn" in the 1980s (Schatzki, Cetina & Savigny, 2001). The last decade has also seen practice theories increasingly employed for understanding sustainability issues, but predominantly focused on (private) consumption, energy use and domestic practices (Jalas *et al.*, 2017; Bäckman, 2024; Scheurenbrand *et al.*, 2024). Practice theories have provided an important contrasting perspective to the dominance of cognitive/behavioural approaches focused on the individual (Shove 2010; Nash *et al*., 2017). Less focus has been directed towards practices in the public sector, especially those concerned with adaptation and its governance (Shove, 2014; Kurz *et al.*, 2015; Schrage, 2023). I suggest that this is a missed opportunity, since SPT can bring new perspectives on how inertia is reproduced, rather than just treating it as an external obstacle to overcome. Particularly as one of SPT's strengths is its nuanced analysis of how stability is accomplished (Cook & Wagenaar, 2012), by showing how routines, assumptions and unreflective practical understandings often dominate what we do.

1.1 Aim and Objectives

In this thesis, I posit that adaptation to human-induced climate change is not an end in itself. It is better understood as a means to protect or create a desirable society, which underscores how adaptation is entangled with ideological and political processes. Due to the inherent uncertainty of anticipatory adaptation and the political nature of prioritizing what to protect, how, and when, the reasoning behind preferred adaptation strategies are always more complex than just responding to climatic changes and their immediate consequences. Understanding how and why adaptation is organized, prioritised and performed as it is in a given context thus requires a critical approach, eliciting the assumptions and values guiding the meaning-making processes shaping adaptation governance.

I explore these meaning-making processes from two different, but complementary, directions. Using 'Climate Adaptation Imaginaries' I capture the collectively held, but often competing, visions for society that are invoked to shape adaptation strategies in the present. I give particular focus to the assumptions that are made in order to render visions of the future, and the strategies used to realize them, plausible. Empirically, I explore these

imaginaries both on a global level and in a case study in the Swedish region of Norrbotten. Secondly, utilizing 'practice' as a unit of analysis, I focus on how civil servants in Sweden make sense of their role and agency in relation to adaptation governance, and what comes to serve as taken-for-granted knowledge and (implicit) purposes of the work they do. With this approach, my aim is to shed light on how we can understand the inertia in adapting to the unfolding climate crisis, and contribute with empirically grounded reflections on how transformative approaches to adaptation can be induced and supported.

The research involved in achieving these aims is guided by the following questions:

RQ1: How do globally circulating imaginaries with a bearing on climate change adaptation relate to and shape imaginaries in Sweden, and what underlying assumptions and values connect these visions?

RQ2: What characterizes current practices in key sites for negotiating adaptation in the Swedish public sector?

RQ3: How can transformative approaches to adaptation be understood through the integrated framework of imaginaries and practices, and how can transformative processes be promoted?

The groundwork for answering RQ1 is laid through the explorative mapping of globally circulating and influential imaginaries of adaptation presented in Paper I. I answer RQ1 primarily by connecting Paper II with Paper I; additionally, RQ1 facilitates the empirical connection between Paper I and Paper III. RQ2 corresponds to Paper III, but also draws on more extensive fieldwork presented here in the cover essay. Furthermore, RQ2 connects to Paper II, and the civil servants' reflections on their work. The last question builds upon, and synthesises, the insights from the three papers, in combination with the theoretical discussion developed in this cover essay. Table 1 provides an overview of the papers and their contribution to the RQs of the thesis.

1.2 Outline of the Thesis

Following the introduction above (Chapter 1), Chapter 2 describes the development of adaptation policy and research as an iterative process shaped by IPCC, the UNFCCC conferences and the international adaptation research community. This serves both to explain my own understanding of, and my approach to, adaptation through imaginaries and practices, as well as to situate my contributions to the literature. Chapter 3, through an extended case description, describes the development of policy and institutional organization concerning adaptation in Sweden.

Chapters 4 to 6 outline in more detail my theoretical frameworks, methodology, methods and material. Chapter 4 presents Critical Future Studies and Imaginaries, and how I use 'Climate Adaptation Imaginaries' to capture the collective meaning-making process, and especially how visions and assumptions about the future shape what is seen as relevant and necessary adaptation strategies. Chapter 5 focuses on Social Practice Theory, and how I use it to explore the situated meaning-making process and the doing of adaptation governance. Chapter 6 describes my methodology, research design, and the material I have generated, as well as how the data was analysed and my writing process.

Chapter 7 summaries in more detail the three papers that form the basis for this dissertation. Chapter 8 presents my discussion, drawing out insights and reflections from the combined work of the papers, and reflects on limitations and future research. Finally, Chapter 9 offers some concluding remarks.

Table 1: Overview of papers I–III

Paper	RQs in the paper	Analysed Material	Theoretical Framework	Main Findings	Contribution to the aims of the thesis
I: Contested Adaptation Futures	*What are the main climate adaptation imaginaries and related adaptation strategies articulated by various governance actors globally?* *What are the differing political beliefs and values underlying these adaptation imaginaries?* *What timeframes and required rates of change do these imaginaries assume, and how does their approach to the future influence present-day climate adaptation action?*	64 influential documents on climate change adaptation (32 academic and 32 'grey' texts).	Drawing on insights from critical governance studies and future studies, we combine imaginaries of adaptation with a focus on assumptions about temporalities and societies ability to predict and control the future.	Temporal reflections are largely missing in the literature, and the six competing imaginaries found. Holding change (in both society and climate) as inherently unpredictable is associated with moving away from incremental approaches to adaptation.	Mapping globally circulating imaginaries shaping adaptation governance, the (implicit) values and assumptions, and the actor groups promoting different imaginaries, i.e. a necessary part for responding to RQ1 of the thesis.
II: 'Your research won't help…'	*What are the competing visions for society in the Swedish Arctic, in the context of climate change?* *How do the different visions, through assumptions, ideals, and simplifications, shape adaptation strategies and priorities? Who benefits from the currently dominant Climate Adaptation Imaginary?*	Relevant policies and reports produced by public sector actors in Norrbotten. Interviews with civil servants, and participant observations.	(Regional) Climate Adaptation Imaginaries, with a focus on the strategies promoted.	Two imaginaries dominate adaptation priorities in the region; both are centred on economic growth and ignore transboundary risks. All visions challenging the hegemonic imaginaries acknowledge transboundary risks, but most are dystopic visions, unified by holding on to incremental adaptation.	Exploring regional imaginaries and their connections to the practices of civil servants. Connecting the findings in Paper II and Paper I allows for answering the first RQ of the thesis.

Paper	RQs in the paper	Analysed Material	Theoretical Framework	Main Findings	Contribution to the aims of the thesis
III: Adapting Climate Change	*How does the National Network for Adaptation, through its practice, make sense of adaptation and its role in the governance regime, and what distinguishable routines and assumptions reproduce this sense-making?* *How are questions and critique related to established ways of making sense of adaptation, coming from the members themselves, dealt with?*	Participant observations of meetings, workshops and seminars. Reports, agendas, minutes and emails from the network, and interviews with members of the network.	Social Practice Theory, with a focus on shared assumptions and (implicit) ends, and the members' ability to challenge taken-for-granted assumptions and 'doings' in their practice.	Incremental adaptation is seen as sufficient and more information a key to success – critical questions are closed down and pushed out into other arenas. Their interpretation of climate change developments and associated risks are adapted to fit their practice, rather than challenging the current practice. The same people describe what constitutes effective and necessary adaptation in very different terms in different settings, (i.e. when in different practices).	Characterizing current practices in a key site for negotiating adaptation in the Swedish public sector; corresponding to RQ2 of the thesis. Combining the findings in Paper III with Paper I allows for empirical reflections on connections between imaginaries and practices. Thus, the paper contributes to RQ1 and provides a partial answer to RQ3 of the thesis.

2. Adaptation Research and Policy Developments

This chapter has three purposes: 1) to describe the co-development of adaptation research and policy; 2) to identify relevant gaps in the literature, sketching an emerging research agenda; and 3) to position my thesis, and the contributions I aim to make. The chapter thus lays the foundation for my approach to studying adaptation governance, through imaginaries and practices, and the argument that to explain the inertia we must unpack the meaning-making processes and the actor constellations shaping adaptation priorities. Specifically, this chapter contributes indirectly to RQ1 on globally circulating imaginaries shaping adaptation governance, and also provides the groundwork for my conceptualisation of different adaptation strategies.

In the first section, I outline the development of the concept of 'adaptation' and its origins in social theory from the 19th century up to the creation of the IPCC. In the following five sections, I move on to describe how adaptation research has developed, in large part through an interplay between academia and especially the IPCC reports and UNFCCC conferences (or COP) and their outcomes. Throughout these sections I put particular focus on ideas and conceptualisations related to adaptation that are still of relevance today in research, policy development and governance. Additionally, I give extra attention to research developments in the Nordic context. There are two reasons for this: 1) research coming from the Nordic region has been influential on the global adaptation scene (especially in driving critical perspectives) (Sietsma *et al.*, 2021); and 2) this thesis is primarily focused on the governance of adaptation in Sweden. In the last section I summarize, outline a simple adaptation typology, and situate my thesis at the intersection between the calls for more empirically driven studies of the governance of adaptation and the increased interest in anticipation, visions and 'futures-for-the-present' in adaptation research.

2.1 A Brief History of 'Adaptation' in Social Theory

The genealogy of a concept matters, as it can reveal assumptions and associated ideas, or the 'baggage' a specific term carries (James & Steger, 2014). This is important because problems are not simply given but are dependent on the particular ways representations are made, which in turn has material effects (Bacchi, 2023). Following this logic, I shall now give a brief[2] description of how the concept 'adaptation' has developed through time to become central in contemporary politics and research.

The 'adaptation' concept has travelled from Evolutionary Biology (Simonet, 2010), and Darwin's famous work *On the Origin of Species* (Darwin, 2018 [1859]). From there it was picked up by Spencer and his infamous Social Darwinism (Spencer, 1864; Claeys, 2000; Offer, 2019). Spencer's work was discredited, even suppressed (McKinnon, 2010), but the idea of adaptation to the environment as a driving force of societal development was picked up by the early functionalists. In the functionalist definition, adaptation was understood as a slow-moving organic process shaped by a society's reciprocal relationship with its environment, and ultimately leading towards more complex and advanced societies. With the demise of functionalist theorizing this idea of adaptation, or adaptive capacity, as a driving force of societal development also disappeared. In part, this was due to the imperialist, elitist and racist baggage of the term (Haines, 1988; Delaney, 2003; Elwick, 2003; Schuurman, 2016), but there was also a critique based on lack of conceptual clarity and explanatory value, i.e. adaptation became more or less synonymous with development or progress (Giddens, 1984). In a way, 'adaptation' as a concept in social theory was buried and forgotten by the middle of the 20th century; with adaptation's return in relation to climate change, some of its previous connotations have also re-emerged. For example, the long-term perspective of adaptation, which can be used as an excuse for procrastination, can also more productively shift focus toward more long-term processes and goals (Jones, Ready & Pisor, 2021). Additionally, the idea of adaptation as a natural and organic process (or adaptation as autonomous/reactive) was revived in the early phases of adaptation research (and still holds some sway in certain political circles and policy approaches).

What has largely become the conventional understanding of (climate change) adaptation instead has its roots in the work of Gilbert F. White and the Natural Hazard School's concept of 'adjustment' to natural catastrophes or hazards (White, 1945; Burton, Kates & White, 1993). The framework essentially builds upon the simple premise that there are a range of alternative

[2] For a longer description, see Orlove (2009) and Simonet (2010).

responses (adjustments) to natural hazards that individuals and societies can choose between (Mitchell, 2008). These adjustments range from sharing the losses caused by a natural disaster, to countering negative effects through construction and engineering, changing activities at the location, or changing location if the activity is more important (Burton, Kates & White, 1993; Bassett & Fogelman, 2013). Adaptation is not a term used in this framework. On the contrary, 'adjustments' are seen as intentional, direct, concrete and often short-term responses; this contrasts with adaptation, which is here used to describe a long-term, organic process (similar to the functionalist notion) (Burton, Kates & White, 1993). The Natural Hazard School had its heyday in the 1960s and 1970s, but was increasingly criticized by political economists for having a technical, impact driven and as such politically insensitive analysis of what causes vulnerability to natural hazards in the first place (Remling, 2019). By the 1980s the idea of 'adjustment' was, like adaptation, jettisoned, along with other concepts based on vague ecological notions and 'rational' approaches to controlling nature (Bassett & Fogelman, 2013). This may then seem like a dead end. However, White's conception of 'adjustment' and the Natural Hazard School's approach in general had a huge influence on the early work of the IPCC — to the degree that what Burton *et al*. (1993) list as 'adjustment choices'[3] are copied and reformulated as '*adaptation strategies'* in IPCC's Second Assessment Report (SAR) (Watson *et al.*, 1996). In other words, 'adaptation' was dug up by the IPCC and reanimated through 'adjustment' to mean intentional, technical and short-term responses to external impacts.

In short, two different genealogies can be traced for how adaptation to climate change has developed[4]. A distinction can be drawn between adapting *with* the changing climate and nature, which can take the form of reactive approaches, but can also be the basis for transformative adaptation re-evaluating our relationship to nature. The other path of adaptation can be described as adapting *against* the changing climate and nature, i.e. 'Environment as Hazard', as it is based on a logic of separation, control and focused on keeping current societal functions and orders intact.

[3] As an interesting side-note, Burton et al. reflect in the second addition of their 'Environment as Hazard' on the possibility of 'adjusting' to 'Global Warming'. In a rather illuminating way they are themselves showing the limitations of the framework when faced with the climate crisis, as they note that the hazards posed by global warming require a complexity of adjustment that just is not plausible to achieve, and probably will not be cost effective (Burton, Kates and White, 1993, p. 259f). Given that this is still the fundamental understanding of, and approach to, adaptation it is not surprising progress is and has been slow, and often misdirected.

[4] Taylor (2023) proposes a similar distinction between *adapting at* climate, and a view were humans co-produce climate. The former is the dominant approach (adopted by IPCC) where climate is seen as external to humans, and construed as statistical averages, leading to technical responses. The alternative, according to Taylor, is to understand humans as emerged in and co-producing their local climate and associated vulnerabilities. The latter leads to a greater set of relevant responses, such as reshaping economic structures, reducing vulnerabilities.

2.2 The IPCC and Five Phases of Adaptation Research

With the realization of climate change as potential threat, and especially the creation of IPCC, 'adaptation' thus makes a comeback in research. It is with the advent of the IPCC that 'adaptation' moves from being just a concept in academic disciplines, to becoming a 'slippery object' that is also invoked as a normative policy goal, and later on additionally as governance/planning practice (Pelling, 2011; Sietsma *et al.*, 2021). Separating these different conceptions is a somewhat artificial task as they are intertwined and shape each other (Preston, Mustelin & Maloney, 2015; Noble, 2019). Not least since the communities representing the different conceptions are fluid and mix, in policy processes, conferences and for example in the work of creating IPCC's Assessment Reports (Remling, 2019). It is furthermore clear that the phases of adaptation research are largely tied up with the IPCC reports and the outcomes of the COP processes. Sketching the development of research and international policy is of relevance to understand how ideas connected to, and definitions of, adaptation still influence research, policy and practices today. It should be noted that the five phases identified could also be described as five streams within adaptation research, as the main ideas and focus in the early phases are still prevalent and influential today. In other words, the phases generally build upon each other and add diversity, rather than end the previous phase.

Box 1. IPCC

The Intergovernmental Panel on Climate Change (IPCC)

The IPCC was created in 1988 to provide regular and comprehensive assessments of the state of scientific knowledge of climate change, its impacts and future risks, as well as options for mitigation and adaptation. IPCC enlists hundreds of leading researchers for every report, but does not conduct its own research. IPCC states that the purpose of the assessments is to provide a scientific basis for policymakers on climate change (IPCC, n.d.). The reports should be policy-relevant but not policy-prescriptive. The Assessment Reports, the flagship outputs from IPCC, usually take around 7 years to compile and is an important arena for negotiating relevant knowledge on climate change. The full reports are rigorously peer-reviewed by researchers, while the summary for policy-makers, which usually gets most circulation, are additionally vetted by politically appointed representatives of all 195 member-countries to the IPCC.

IPCC and its reports are an incredible international collaboration where researchers from all of the world compile an astounding quantity of publications into state of the art reports. These serve as indispensable touchstone publications in academia and beyond (Nalau and Verrall, 2021). However, the IPCC has repeatedly been criticized for being conservative in their assessments, and privileging the Global North, men over women, and natural science over other epistemologies (Gustafsson and Berg, 2020; Nightingale *at el*, 2020; Merry and Mattingly, 2024). That the reports are conservative is perhaps not surprising, considering the sheer number of people involved, tasked with finding an acceptable representation of the state of our collective knowledge – that is not policy-prescriptive (i.e. political). This is even more of a problem with the summaries that are examined in a painstaking word-for-word process by political appointees. These summaries often have a weaker formulation than the full reports. On the other hand, the process of member countries approving the summaries makes them very hard to explicitly ignore.

2.2.1 Phase 1: The early days of adaptation research

In the First Assessment Report (FAR), published in (1990), 'adaptation' gets little attention, and is not defined and used in a consistent way. In the Second Assessment Report (SAR), released in 1995, adaptation features more but is still marginal (Beck, 2011). It is in SAR that adaptation strategies are defined, modelled on the Natural Hazard School's 'adjustment choices' (IPCC *et al.*, 1997, p. 848; Bassett and Fogelman, 2013). When the adaptation research as we conceive of it today began, as human response to anthropogenic climate change, is unclear. In two recent systemic reviews of the adaptation literature, one dates the first relevant paper to 1978 (Nalau & Verrall, 2021) and another to 1988 (Sietsma *et al.*, 2021). However, both reviews agree that the first phase of adaptation up until the turn of the millennium is characterized by limited output. This first phase has even been described as a period of 'adaptation taboo'[5] (Pielke *et al.*, 2007), as adaptation was seen as giving up on mitigation. The adaptation research that was done was mostly concerned with modelling potential impacts and technical responses to these. That is, there was a focus on incremental approaches to adaptation, aimed at protecting current systems. This is a recurring focus and I discuss it in more depth below. During this early phase there was also more interest in so-called 'autonomous' or reactive adaptation approaches drawing on the functionalist ideas. Since then, research on adaptation has to a large extent moved on from reactive adaptation as it is increasingly clear this will not be enough (Bauer, Feichtinger & Steurer, 2012). While reactive response will always be part of adaptation (Preston, Mustelin & Maloney, 2015), not least due to the inherent uncertainty in predicting the future, adaptation to the climate change we now face needs anticipatory responses because relying on only reactive responses risks incurring collapses (in everything from local societies to global trade structures). However, reactive approaches are still influential in policy and practice, as I show in Paper II.

2.2.2 Phase 2: IPCC's TAR and the failure of the Kyoto protocol

By the turn of the century, adaptation research got its revival and started to slowly pick up speed (Owen, 2020; Nalau & Verrall, 2021; Sietsma *et al.*, 2021). An important reason for this was that the Third Assessment Report (TAR) features adaptation much more than the previous IPCC reports, and thus the first steps in shaking off the adaptation taboo were taken. Two other

[5] As Piekle *et al*. (2007) vividly put it, lending a metaphor from Thomson & Rayner (1998): adaptation "was treated 'with the same distaste that the religious right reserves for sex education in schools. That is, both constitute ethical compromises that in any case will only encourage dangerous experimentation with the undesired behaviour"'. See also Olsson (2018).

important factors are connected to the COP conferences. The first is the failure of the Kyoto Protocol. The refusal by the United States of America to ratify the Protocol sparked fear that emissions would not be cut sufficiently to stave off dangerous climate change which increased interest in adaptation as an alternative response (Hovi, Sprinz & Bang, 2012; Rosen, 2015). Connected to this, one of the outcomes of the conference in Marrakesh (in 2001) was the establishment of funding for adaptation (specifically for the "Least Developed Countries") (Dzebo & Stripple, 2015).

During this period the IPCC's work on adaptation was still very much in terms of adjustment and technical, economical and 'rational' responses to impacts (Bassett & Fogelman, 2013). This engineering-inspired approach to adaptation dominated (and continues to dominate) the literature. But it is during this period, the second phase (roughly between 2000–2009), that the first indications of a fracturing and diversifying of the academic literature on adaptation can be discerned (Sietsma *et al.*, 2021). It has especially been noted that this second phase of adaptation research went from a sole focus on modelling impacts to highlighting the interplay between development and adaptation (Dzebo & Stripple, 2015). During the same period a burgeoning literature on the social aspects of adaptation, including the societal drivers of vulnerability, the importance of values and ethics in adaptation and limits to adaptation emerge (Adger 2003; Adger *et al*., 2009; 2003; Adger, Lorenzoni & O'Brien 2009; Fatma Denton 2002; Eriksen & O'Brien 2007; O'Brien *et al*., 2007). It can be noted that scholars affiliated with research institutes in the Nordic countries were important in bringing attention to vulnerability, values and, later on, transformation in adaptation research. This becomes more prominent in the next phase.

2.2.3 Phase 3: IPCC's AR4 and the failure of the Copenhagen COP

To some extent, the phases start to overlap as The Fourth Assessment Report (AR4) is published in 2007. In AR4, adaptation has again increased in prominence compared to the previous report, and the long standing critique of the adjustment approach, that it does not account for social, political, and economic drivers of vulnerability, is for the first time addressed at some length. However, IPCC's definition of adaptation has not at this point developed much compared to the Natural Hazard School's conception (Bassett and Fogelman, 2013), remaining as:

> Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. (IPCC, 2007, p. 869)

What instead stimulated an increase in adaptation research (and for the first time a wave of policies on adaptation) was that AR4 showed that climate change was already, unequivocally, under way and it was certain that more change was already locked into the climate system — making adaptation a necessity (Dzebo & Stripple, 2015). Together with the failure of the 2009 Copenhagen Climate Conference, also known as COP15 (Blaxekjær & Nielsen, 2015), this pushed adaptation research into a new phase of exponential output (Liverman & Billett, 2010; Preston *et al.*, 2015).

It was also about this time that the critique of the technical, incremental, adjustment approach really started to make an impact on the literature. One example is Pelling's (2011) influential book 'Adaptation to Climate Change — From Resilience to Transformation', in which three different approaches to adaptation are defined. Adaptation as resilience, or what is more commonly called incremental adaptation, is defined as only allowing change that can accommodate and protect existing institutions and practices, and thus not question implicit assumptions, power dynamics or asymmetries in society (Pelling, 2011). At the other end of the spectrum is transformation, or transformative adaptation (Few *et al.*, 2017). A transformational approach emphasizes the causes of vulnerability, and thus draws on the political economy critique of adjustment, and is much more open to (or actively argues for) deep and structural shifts of societal systems (such as political organization, economic structure, cultural belief systems and socio-ecological relationships). In other words, adaptation is here on the one hand seen as an opportunity to remake society into a more just, equitable and regenerative version (Gillard *et al.*, 2016). On the other hand, restructuring the economic, political and cultural systems that have perpetuated the climate crisis is seen as a necessity to be able to continuously adapt in the long-term perspective (Eriksen, Nightingale & Eakin 2015). Additionally, Pelling proposes 'transition'[6] as a middle way; this is an approach combining vulnerability and impact assessments, open to gradually changing parts of the system but generally focused on using the tools of the current system.

[6] The separation Pelling proposes between transition and transformation is not as established as the difference between incremental and transformational. 'Transition' and 'transformation' are sometimes used inter-changeably to refer to large-scale change in response to sustainability challenges. Generally, 'transition' is more connected to changes in 'sub-systems' and technological innovations (c.f. Multi-Level Perspective (Geels, 2010, 2019) and the Sustainability Transitions research (Markard, Raven & Truffer, 2012; Köhler *et al.*, 2019)). 'Transformation' is instead more often used in reference to changes in values, ethics, relations and shifts of entire societal systems. Capturing these differences in focus and connotations, Andy Stirling writes about 'controlling transitions' and 'caring transformations' in relation to sustainability (Stirling in Michelfelder & Doorn, 2021). Another important distinction follows from the etymology of the two concepts. Transition refers to 'going across', or the process of changing from one state into another. Transformation refers to a 'change in shape', and thus is more concerned with what is or should be changing. For longer elaborations on these concepts see: Hölscher, Wittmayer, and Loorbach (2018); Linnér & Wibeck (2019, 5–7). In this thesis I generally do not use the concept 'transition'; to the extent the concepts refer to different distinguishable aims, I am team 'transformation'.

These approaches do, however, draw on long-established theories of social and political change, and can be described as a conservative approach, a reformist approach, and an imaginative (or revolutionary) approach to societal change. Although the first papers taking a transformational approach to adaptation predates the third phase (see Paper I), papers taking more critical approaches are still marginal in the literature. For example, Bassett and Fogelman (2013) only label 17 out of 558 articles, in the four main adaptation journals[7] between 1996–2010, as promoting transformational approaches. Today, incremental vs. transformational is a well-established distinction in the adaptation literature (Few *et al*., 2017;Termeer, Dewulf & Biesbroek, 2017), even seeping into policy and political discourse (Linnér & Wibeck, 2019; Shi & Moser, 2021), and it is a distinction I use in all three papers.

As already mentioned, scholars based in the Nordic countries have been important in establishing the 'critical approach to climate change adaptation' (Klepp & Chavez-Rodriguez, 2018), illuminating the inherent political nature of adaptation and the need for analysing power dynamics, and arguing for emancipatory and transformational adaptation (Arora-Jonsson, 2011; Eriksen *et al*., 2011; Juhola *et al*., 2016; Keskitalo, Westerhoff & Juhola, 2012; Klein & Möhner 2011; O'Brien 2012). However, this literature has largely remained conceptual and acted as critique of mainstream approaches to adaptation research (Few *et al.*, 2017). A parallel development in the Nordic context during roughly the same period was a more empirically-oriented research. Particularly, there is extensive research on municipalities and local capacities, barriers to adaptation and institutional knowledge (Granberg & Elander, 2007; Storbjörk, 2007, 2010; Glaas *et al*., 2010; Storbjörk & Hedrén, 2011; Nilsson, Gerger Swartling & Eckerberg, 2012; Hjerpe, Storbjörk & Alberth, 2015). There is, however, limited discussion between these literatures; the former largely speaks to other adaptation scholars and an international audience, and the latter is more focused on implementation and speaks more to practitioners and regional actors[8].

2.2.4 Phase 4: The Paris Agreement and global governance of adaptation

Around 2015 a fourth phase began, with the Fifth Assessment Report (AR5) and the Paris Agreement. This fourth phase should be seen more as an add-on to the third phase rather than as the end of one phase and the beginning of

[7] Mitigation & Adaptation Strategies for Global Change, Climate & Development, Climatic Change, and Global Environmental Change.

[8] For some exceptions to this in a Nordic context see (Löf, 2014; Aall, Juhola & Hovelsrud, 2015; Andersson & Keskitalo, 2018) where a critical approach is combined with empirical work and/or regional focus.

the next (Dzebo & Stripple, 2015). Whereas engineering, technical and incremental responses continued to dominate, critical adaptation studies, focused on the politics of adaptation, vulnerability and transformational approaches are now very much established in the wider adaptation research. One indication of the ideas of transformation as necessary breaking into the mainstream was that AR5 engages with the concept of transformation, although to a limited extent (IPCC, 2014)[9].

By now, the research on adaptation has grown to such a size that it was already difficult to synthesize and keep track of developments in subfields (Berrang-Ford, Pearce & Ford, 2015). There were, however, some distinct developments in the research, not least driven by the policy developments after the relative success of the Paris Agreement. Specifically, as the Paris Agreement for the first time put adaptation as a policy goal on a par with mitigation, that had to be followed up on by the signatories (Berrang-Ford *et al.*, 2019); this meant a marked increase in national policy developments, and consequentially an increase in policy, implementation and governance studies (Sietsma *et al.*, 2021). These studies are, however, dominated by an institutional approach to governance and policy analysis (Nalau and Verrall, 2021), making some experts in the field claim that the increase in quantity has not necessarily been accompanied by an increase in quality (Sietsma *et al.*, 2021). This led to calls for governance studies closer to the ground, exploring the interpretative knowledge of decision makers and the situated practices of adaptation governance (Patterson, de Voogt & Sapiains, 2019).

Furthermore, in the fourth phase, there were the first indications of the emergence of a global governance regime on adaptation (Dzebo & Stripple, 2015; Hall & Persson, 2018; Persson, 2019; Dellmuth & Gustafsson, 2023), with non-state actors and 'softer' forms of governance becoming increasingly important in shaping adaptation strategies[10]. The UNEP's Adaptation Gap report series that started in 2014 is another sign of adaptation increasingly becoming a global concern, as these reports take stock of global developments on adaptation financing, planning and implementation. Related to the emergence of global governance, there has also an increasing recognition of transboundary and cascading risks that need to be addressed through adaptation (Atteridge & Remling 2018; Birkmann *et al*., 2021).

[9] It was, however, criticized for applying a narrow, technical and apolitical definition of 'transformation' (Pelling, O'Brien & Matyas, 2015), foreshadowing a development of 'transformation' going mainstream and potentially losing its critical edge.

[10] It can be noted that Jagers & Stripple (2003) pointed towards the insurance industry's increasing concern with adaptation as a sign of global governance of adaptation much earlier.

2.2.5 Phase 5: A world in turmoil and urgent calls for transformation

If the fourth phase, and the adoption of the Paris Agreement, seemed to mark a new era of action and cautious optimism, we quickly moved into a fifth phase that has politically been shaped by turmoil. Since 2016, the world has had a Trump-presidency in the US and a Bolsonaro-presidency in Brazil, which actively hampered climate efforts; and a pandemic, war in Ukraine and in Israel-Gaza — and many other disasters that have in different ways pushed the climate crisis and adaptation down the political agenda. The latest Adaptation Gap report shows financing for adaptation is slowing down, while the needs and costs are rising (especially in developing countries). Similarly, planning for (i.e. adopting policies, frameworks, and laws) and implementing adaptation is plateauing across the world (UNEP, 2023). This is despite the fact that the years 2014–2023 have been the 10 hottest years ever recorded, with 2023 shattering records (WMO, 2021, 2024). Another disturbing development is that calculations show that the world is warming faster than previously expected. When the Paris Agreement was adopted in December 2015, with its target to limit global warming to 1.5 degrees above pre-industrial levels, the world was projected to reach this threshold in 2045. The latest projections show we are likely to reach this level of average warming as soon as 2033 (*Copernicus*, no date), and as emissions are still increasing, it is likely to be even sooner than that (Ritchie & Roser, 2024)[11].

It is perhaps not surprising then that research on adaptation is not slowing down. On the contrary, the rate of publication and the total amount of research is now overwhelming and difficult to gain an overview of (Bauriedl & Müller-Mahn, 2018; Nalau & Verrall, 2021). Sietsma *et al*., (2021) refer to this as the 'Big Literature' problem as the amount of research is now making it difficult even for the IPCC to synthesize relevant knowledge[12]. Despite the now vast academic literature, and the growing number of policies on adaptation (Remling, 2019; UNEP, 2023), there is a persistent implementation gap (Berrang-Ford, Ford & Paterson, 2011; Chen *et al.*, 2016; Arteaga *et al.*, 2023). This gap has two aspects. Firstly, it reflects a failure to turn policy into meaningful action (Lesnikowski *et al.*, 2015; Berrang-Ford *et al.*, 2021), even in countries that have had policies on adaptation for a long time (Noble, 2019). Additionally, it is questionable whether the adaptation initiatives taken are actually reducing vulnerabilities (Berrang-Ford *et al*., 2021; Eriksen *et al*., 2021). The other aspect of this gap lies in the research. As described, research has largely focused on risk management, institutional studies, adaptation financing and technical

[11] For the implications and dangers related to a world 1.5 degrees warmer than pre-industrial levels, see IPCC's (2018) special report on the subject.

[12] No wonder a PhD student finds it a difficult task then…

responses to climate induced hazards (Bassett & Fogelman 2013; Keskitalo & Preston 2019; Nalau & Verrall 2021; Remling 2019). This is especially true in the Global North, where the literature has focused less on disasters and community led adaptation, and there are relatively few studies on what happens on the ground (Tompkins *et al.*, 2018). This has, in turn lead to two related calls in the literature on adaptation governance and implementation: for more empirical studies close to the practitioners, civil servants and other decision makers, and the actual practices of adaptation governance (Löf, 2013; Denton & Wilbanks, 2014; Patterson, de Voogt & Sapiains, 2019); and for the use (or development) of novel theories to explain the slow implementation (Keskitalo & Preston 2019; Köhler *et al*., 2019). This thesis contributes to both these calls.

An important development, relevant for situating this thesis, is that the calls for transformational approaches to adaptation have been pronounced, perhaps as a reaction to a world in turmoil (Nalau & Handmer, 2015; Fazey *et al.*, 2018; Nightingale *et al.*, 2020) (see also IPCC, 2022, Chapter 18). In academia, at least, it is increasingly recognized that adaptation cannot be geared towards protecting a system that not only perpetuates the drivers of climate change but also other injustices. This necessary development owes a lot to scholars revealing the connection between colonialism, capitalism and the marginalization of indigenous peoples' rights, knowledge and experiences (Cameron, 2012; Löf, 2013; Johnson, Parsons & Fisher, 2022; Sultana, 2022). In essence this means adaptation must be transformative, part of remoulding the 'shape' of society (Read 2021; Few *et al*., 2017; Linnér & Wibeck 2019). The IPCC too uses starker formulations, in this phase, even in the summaries for policy makers[13]:

> The cumulative scientific evidence is unequivocal: Climate change is a threat to human well-being and planetary health. Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all. (very high confidence) (IPCC, 2022b, p. 33)

In the full report, IPCC also moves from, in AR5, recognizing that transformational change in economic, political and social systems "may be needed", to in AR6 concluding that "transformative action" and "fundamental system transformations", including "changes to underlying

[13] Which are subject to scrutiny by delegates from all governments of the world, usually making them watered-down, as opposed to the full-reports that are peer-reviewed.

values, worldviews, ideologies, structures and power relationships" are *necessary* for "humanity and planetary health in the face of climate change *(high confidence)"* (IPCC, 2022a, p. 2668).

With this increase in interest, and move into the mainstream of politics and research, the concept 'transformation', which was already hard to pin down (Feola, 2015; Nalau & Handmer, 2015), is now acquiring its own 'slipperiness' as it becomes adopted by different interests (Feola, Koretskaya & Moore, 2021; Holmgren *et al.*, 2022). Already in 2016, Brand discussed how 'transformation' discourses were slipping into a strategic usage of the term, where a radical problem formulation was followed by an incremental approach to societal change (Brand, 2016) (for an example from my study, see section 6.2.1). This risks glossing over the inherent conflicts, vested interests and power dynamics that must be overcome to achieve a 'transformed' society (Brand, 2016; Blythe *et al.*, 2018; Rutting *et al.*, 2023). Similarly, Few *et al*. (2017) criticized scholars in the transformation camp for not providing strategies for achieving, or even moving towards, a transformed society. It is not so surprising then that a global stocktake of implemented adaptation efforts showed little evidence of transformational adaptation (Berrang-Ford *et al.*, 2021). This is partly due to the lack of a working consensus on what transformation means, which is as much of a problem in policy as it is in research (Lidskog & Sundqvist, 2022). However, another important aspect of the problem is identifying and assessing transformational change as it is occurring (Termeer & Dewulf 2019). Given that transformation is defined as shifts in economic, technical, political and cultural/value systems, even non-linear change is bound to be experienced at the time as relatively slow-moving. Take the introduction of the mobile phone for example: it has radically altered most practices in life, in almost all corners of the world, at astonishing speed seen through a historical perspective. Yet, during the years it went from being a luxury gadget to being an essential part of billions of peoples' lives, it was hard to see the transformation happening.

2.3 Sketching the Contours of an Adaptation Research Agenda

In this section, I summarize the developments of adaptation policy and research in order to show how I theorize adaptation in relation to broader political goals, and contribute to the identified gaps in the literature. Additionally, I describe the typology of adaptation I use to distinguish between different strategies in all three papers, but which is especially prominent in Paper II.

From the first phase, it is especially the distinction between reactive and proactive approaches to adaptation that I use. Relating the developments in the second phase to my own thinking and research on adaptation governance, it is the notion that adaptation is always intertwined with values and ethical implications that has been particularly important. As has already been established, adaptation to human induced climate change (at least in a governance setting) is anticipatory and intentional; this means it is fundamentally concerned with trade-offs concerning what, or whose interests, to protect, what or whose knowledge to rely on, and ultimately what kind of society we want to protect or create. This line of reasoning has been instrumental for the development of my version of 'Climate Adaptation Imaginaries' used in papers I and II.

As mentioned above, the distinction between incremental and transformative approaches to adaptation is utilized in all three papers. This means that the critique of how transformational change can be induced and assessed is relevant for my work. My way of dealing with this critique is, instead of searching for transformation taking place, to explore potential for transformation. This approach is supported by the fact that one of the few touchstones (if not to say consensuses) in the literature on transformation is that critical (self)reflection is a prerequisite for transformational change (Chao & Enari 2021; Few *et al*., 2017; Göpel, 2016; Grin, 2020; Löf, 2010; O'Brien, 2012; Pelling, O'Brien & Matyas, 2015; Preston *et al*., 2015; Wamsler *et al*., 2020). This is because transformative change means changing the systems we depend upon and take for granted in everyday life, which in turn means that we need to change fundamental assumptions and the very values that guide us as individuals, and as collectives up to the societal level. This demands critical (self)reflection upon the assumptions and values that are presently guiding us and our systems. This is the way I approach the potential for transformational adaptation in both papers II and III. It can also be noted here that there is an emerging literature related to this approach to understanding transformative changes; this literature is focused on small but radical steps rather than sweeping systemic changes (c.f. Termeer, Dewulf & Biesbroek 2017), an approach sometimes labelled transformative incrementalism (Buchan, Cloutier & Friedman, 2019; Buchan & Holland, 2021) or radical incrementalism[14] (Halpern & Mason, 2015; Garvey, 2024). These approaches focus more on experimentation, small-scale interventions (in the case of 'radical incrementalism' also cost-effectiveness and evaluation), but importantly with a recognition of the need

[14] Which means incremental here denotes the rate of change, or scale of intervention, rather than the aim (of protecting current system) as it is more commonly used.

to, and intent of, changing the system[15] (Swilling, Pieterse & Hajer, 2019). This conceptualization of change fits well with a practice approach to understanding society. However, the risk of incrementalism losing its radical intent, and instead reproducing the status quo, should not be underestimated. This is discussed to some extent in Paper III and I will have reason to return and elaborate on this in the Discussion (Chapter 8).

From the later phases and the emerging global governance regime there are two aspects in particular that feed into my research. First, the recognition of a global governance regime inspired Paper I, where we look at the values, assumptions and implicit visions in globally circulating and influential texts on adaptation. Secondly, the great importance of transboundary and cascading risks in an interconnected and globalized world, especially in a country like Sweden that is highly integrated into and dependent on global markets (Berninger *et al.*, 2022), is addressed particularly in Paper II.

In short, my thesis attempts to contribute both with empirical work close to the 'ground' through participant observation and interviews with civil servants working with adaptation, and by connecting the emerging global governance regime on adaption with the meaning-making process at national, regional and local levels.

2.3.1 Adaptation strategies — a simple typology

In my analysis of adaptation, I differentiate between reactive and proactive approaches to adaptation, as well as between incremental and transformational aims. I also distinguish between strategies that only acknowledge direct effects and strategies that also take transboundary and cascading effects into account (Table 2). The three components (approach, aim, focus, to the left in Table 2) have informed my analysis in all three papers. It is, however, only in Paper II that all three are explicitly used. In papers I and III, I explicitly distinguish between incremental vs. transformational aims, whereas approaches and focus of adaptation are touched upon. In Paper I and Paper II the use of the typology (Table 2) has helped me explore assumptions about degree of predictability of future developments.

[15] Systems can here be translated to the assumptions and values that underpin and guide practices and imaginaries, to put it into the terminology used in this thesis.

Table 2. A typology for adaptation strategies

Components of an adaptation strategy		
Approach	Reactive	Proactive
Aim	Incremental	Transformational
Focus	Directs effects	Transboundary and cascading effects

The first row concerns timing of a response. A reactive approach responds during or after an effect, while a proactive approach responds in anticipation of coming effects. The aim of an adaptation strategy refers to if the strategy upholds the current status quo, aiming to protect current societal structures (incremental strategy); or if the strategy aims to change current societal structures as part of responding to climate risk/impact (transformational strategy). Lastly, the focus captures the (potential) impact that a strategy is intended to respond to; direct effects here refer to shocks and stresses with direct effects in the context of the relevant adaptation governance actor. A strategy with a focus on transboundary and cascading effects would respond to risks or impacts that originate from other places, from a neighbouring country (like a forest fire) to other side of the globe (for example cascading impacts of crop failures (c.f. Hunt *et al.*, 2021).

It is theoretically possible to combine different types of approaches, aims and focus for adaptation strategies in different ways. A strategy with a reactive approach and a transformational aim focused on directs effects is perhaps unlikely; but an example could be severe drought in a region where fresh water is owned by market actors. In such a situation, a reactive approach can be to turn ownership of water into a commons. This reactive strategy can be aimed at changing economic and social structures (transformational), but is focused on direct effects. A proactive approach with an incremental aim, focused on transboundary risks is also possible. Using the same example, if the business owning the fresh water increased the price as a response (incremental), to anticipated (proactive) shortages globally (transboundary risk). For a more thorough description and reasoning behind how I developed this typology, see Paper II. Admittedly, there is nothing new here, as the terms used come from the academic literature. However, the reason for constructing my own simple typology, and the choice of terms, is that these have developed through my experiences doing fieldwork[16]. It should be noted that the typology (Table 2) presents idealized dichotomies. In reality the separation between reactive and proactive

16 There are other typologies (c.f. Biagini *et al*., 2014; Smit *et al*., 2000) that potentially could have been used with a different methodology and research design.

approaches, and incremental and transformational aims, and the separation of focus on direct and transboundary effects are often not as clear-cut. During my analysis, the typology has nevertheless been useful for distinguishing between different adaptation strategies, and to elicit the assumptions the strategies rely upon. It has thus helped me visualise the often-implicit visions of a desirable future that guides how adaptation is prioritized. By seeing adaptation as a strategy that contains more dimensions than managing climate risks I connect to the literature that argues for the need to re-politicize the future (Knappe *et al.*, 2019) and give more attention to power dynamics in achieving transformational change (Rutting *et al.*, 2023). In this way, I attempt to take seriously the critique of how the use of transformation as a term has tended to lead to utopian and vague expression easily captured to serve status quo (Brand, 2016; Few *et al.*, 2017; Bentz, O'Brien & Scoville-Simonds, 2022). I do this by connecting the values and visions with the promoted strategies, and the interests behind these (the imaginaries), and theorize how we can understand the dialectical relationship these hold to practices and the actual doing of adaptation (governance). This is developed in more detail in chapters 4, 5 and 8 (and in the papers, especially I and II).

3. The Swedish Public Sector and Adaptation: An extended case description

In the previous chapter, I described how adaptation, usually seen as a local affair, is very much shaped by developments on an international level (Nilsson, Gerger Swartling and Eckerberg, 2012; Nalau, 2021; Ghimire and Chhetri, 2022). There is, however, no doubt that the nation-states and their public sectors have central roles to play in leading and implementing adaptation measures (Eckersley, 2004; Köhler *et al.*, 2019). From law making, to long term planning capacities and providing the financial means, the state is crucial. Ultimately, it is the nation-states that are signatories to agreements such as the Paris Agreement. In other words, the system is organized with the state and its capabilities as central to dealing with the climate crisis and adaptation.

At this point, it is relevant to describe the policy and institutional development concerning adaptation in Sweden, and the sites and organizations in focus for my empirical work with this thesis. I move onto describing the larger research project 'Making Sense of Adaptation' (MASA) that this thesis is part of, as much of the reasoning in case selection, the focus on the public sector and the initial theoretical framings of studying adaptation governance is connected to how this project was conceived. This chapter provides a necessary background for understanding how the adaptation governance regime in Sweden relates to globally circulating imaginaries (RQ1) and for being able to characterize adaptation governance practices in key sites (RQ2).

3.1 Adaptation in Sweden: Development and responsibilities

In this sub-chapter, I will briefly sketch the development of adaptation as a policy issue in Sweden, and how responsibilities have been distributed and

evolved since the beginning of the 21st century. Here I primarily focus on when and how the different levels in the Swedish governance regime began to get involved in adaptation, and how the roles of different actors in the public sector have shifted and developed over the years.

3.1.1 Municipalities

Adaptation started to emerge as a policy and governing issue, mainly at the municipal level, in the years around 2005 (Granberg & Elander, 2007; Olsson, 2018). With adaptation primarily viewed as a local affair (Measham *et al.*, 2011), and considering the municipalities' 'planning monopoly' and high degree of autonomy in Sweden, it was considered natural to give the responsibility to the municipalities (Keskitalo, 2010). The expectation on municipalities to be the implementer of adaptation measures remains today, and is not only connected to the planning monopoly but also to the municipalities' responsibilities for storm water management, contingency planning etc. (Olsson, 2018; Rylenius & Hamza, 2024). An important tool is the 'comprehensive plan', in which the municipality presents its long-term planning and visions for the municipality. The comprehensive plan must cover the entire municipality's area and take a holistic perspective on the development of the municipality. However, the plan is not legally binding, but rather indicates intention and ambitions (Fredriksson, 2011). According to the Planning and Building Act, municipalities are explicitly obligated to assess climate risks and show how these are considered in their plans (*Plan- Och Bygglag* 2010:900), which makes this an important document for exploring assumptions about climate change and adaptation needs. Given the differences between municipalities, in terms of size, financial means and in-house expertise, the capacity and ambition to work with adaptation and long term planning varies widely between municipalities. An additionally problem, experienced by municipality civil servants is that the expectations do not match their capacity, and often not even what they are legally able to do. For a more thorough description of the role and expectations on the municipalities, see Olsson (2018).

3.1.2 County Administrative Boards

The County Administrative Boards (CABs) are the Swedish Government's representatives in the 21 regions. They are regional government authorities, and they were the first to get a government assignment to work with adaptation (together with a few national government authorities). This came in 2009, in the wake of the report by the Swedish Commission on Climate and Vulnerability (2007); since then, CABs have had the role of coordinating

adaptation in their region (Keskitalo, 2010). In practice, this has meant supporting municipalities, but also other actors in the region, with expertise, and creating forums for exchange and collaboration. Additionally, the CABs have worked as an intermediate actor between the local and the national level. From 2009 until 2019 the CABs' work with adaptation was supportive and focused on coordination, but with the Government's 'Climate Ordinance' on adaptation (Swedish Government, 2019) that came into force at the beginning of 2019, the CABs are now obliged to consider adaptation measures to ensure they can fulfil their responsibilities as a government authority[17]. The CABs also have a role in approving land-use plans made by the municipalities, based on their consideration of climate change effects (Rylenius and Hamza, 2024).

It is worth mentioning how the CABs' work with adaptation has been financed, and how this has shaped their work, not least since this aspect has come up many times in my fieldwork and has recently changed for the worse. From the beginning, the CABs have received funding for adaptation on a yearly basis, as opposed to this funding being part of the general budget. This has meant that even if there have been indications for continuation in advance, there has always been uncertainty about whether the assignment will continue to the next year, and particularly about how much funding there will be. Together with the fact that it is not possible to carry over funding from one budget year to another, this has meant that it has generally only been possible to organise projects with a duration of one year. In September 2023, the Government announced, with very little forewarning, that the funding for the CABs' work with adaptation would be drastically reduced, without any clear proposals for alternative funding or changes in responsibilities.

Since the CABs were given the role of coordinating adaptation in their respective regions, they have also met and coordinated between themselves in the 'County Administrative Boards' Network for coordinating adaptation' (the CABs-network). The network has long been a key actor in the Swedish adaptation governance regime, exchanging best practices between CABs, producing reports, and working to be a platform for voicing the needs of the regions and local levels in terms of adaptation.

3.1.3 National government authorities

If the CABs' work with adaptation started top-down, the national authorities started as a bottom-up initiative, so to speak. As early as 2005, a few

[17] How this should be interpreted for a government authority that is responsible for an area of the country and 15 different policy arenas is not entirely clear. The different CABs have interpreted this differently, with many initially understanding it as ensuring their facilities are adapted to project climate change risks.

government authorities, including the Swedish Environmental Protection Agency (SEPA) and the Swedish Meteorological and Hydrological Institute (SMHI), created an informal network for discussing and supporting each other in relation to adaptation, a topic that they increasingly regarded as important, but that they felt they had insufficient guidance and regulations about (Interview 1, Paper III). The main output from this early phase was the website, then called *klimatanpassningsportalen.se*, where ongoing projects were listed, and other relevant information about adaptation was gathered (Keskitalo, 2010).

With the 2009 'Climate Bill' (Government Offices of Sweden, 2009), which gave the CABs the coordinating roles in their regions, a number of sectoral and national authorities were also given responsibilities, notably the Swedish Environment Protection Agency (SEPA) and the National Board of Housing, Building and Planning (*Boverket*) (Keskitalo, 2010). In 2012, SMHI was assigned to host a national knowledge centre for adaptation, with the purpose of being a node for adaptation, developing and disseminating information to Swedish society. With this assignment the still rather informal network for adaptation coordination between the sectoral government authorities was moved from SEPA to SMHI, with SMHI starting to chair the network and host servers etc.

In 2016, the network was formalised into the National Network for Adaptation (NNfA) (in Swedish, *Myndighetsnätverket för klimat-anpassning*). This part of the network's development is also described in Paper III, so it will not be described it in detail again here. With the formalisation, the NNfA revised its aim to a comparatively more ambitious aim of supporting and developing capacities within the member authorities and in society in general, but importantly it also included an explicit goal of getting legislation on adaptation in place. This was achieved with the regulation on adaptation mentioned above, which came into force in 2019 (Swedish Government, 2019). This ordinance requires the named government authorities to set measurable goals for adaptation and develop action plans to achieve these goals. SMHI is responsible for gathering these plans, suggesting clarifications and reporting to the ministry (Swedish Government, 2019; Rylenius & Hamza, 2024). This new 'Climate Ordinance' also changed the nature of the NNfA from being a voluntary gathering for all authorities that were working or wanted to work with adaptation, to being a network for the authorities that had an obligation to work with adaptation. My detailed empirical examination and fieldwork with this network ended in the first half of 2020. I have, however, continued to follow the network through their outputs, email contact and occasional meetings at conferences.

3.2 Making Sense of Adaptation

This thesis is written as a part of the Formas[18]-financed project "Making Sense of Adaptation: The adaptation practice in a governance perspective" (MASA for short). MASA's aim has been to study how adaptation is enacted by government authorities and municipalities in Sweden, and why it is enacted as it is. We[19] were particularly interested in what the civil servants themselves perceived as difficult in their work, and where there were potential conflicts or tensions between different authorities; and how these tensions in their work and between different organisations were dealt with in the governance regime. This was done by approaching the work with adaptation as practices, zooming in on key sites to describe and explain the logics of the practices, and zooming out to see how the practices relate to, shape and compete with each other in the Swedish adaptation governance regime. To do this the initial focus for MASA was studying two 'structure making sites' on the national level (Bueger, 2014): the National Network for Adaptation (NNfA) and the County Administrative Boards' network for coordinating adaptation (the CABs-network). I have spent a lot of time on and with both networks, attending meetings, conducting interviews and presenting my work. As the work with the thesis developed, it became clear that, due to circumstances beyond my control, no paper explicitly utilizing the material generated on the CABs-network[20] would be included in the thesis. However, this material has been important for understanding the broader context, and informed my analysis in both Paper II and Paper III.

In the MASA project, the regional level has been represented by the counties of Norrbotten and Västra Götaland. The reasoning was to work with two very different counties, in terms of political context, geography and climate change vulnerabilities. Västra Götaland is situated on the Swedish west coast, with a large population, a lot of financial resources compared to other CABs, and many municipalities in its region. In my work within MASA, I have primarily focused on Norrbotten. This is the empirical context for Paper II. Norrbotten occupies the most northerly part of Sweden, large in terms of area but with a relatively small population and few municipalities. Climate change is already visibly changing both the landscapes and seasons in the region (Rosqvist, Inga & Eriksson, 2022), and thus has tangible consequences for, for example, industries (Klein *et al.*, 2022) and

[18] Formas is a Swedish government research council, funding research broadly for sustainable development.

[19] We refers to Lotten Westberg (project leader), Annette Löf, Steffen Böhm and myself.

[20] An article on this material is, however, in progress.

recreational activities (Beery, Olsson & Vitestam, 2021; Rice, Cohen & Scott, 2024). Additionally, Norrbotten is increasingly being viewed (in Norrbotten, the rest of Sweden and in the EU) as pivotal to the green transition, due to the natural resources found in the area (OECD, 2021; Larsson, 2022).

MASA also had an ambition of representing the local level, working with municipalities in the two counties selected. This has only partially been realized. Paper II draws on interviews with civil servants representing municipalities in Norrbotten. The initial idea was to do participant observations in one or two municipalities, but this had to be abandoned due to the COVID-pandemic.

4. Imaginaries:
Understanding the boundaries of adaptation governance and its purposes

Early on, at the very beginning of my PhD project, I had an interest in assumptions and visions of the future in relation to adaptation, especially since governance of adaptation is fundamentally intertwined with anticipation and planning for an uncertain future. Starting with Social Practice Theory as my theoretical perspective, I wanted to understand how civil servants made sense of their role in the governance of adaptation and what assumptions and views about the future they held. Moreover, I was interested in interactive approaches to discussing and co-creating new visions and pathways together with civil servants through workshops, with a particular focus on ethical considerations of the visions and (planned) actions[21]. I started with fieldwork and a 'practice' focus, as I considered this a necessary first step towards understanding the civil servants' embodied routines and assumptions, in order to organize constructive workshops. Then COVID-19 spread across the world, making in-person workshops impossible. My interest in visions of the future and the assumptions that are made with relevance to adaptation remained, but since it at the time was connected to interactive work with civil servants, it was rather unclear to me whether and how it could be incorporated in my thesis. It was not until the third year of my PhD, when I was introduced to the concept of 'imaginaries', that I found a way to connect my interest in the (implicit) values and assumptions that shape adaptation governance and practices with the data I had and could generate. My introduction to 'imaginaries' came through Levy & Spicer's (2013) article on 'Climate Imaginaries'. I then read about the concept again in Jasanoff and Kim's (2015) work on 'sociotechnical imaginaries', and then finally in Taylor's 'Social imaginaries' (2004). Later

[21] Writing this chapter I have learned that these early ambitions align well with what Vervoort and Gupta (2018) call action-oriented climate foresight, and with Hajer and Pelzer's (2018) 'Techniques of Futuring'.

still, I encountered Critical Future Studies. These related but different fields are what I have drawn on to form my own understanding of imaginaries and how they shape (and are shaped by) practices. Thus this part of my theoretical framework can be described as my own amalgamation of the intention and directional focus given by Critical Future Studies (CFS), and the various insights and usages of 'imaginaries' in the above mentioned literatures; this process of synthesis has led me to adopt and develop the concept of 'Climate Adaptation Imaginaries' that is central to both Paper I and Paper II.

There is an important point to make about the view of the future and ideas motivating an exploration of different visions here. While adaptation governance, and sustainability and climate politics more broadly, are intertwined with scenarios, planning and foresight (Rickards *et al.*, 2014; Nikoleris, 2018; Vervoort & Gupta, 2018) these approaches to the future are instrumental in that they try to work out the most likely future(s) and respond to anticipated developments (Inayatullah, 1990; Sardar, 2010). Consequentially, critical scrutiny — the kind that CFS argues for — of the assumptions, values and vested interests that shape the visions of the future have been lacking (Vervoort & Gupta 2018; Rutting *et al*., 2023; Andersson & Westholm, 2019). It is with this as a background that I have engaged with the concept 'imaginary' and developed my version of what I call 'Climate Adaptation Imaginaries', to explore and explain the meaning-making process and collectively held visions shaping the boundaries and purposes given to adaptation governance (RQ1 of the thesis).

4.1 Critical Future Studies and Adaptation Governance

Critical Future Studies (CFS) is a relatively new field of interdisciplinary studies interrogating imagined futures, the values and assumptions these futures rely on, and the effects they have on the present (Godhe & Goode, 2018)[22]. Futures Studies more generally are however much older; as a modern pre-dominantly Western field of research it dates back to at least the 1940s (Son, 2015; Andersson, 2018), and has gone through numerous reinventions and been '(re)discovered' and renamed numerous times (Sardar, 2010). Futures Studies broadly includes for example Sociology of Expectations, which was proposed by Brown & Michael (2003) as a new field of studies at the beginning of the millennium, interested in the situatedness and dynamics of expectations and specifically their role in innovation. In contrast to scenario-building research that looks *into* the

[22] However, this 'new' field, Critical Future Studies, shares obvious affinities with Inayatullah's (1990) critical-post-structural futures studies.

future, Sociology of Expectations was founded to study *how* representations of the future affect the present and how these representation change over time (Nikoleris, 2018). Additionally, there is a growing literature on anticipation and anticipatory systems elaborating the links between past, present and futures (Poli, 2010, 2014; Veenman, Kaufmann & Haarbosch, 2023). Consequentially, what is genuinely new in CFS is perhaps debatable, but as Godhe & Goode (2017) clarify, CFS is more a focus within Futures Studies, rather than something entirely new or even a break from the broader field. Specifically, CFS is concerned with questions such as: Who is allowed to speak with authority about the future? Whose assumptions and values are seen as legitimate? Who benefits from a particular vision, and who are silenced and or marginalised? Who would want to live in the imagined future? (Godhe & Goode, 2017, 2018). This means part of CFS's ambition is to deconstruct and expose biases, ideology and limitations (assumed or created) in influential visions of the future, but there is also an emancipatory and reconstructive ambition to the research agenda. There is a commitment to showing possibility and opening up *futures* in plural, envisioning counter-hegemonic futures and democratizing envisioning practices, i.e. creating space for marginalized (groups') visions of the future. CFS has engaged little with adaptation or governance issues generally, focusing more on visions related to technology, such as electric cars (Taffel, 2018) or AI (Goode, 2018), and visions in popular culture, especially in Sci-Fi and speculative fiction (Wälivaara, 2018; Raisborough & Watkins, 2021). Casting the metaphorical net to capture more than studies that label themselves as CFS, does however reveal a growing literature with similar focus and ambitions, which I engage with in section 4.3.

4.2 Imaginaries in Different Literatures

Imaginary, like 'practice', is a term that is used quite loosely in a lot of social science literature, but is also used quite specifically and defined in other literature. While definitions of an 'imaginary' will vary between different academic disciplines, some key ideas are shared in the theories using the concept. First of all, 'imaginaries' are connected to the capacity to imagine — whether it is to imagine another kind of society or imagine oneself as part of an (abstract) group such as Swedes. Secondly, an imaginary is by definition shared in a group — often on national level, but both smaller and larger groups of people can be relevant. Thirdly, even if the concept draws on the ideational it should not be understood as fictional. On the contrary, 'imaginaries' have very real, material consequences, such as shaping infrastructure (Mutter, 2020; Valentini, 2024), energy systems (Stoddard *et al.*, 2021) and, as I argue in this thesis, adaptation measures. In the following sections I describe 'Social Imaginaries' associated with Taylor, then Sociotechnical Imaginaries used in Science and Technology Studies (STS) and primarily associated with the work of Jasanoff, and finally Political/Economic Imaginaries connected to the Political Economy literature and notably Jessop — and how these literatures have informed my usage of the term. In the penultimate section, I describe how 'imaginaries' have been used in the climate governance literature, to finally define my own usage of the concept 'Climate Adaptation Imaginaries'.

4.2.1 'Social Imaginaries'

The concept of 'imaginaries' has a long and complicated history in social theory. Depending on the interpretation of the term, or what aspects are given focus, roots are traced to such different times and thinkers as Durkheim in the beginning of the 1900s (Saar, 2018), Lacan and Sartre mid-century (McNeil *et al.*, 2017), or Anderson and Castoriadis in the 1980s (Salazar, 2012; Mutter, 2020). For my thinking, and of relevance to this thesis, it is however suitable to start with Taylor and his work on 'Social imaginaries'. Taylor defines a social imaginary as:

> the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations. (Taylor, 2004, p. 23)

The key point, which largely is an extension of Anderson's (1983) work on 'imagined communities', is that a 'Social Imaginary' is necessary for a

society, as it is the implicit and common understanding which underlies and makes common practices possible (Gaonkar, 2002). The shared 'Social Imaginary' is what creates a "widely shared sense of legitimacy" for interactions and institutions (Taylor, 2002). The social prefix to imaginaries thus stresses how imaginaries function as metaphorical rubber bands reproducing social cohesion. There is no specific engagement with visions of the future here. Additionally, Taylor's concept of an imaginary is too broad, and not intended, to work analytically — it is a heuristic to explain how society is made possible through shared expectations and beliefs[23]. However, Taylor's work has influenced the conceptions of imaginaries in both STS and the Political Economy literature, which in turn has shaped my understanding and usage of the term. Of more direct importance for this thesis, Taylor's conception of imaginaries is related to 'practice' understood in a similar way as I use it in this thesis.

4.2.2 STS and sociotechnical imaginaries

In contemporary social theory, 'imaginaries' is probably mostly associated with STS and especially Jasanoff and Kim's work on sociotechnical imaginaries.

Here, sociotechnical imaginaries are defined as:

> collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology. (Jasanoff 2015a, 4)

This definition draws upon Taylor's work and the shared imagination, and its relation to meaning-making and social order. For my purposes, it is especially the explicit focus on "performed visions of desirable futures" that is of importance. First of all, this definition of imaginaries connects to the political performativity of visions of the future (Eriksson, Fischer & Ulfbecker, 2020) and how 'futures-for-the-present' are employed to shape contemporary politics (Beckert, 2013; Knappe *et al.*, 2019). It is in this way (sociotechnical) imaginaries can be said to operationalize the idiom of co-production, as "the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it" (Jasanoff, 2004, p. 2). Secondly, the 'sociotechnical imaginaries'

[23] For a recent exposé into the labyrinth of social imaginaries, understood as foundational for society, rather than competing political projects, see Adams (2023).

literature has foregrounded the materiality of imaginaries. That is, imaginaries are embedded in, and shaped by, material conditions, from existing infrastructure and technologies (Jasanoff, 2015b) to the bodies imagining (Dawney, 2011). At the same time, imaginaries also contribute to shaping these material conditions (Mutter, 2020). An important implication is that the future may be open — as is a central tenant in all Futures Studies — but it is conditioned on a material reality (Adam & Groves, 2007).

4.2.3 'Imaginaries' in political economy

'Imaginaries' have also been picked up and used in the political economy literature and critical organization studies. This literature builds on the work of Taylor and his 'social imaginaries', specifically how imaginaries function as a conduit between the individual and a larger 'imagined community'. For example, in Jessop's vocabulary an imaginary denotes a kind of shared, usually unarticulated, mental map, with assumptions and simplifications, necessary to process and make sense of a "supercomplex reality" (Jessop, 2010). As a side-note, relevant in relation to the next chapter on practices, Jessop's view is that even though the mental maps are shared, they are ultimately held by the individual. This is not necessarily incompatible with a practice approach, though it makes more sense from a practice perspective to say that a specific mental map, or imaginary, is activated in a specific practice. I return to elaborate on this in section 5.5.

When an imaginary becomes widely shared and materially embedded they shape the interpretations and actions of individuals. However, going beyond the Social Imaginary literature this approach to imaginaries casts imaginaries as hegemonic projects (Jessop, 2012), which means there is a greater focus on competing imaginaries. This brings imaginaries into a kind of Gramscian framework, where imaginaries are understood to be in a dialectical relationship with economic and political structures. This highlights three important and interrelated things. 1) An imaginary implies a particular organization of society, in terms of economic activity and political priorities, including what cultural and environmental values are promoted. 2) Related to this, imaginaries structure how people think society *ought* to be organized. 3) An imaginary by definition contains strategies for its realization (Fairclough, 2013; Levidow & Papaioannou, 2013; Levy & Spicer, 2013). Additionally, seeing imaginaries as hegemonic projects means that which imaginaries are promoted, retained and discursively reinforced by different actor groups, and ultimately become materially embedded and institutionalized, depends upon power dynamics and interest constellations in society (Belfrage & Hauf, 2017). It follows that this approach to imaginaries directs focus towards power dynamics and what kind of

governance actor groups are championing specific imaginaries (Jessop, 2010; Salazar, 2012). Traditionally, the governance actor groups in focus for these power dynamics shaping governance boundaries, processes and outcomes have been described in a 'governance triangle' (Böhm & Pascucci, 2020; Abbott & Snidal, 2021), comprised of market, state and civil society actors. I argue, together with my co-authors of Paper I and others (c.f. Brodén Gyberg & Lövbrand 2022; Preston *et al*., 2015; Longhurst & Chilvers, 2019), that academia should be added as a governance actor here. The argument for adding academia arises especially from the dynamics between academia and the other governance actor groups, in shaping adaptation policy and research, as outlined in Chapter 2 (and Paper I). Additionally, there are increasingly expectations on academia to provide policy relevant research and applicable solutions, not least in relation to sustainability issues (Andersson & Westholm, 2019; Lidskog *et al.*, 2020). In this way, the Political Economy approach to 'imaginaries' shares affinities with Critical Future Studies. However, while the Political Economy approach to imaginaries implies that an imaginary contains a vision of an ideal society in contrast to the present (c.f. Chiapello & Fairclough 2002), active engagement with the political performativity of visions of the future is limited.

To sum up, drawing on the different strands presented, I understand imaginaries to be collectively held and competing visions of desirable (future) societies, that are materially embedded and politically performative, containing strategies to realize (or maintain) their vison. This definition retains the core aspects described in section 4.2, and draws on the sociotechnical literature specifically for the focus on desirable visions of futures, but combines this with the Political Economy understanding of imaginaries as hegemonic projects with strategies for their realization.

4.3 Imaginaries in Climate Governance Literature

As described in Chapter 2, critical adaptation research has for a long time argued that, and shown how, adaptation is political – depending on values of what ought to be protected and ideals of how society should be organized. There is also a growing literature in the broader sustainability science focusing on temporalities and the political functions of visions of the future (Rickards *et al.*, 2014; Bornemann & Strassheim, 2019; Groves, 2019; Knappe *et al.*, 2019; Behagel & Mert, 2021; Nalau & Cobb, 2022; Remling, 2023; Bremer *et al.*, 2024; Cretney, White & Hanna, 2024) — sometimes with explicit use of the concept 'imaginary' (Symons, 2014; Hajer & Pelzer, 2018; Adloff & Neckel, 2019; Chao & Enari, 2021). Furthermore, there are connections and overlaps to interactive and critical governance studies

interested in the 'values, norms and principles' (Kooiman & Jentoft, 2009), 'the governing images' (Jentoft, 2023) and the meta-governance shaping both the governance system and what are seen as desirable outcomes (Löf *et al.*, 2022). Where the concept of imaginaries primarily differ, in my usage of the term, from interactive and critical governance studies is in its explicit interest in visions of futures, or 'futures-for-the-present', which is of central importance in the governance of adaptation, as adaptation is inherently intertwined with assumptions of the future (Bauriedl & Müller-Mahn, 2018; Vervoort & Gupta, 2018).

There has so far been limited, but a growing, engagement with the concept of imaginaries, in studies of adaptation governance. An early article by Levy and Spicer (2013) on 'climate imaginaries', describes 'climate imaginaries' as shared socio-semiotic systems that shape specific understandings of the climate, containing an idealized vision of a future society, that link actors and provide a sense of coherence, which in turn makes certain responses to the climate crisis seem necessary (and others impossible). Drawing on Jessop's Gramscian framework for imaginaries, they argue that success of an imaginary is not only dependent on the attractiveness of its vision for society, but crucially depends on its ability to materialize into policies, economic forms and practices. That is, an imaginary contains both a vision and strategies for the vision's realization, and the success of an imaginary thus entails struggles to assemble coalitions of different actor groups able to garner sufficient political power to shape responses on, for example, climate adaptation (Levy & Spicer, 2013). Levy and Spicer's article is mostly theoretical and conceptual, proposing four idealised climate imaginaries shaping responses to the climate crisis, focused on mitigation; but it has been an important and early influence on my thinking related to imaginaries, primarily in providing a conceptual framework to connect the often-implicit visions of a desirable future society to the proposed responses to the climate crisis.

In recent years, there has also been increasing interest in explicitly connecting adaptation with the concept of imaginaries (cf. Ghimire and Chhetri 2023; Thompson & Ban 2022; Waters and Barnett 2018). One such example is the special issue in the journal *Buildings and Cities*, published early in 2024: 'Urban adaptation: disrupting imaginaries and practices'. This is devoted to identifying and unpacking assumptions in current imaginaries shaping adaptation, but with a focus on cities and suburban areas[24] (Broto, Olazabal & Ziervogel, 2024). Another example is Paprocki's work (2018; 2020), which shares a Gramscian view of imaginaries with my own approach. Paprocki provocatively calls (urban) climate imaginaries "the

[24] It can also be noted that 'Practice' is here used in a generic way and not as an analytical framework.

climate change of your desires", arguing that climate change is constructed as a problem with responses that privileges certain lifestyles and ways of organizing society over others (in their case urban over rural) (Paprocki, 2020). Similarly, Haverkamp understands an adaptation imaginary to be an onto-epistemic and politically situated vision of how best to adapt to impacts of climate change (Haverkamp, 2021). Through a case study in Peru, Haverkamp shows that what becomes 'the best strategy' is not necessarily connected to the local context (and its knowledges, preferences and practices) but shaped by global discourses and capitalist market logics (See also Olazabal *et al*., 2024 for a similar argument). Another example is Riesto *et al*.'s (2022) article employing climate imaginaries to explore how different ways of imagining, narrating and depicting climate change lead to different adaptation responses. Focusing more on the narratives and the way imaginaries are visualized, Riesto *et al*. (2022) make an important contribution, highlighting the affective component of imaginaries (see also Remling (2023)). That is, imaginaries do not only depend on, or connect to, our discursive consciousness or rational thinking, but also evoke emotional responses that are important for understanding the effects and success of different imaginaries. In a similar vein it has been argued that 'monsters', or a unifying fear, can serve as a main driver, or a vision to avoid, in certain imaginaries (Giuliani, 2020; Dennis, 2015).

4.3.1 Climate Adaptation Imaginaries

Drawing on the work using imaginaries — and especially building upon the work using 'climate imaginaries', I define a 'Climate Adaptation Imaginary' as *a collectively held vision of a desirable future that is materially embedded and politically performative, that relates to climate change, and contains adaptation strategies for its realization.*

This definition, in privileging desirable futures, has obvious similarities to Jasanoff and Kim's definition, but I draw more on the political economy imaginaries in my formulation of strategies. Crucially, even if it is implicit in this definition, I see imaginaries as hegemonic projects containing a vision of a 'future-for-the-present'. In relation to climate change and adaptation governance, an imaginary's 'future-for-the-present' must then relate to climate change in its vision, and relate to adaptation as strategies for the vision's realization, in order for it to be considered a 'Climate Adaptation Imaginary'. I mean this in a broad sense: for example, a 'Climate Adaptation Imaginary' could hold that *proactive* adaptation efforts are *not* needed. Indeed, this is what I find as one of the competing imaginaries in Paper II, where a number of municipalities in Norrbotten acknowledge climate change in 'comprehensive plans' and in the interviews, but engage in minimal

proactive work. This is based on the argument that climate changes that require proactive responses are far into the future, and for the impacts expected now, reactive responses are sufficient as a strategy to realize the vision. As this example shows, my usage of (Climate Adaptation) Imaginaries is more similar to contemporary usages (especially in STS) of more specialized and/or regional imaginaries (c.f. Mutter & Rohracher 2022; Roux-Rosier, Azambuja & Islam, 2018; Hagbert, Wangel & Broms, 2020; Ghimire & Chhetri, 2023), than to Taylor's usages of an imaginary as foundational for an entire society.

Building upon Paprocki's work, I understand adaptation efforts and priorities as strategies, responding to problem formulations intended to realize the ideal society envisioned by an imaginary. It is here that I insert the adaptation typology, described in section 2.3.1, in order to differentiate and describe different adaptation strategies and the assumptions and ideals they assume. Thus, the concept of 'Climate Adaptation Imaginaries' as I use it helps to highlight how adaptation is always intertwined with ends more complex than just responding to (perceived) climate risks. As Haverkamp argues, and as we do in Paper I, these ends or competing visions of desirable future societies are circulating globally. Crucial questions then are whose ideal society is envisioned, what assumptions are made, what values are guiding the vision, and what actor groups are marshalled to promote the imaginary?

Studies using imaginaries generally aim to explain how the visions and ideals of an imaginary become embedded into cultures, institutions, and materialities, and the processes of how the merely imagined becomes converted into "the solidity of identities and durability of routines and things" (Jasanoff, 2015b, p. 323). However, this is usually done through a duality between the collectively held imaginaries (operating at a societal level) and the individual, i.e. identities, assumptions and routines become individual phenomena (Jessop, 2010; Salazar, 2012; Waters and Barnett, 2018). By drawing on practice theory, I try to nuance this picture by positioning routines, identities and ideals as situated, embodied understandings which are ultimately shaped on the supra-individual level in a given practice. In the next chapter, I elaborate on practice theory and how I theorize the connection between imaginaries and practices.

5. Practices:
Understanding the situated purposes and performances of adaptation governance

As I argue in the previous chapter, Climate Adaptation Imaginaries compete to shape the governance regimes, and the ideals and ends on a collective level. How imaginaries are connected to human behaviour is less developed in this literature (Beck *et al.*, 2021). In order to explain action and inaction within the governance regimes I turn to practice theory.

In this chapter, I start with giving a general overview of practice theories, as it is not a unified theory, but rather a theoretical and methodological approach (Nicolini, 2017a). I then move onto the particular ideas and concepts I have used in this thesis. I primarily use the framework proposed by Arts, Behagel and Turnhout (Arts *et al.*, 2014; Behagel, Arts & Turnhout, 2019), as I draw on the concepts in this framework for analysing the performances and purpose of practices (in Paper III). This is central to answering RQ2 of the thesis and provides the theoretical framework for discussing meaning-making process within the adaptation governance regimes. In the last two sections, I elaborate on concepts originating from Schatzki's Social Practice Theory (SPT) that I developed in order to integrate a practice approach with the study of imaginaries. These sections facilitate the theoretical part of answering RQ3, on the integration of the framework in order to discuss the possibility of inducing and supporting transformative adaptation strategies. Throughout the chapter, I exemplify, drawing on data generated through this project, and touch upon broader methodological implications.

5.1 Practice Theory, a 'Sign-Post' with Unifying Themes

Practice theory is regularly described as a family of theories or a theoretical sign-post (Reckwitz, 2002; Adler & Pouliot, 2011; Janssens & Steyaert,

2019; Genner, 2020) and not a systematized vocabulary or a new Theory with capital T. This likely stems from the fact that what is assembled under the label of contemporary 'practice theories' actually draw on a number of schools of thought that can be traced back to different thinkers, in different times and cultural contexts. Some examples of proposed origins are: Marx and the concept of 'praxis' used to overcome the dualist opposition between materialism and idealism (Nicolini, 2012); Peirce and Dewey and the pragmatist focus on habits and the interactions between the body and the environment (Miettinen, Paavola & Pohjola, 2012); Vygotsky, and what developed into cultural-historical activity theory (Engeström, 2001); Wittgenstein, and the idea that language (and action) is given meaning by its context (Schatzki, 1996); and even Aristoteles and the idea of 'phronesis' if one wants to claim a lineage to ancient Greece[25] (Flyvbjerg, 2011). Despite the heterogeneity of practice theories, there are a number of core ideas that legitimize the description of a 'family' or a general practice approach (Nicolini, 2012; Arts *et al.*, 2014).

The first and central principle is that 'Practice' is the central unit of analysis; to the extent that individual agency and structures are invoked it is always in relation to, and as a product of, the practice in focus (Arts *et al.*, 2014). This allows for a dynamic and dialectical conceptualization of agency and structure, and similarly allows for moving beyond traditional dichotomies of actor/system, acting/knowing, social/material and body/mind (Wenger, 1998; Nicolini, 2012). The second central idea is that practices are inherently normative; they have a purpose and guide the sense-making processes of their performers. As such, practices direct actions and facilitate its performers' reasoning for how to act, and, for some theorists, even how to feel (Schatzki, 2002), for the performers of a practice. This logic, or the teleoaffective structure, is by definition known or internalized by competent performers of the practice, but is not necessarily the same as what is explicitly announced as the purpose (Bourdieu, 1990; Schatzki, 1996). Connected to this idea of practices as normative, guiding actions, is the concept of practical understandings (or know-how); knowing what to do in a given situation is the mark of being a member or initiated performer of the given practice (Adler & Pouliot, 2011; Cook & Wagenaar, 2012). Additionally, a practice is always situated both historically and materially. That is to say, a 'practice' has by definition been performed over time, which stabilizes it and creates norms, routines and expectations in relation to its performers. To say that a practice is materially situated simply means 1) that

[25] Weber, Nietzsche, Heidegger, Sartre, Bakhtin, Foucault and Taylor are also candidates for contributing and/or inspiring distinct approaches to practice (Reckwitz 2002; Miettinen, Samra-Fredericks & Yanow 2009; Holland & Lave 2019; Engeström & Middleton 1998; Nicolini 2012).

to perform any practice is always (partly) a bodily endeavour, and 2) that it is always shaped by, and most often, intertwined with the usages of and interaction with objects. This further means that practices are generally seen as stable (Arts *et al.*, 2014). They are largely performed based on embodied, unreflective, practical understandings, reproducing routines (Westberg & Waldenström, 2017) and are crucial in maintaining a sense of ontological security (Giddens, 1990; Banham, 2020). Practices are nonetheless open-ended in at least three ways. Firstly, in the sense that stability of a practice is an outcome of a contingent historical process that could have been different (Behagel, Arts & Turnhout, 2019). Secondly, practices are fuzzy in their boundaries (both for researchers and performers), which means that practices overlap, intertwine and change each other (Schatzki, 2002; Bueger, 2014). Lastly, practices are open in the sense that a plurality of actions are at any time acceptable to perform in order to fulfil the purpose of the practice, which opens up for creativity in the individuals' performances (Nicolini, 2012).

Stemming from these shared principles there are three core ideas in particular that have shaped my approach, and which will be the focus of the following sections. 1) *People do what makes sense to them in a given situation, but meaning and purpose are situated at the supra-individual level.* This is captured in the concepts 'logic of practice' or alternatively 'teleoaffective structure'. 2) *What people do is largely based on unreflective practical understandings, and not consciously reflected or deliberated on.* This is a necessary bridge between the purpose of a practice, captured in the 'teleoaffective structure', and agency and what it means to be a competent performer of a practice. I elaborate on this in section 5.3. 3) *Action and interaction are always situated materially — artefacts*[26] *and environment do not simply enable action but actively shapes practices.* In Paper III, in which 'practice' is explicitly used, materiality remains in the background. Because the participant observations became more limited than planned, due to the COVID-19 pandemic, materiality has not had the prominent place in my analysis I initially intended. However, I see materiality as important, not least for social theory to make tangible contributions in a time shaped by the climate crisis (Malm, 2020). Additionally, the relational approach to materiality is a natural link between practices and imaginaries in the way I use the concepts in this thesis, but this remains largely unexplored empirically by me. Taking these three principles together means that a practice approach requires a methodology geared towards observing the situated and embodied performances of practices, and where a primary

[26] It can be noted that 'artefact' is used in an unorthodox way, as artefact here does not have to be human-made (as it is usually defined), but simply any object that has meaning in the performance of the practice. In that sense, the meaning projected to an object turns it into an artefact (even if this is a stretch of the term).

question is: ‘what could the purpose or the assumptions of the practice be for the performers to act in the way that they do?’

Additionally, a conceptual distinction between practice-as-performance and practice-as-entity is fundamental in all theorizing where practice is the central unit of analysis (Schatzki, 1996; Higginson *et al.*, 2015; Bäckman, 2023). Practice-as-performance is the situated doings and sayings, the actual practice as it plays out in and affects the material world. The practice-as-entity is abstract, decontextualized, description of a practice, invoked to explain or talk about a practice. Practice-as-entity is relevant in the context of research, as the description of a practice always refers to the practice-as-entity. The concept is also relevant beyond research; quite simply, practice-as-entity can also be understood as the ideal version of a practice, or the memory (mental and bodily) of a practice and the activities it organizes. I argue that separating the performance, and the ideas of a practice, through these concepts, is a necessary step to theorize the connection between structures in society and the performances of practices. I will return to this discussion at the end of this chapter, where I explore the relation between practices and imaginaries.

5.2 Teleoaffective Structures: Guiding human actions

Central to understanding human action and inaction from a practice perspective in a specific context, for example in adaptation governance, is to understand the situated assumptions, values and ends that are jointly (re)produced in interaction. This is captured in the concepts ‘logic of practice’ or ‘teleoaffective structure’ of a practice.

The concept ‘logic of practice’ derives from Bourdieu’s (1990) work, and captures the purpose and normativity of a practice. ‘Logic of practice’ should not be understood as formal principles and deduction, rather it is better described as guiding what makes sense for an actor to do in a given situation. That is, the practice, through its logic, generates and activates certain “practical knowledge, local understandings, routine behaviour and collective sense-making” (Arts *et al.*, 2014, p. 6). For the actor, or performer of a practice, the logic of the practice organizes “thoughts, perceptions and actions” (Bourdieu, 1990, p. 86); it guides toward a shared end or goal, but it is not deterministic or equivalent to a masterplan (Arts *et al.*, 2014).

Another concept that does much the same in terms of explaining human action and giving analytical focus is Schatzki’s concept of ‘teleoaffective structure’. The reason for explaining both here is that ’logic of practice’ was used in Paper III, but I have since moved to use ’teleoaffective structure’ and ’teleoaffective regime’, as I argue that these are more easily employed for

theorizing connections between practices and imaginaries. For Schatzki, the teleoaffective structure is the core of a practice, as it is a property of the practice, not of the actors (Schatzki 2002, p. 80). A teleoaffective structure is the internal tacit purpose of the practice, organising normativity and a hierarchy of ends and beliefs, and often, also emotions associated with the practice. To start with, it is useful to point out that the concept itself consists of two parts, the 'teleology' or purpose of the practice, and the affective part. A practice always has a purpose (telos), but it does not always have an affective part in the sense of appropriate moods or emotions, beyond a sense of contentment in success achieving its ends (or disappointment in failure).

To give an example of an affective aspect related to the practices I have studied: In my interviews with civil servants, a topic that has been recurring is their view of the future in relation to climate change and current adaptation strategies. A common response from the civil servants has been along the lines of "to be able to work with these issues one must stay positive, one must feel it is going in the right direction". A consequence of this is, however, the closing down of opportunities to talk about fears and anxieties that might lead to new discussions on how the work is organized. Furthermore, this affective structure tends to downplay plausible high-risk scenarios and focus on progress and 'wins', however small, in order to be able to stay positive. Relating back to the difference between practice-as-entity and practice-as-performance, this is then an example of the civil servants reflecting on their practice-as-entity, and an affective component of the teleoaffective structure. In Paper III, we describe how an expression of genuine worry for food security is met by nervous laughter in the practice. This is an expression of the affective part of the structure, signalling a kind of sanctioning, in the actual practice (i.e. the practice-as-performance).

The other thing to elaborate on is the 'normativity' of a practice. This means that the practice through the teleoaffective structure specifies what ought to be done and how (Westberg, Bergeå & Hallgren, 2024). The normatively 'correct' way of doing, prioritizing and thinking are rarely explicitly announced, but shape action through the norms, informal rules and routines of the practice. Thus the 'oughtness' is not in need of articulation for the initiated as it is already internalized. New actors must, however, learn the teleoaffective structure (Lave & Wenger, 1991). In general, this is facilitated by the already competent actors sanctioning (or encouraging) performances in relation to the teleoaffective structure, which reproduces and stabilizes the practice. In most practices there is, however, an openness, to the extent that there may be a preferred way to do something, but a number of additional acceptable ways, some which are known and others hypothetical that have yet to be performed. It is in this way that practices can

be said to contain both regularities, continuation and patterning, *and* have an openness to irregularities or have a fuzziness (Bourdieu, 1990). This then means that the practice is in principle always open to change through the dialectical relationship between the teleoaffective structure (or the "logic of practice") and the actual performance of practice (Higginson *et al.*, 2015), even if this usually is a slow process of gradually changing what is perceived as the 'normal' performance. In other words, this is an important aspect for theorizing change, and how transformative process can be induced. The other necessary component in my theorizing of change, form within a practice, is given by the concept performativity. I elaborate further on this in section 5.3.2 below, and in Paper III.

An example of the difference between an explicit purpose and the teleoaffective structure guiding a practice is given by Weisser (2014) in their description of negations through the UNFCCC framework. Studying the Doha process on National Adaptation Plans, Weisser shows how the practice with the explicit purpose of negotiating effective agreements to help reduce vulnerabilities, is actually guided by a telos of formalizing *an* agreement. That is, producing any agreement that can get through the process is more important than its content. This is, according to Weisser, the teleoaffective structure holds the belief that the regular production of agreements that meet the minimum acceptable criteria for as many representatives as possible, so supporting their legitimacy, is more important than the precise content of the agreements. This is because the documents are seen as serving more as symbols of international collaboration rather than being intended as actual guidance for action[27].

That the teleoaffective structure is rarely explicitly talked about, or that it is not necessarily the same as the stated purpose, does not mean that it is unknown to the performers of the practice, and if asked they (i.e. the performers of the practice) can explain it, at least to some extent. The caveat here should be understood in two ways. Firstly, teleoaffective structures are complex and even competent performers may not be aware of all ends that shape the normativity of a practice; but secondly, and more importantly, practices are embodied. Our understanding of the world would be poorer without language, for sure, but "intelligibility is ultimately and (one presumes) originally a practical phenomenon that is not entirely recouped in language" (Schatzki, 1996 p. 128). In other words, how the world is made sense of and what actions make sense to do, are also embodied and non-discursive, and thus often richer than can be expressed just through language.

[27] In Paper III, we similarly show how the NNfA, with an explicit purpose of contributing to the development of a sustainable and robust society that actively meets climate change, repeatedly prioritized activities that did not leave space for jointly reflecting on how that purpose could be achieved.

The crux is that we, naturally, cannot express this richness of embodied understanding of the 'oughtness' of a practice, or what to do, and why, in a given situation, without assimilating this understanding into the structures and logics of language. But as Schatzki points out, our inability to articulate something linguistically does not mean it does not exist and shape what we do (Schatzki, 1996, p. 130). To put this in relation to the famous lines of Wittgenstein, who has influenced a lot of SPT: "the limits of my language mean the limits of my world"[28] is in fact not true, but "whereof one cannot speak, thereof one must be silent"[29] is (Wittgenstein 2014, [1922], p. 74; 90).

5.3 People in Practice: Practical Understandings, Situated Agency and Performativity

As described above, the teleoaffective structure is the central concept of the practice itself, and as such independent of any one individual. To theorize the teleoaffective structure's relation to actions (and both reproduction and change within a practice) I use practical understandings[30], situated agency and performativity. Let me here start with practical understandings, or know-how, as this works as the theoretical bridge between the collectively reproduced purpose of a practice to the individual performances of, and in, a practice (Westberg, Bergeå & Hallgren, 2024).

5.3.1 Practical Understanding

Practical understanding means, to paraphrase Schatzki, knowing how to do activity X, knowing how to identify when others are doing activity X, and knowing how to prompt as well as respond to X-ings (Schatzki, 2002, p. 77). To be able to be a performer of a practice means to have the practical understanding associated with that practice. Practical understanding is thus understood as an individualist phenomenon, although always prompted and

[28] '*Die Grenzen meiner Sprache bedeuten die Grenzen meiner Welt'*

[29] '*Wovon man nicht sprechen kann, darüber muss man schweigen'*

[30] I have opted here to use the concept practical understanding to capture both the cognitive aspect of grasping what is the expected or the correct way to (re)act, and the actual know-how of performing the act deemed as appropriate. Schatzki (1996) distinguishes between practical intelligibility and practical understanding: the former is the capacity to interpret what is happening and what is expected, and the latter is the capacity to perform the action. Giddens (1984) uses 'practical consciousness' for the former aspect of understanding what to do, knowing how to do what is understood by the 'practical consciousness' is not elaborated on (or included in the term 'practical consciousness'). Giddens's term is instead used in contrast to 'discursive consciousness', which is our ability to turn of the 'auto-pilot' and actively consider our response in a situation. Only using practical understanding here is simply to try to minimize 'conceptual overload'. Additionally, while practical intelligibility (and practical consciousness) are important for theoretical consistency, they are ultimately not empirically applicable (as they refer to inaccessible processes in the minds of individuals). Giddens's distinction between practical and discursive consciousness, is in my framework instead captured with 'performativity' and the ability of performers to reflect and act creatively in relation to the teleoaffective structure.

made relevant in practice. It is through practical understandings, or know-how, that an individual interprets the teleoaffective structure (or the logic of practice) and thus makes sense of what to do next in the continuous flow of actions (Schatzki, 1996, 2002; Cook & Wagenaar, 2012). It is important to note that what makes sense to do for a person is not (necessarily) the same as what is 'rational' to do. Indeed, it does not even need to seem rational, in a traditional sense, to the person making sense of what to do next (Schatzki, 1996). For example, in an interview with a civil servant employed at a CAB, they questioned their own flying to and from meetings to discuss adaptation in Sweden. It was not rational in their own opinion, but it made sense to the extent that their practice is centred around networking, coordinating and keeping track of relevant developments — this 'ought' to be done in person according to the teleoaffective structure of the practice. Similarly, we show in Paper III that representatives of a government authority produced a Climate and Vulnerability analysis report[31] based on the RCP4.5 scenario, but admitted they did not believe this was the most relevant scenario to use. We explain this, in more detail, in the paper as a 'logical' outcome of a practice's teleoaffective structure that prioritises efficiency (rather than effectiveness), and reproduces an aversion for disruptions to the current ways of working.

5.3.2 Situated Agency

In my usage, situated agency and performativity are closely connected and overlapping, but it might be more useful to see them as two sides of the same coin. Starting with situated agency, it hones in on how practices shape the space for transforming the capacity of agency into concrete action. According to Bevir (2005), situated agency should be understood primarily in contrast to autonomy. An autonomous agent should in principle be able to act, reason and experience outside of context. Situated agents, on the other hand, can of course find new and novel ways, but always in relation to the context they find themselves in. Following a practice approach, where it is commonly held that the context is actively made in the practice (i.e. it is not a 'background') and that we are always, no matter what we do, part of a practice, agency can never be anything else than situated. This means that 'situated agency' can be seen simply as a principle or an assumption in the theory (which it to an extent is), and not obviously an analytical term. To make it work analytically the concept must, rather counter-intuitively, be directed to the constraining and reproducing effects the practice has on the

[31] These reports are mandated by the Climate Ordinance that came into effect in January 2019 (Swedish Government, 2019) described in Chapter 3 and Paper III.

perceived space for action for the would be performers — in other words, focusing on the 'situatedness', rather than the 'agency'. In my study this means a focus on the civil servants' own interpretation of their role, responsibilities and limits in relation to adaptation.

5.3.3 Performativity

The way that the concept of 'performativity' is used here originates from Austin's (1962) work in linguistics, separating descriptive utterances from performative speech acts that actively intervene to shape the world[32]. However, performativity is arguably associated most strongly with Butler's (1990) work on gender, sex and the subject. Butler extended the original idea to incorporate both bodily acts and utterances, applying it to argue that there is no gender identity that precedes its enactment. For Butler, performative acts are inescapable, i.e. there are no 'descriptive' acts, but any act can either reproduce the norm or be subversive. To be subversive, and to be recognised as subversive, an act must relate to, and in some capacity explicitly challenge, the prevailing norm (Salih, 2007). In other words, a performance comes with certain expectations; we are given a subject position in every situation we find ourselves, but we are, in theory at least, free to perform that subject position as we see fit. To put it in terms of practice: the performance of a practice comes with certain expectations, but rather than determining our actions the concept allows for a kind of creativity. Action is always shaped and situated within the practice, but in the performance of a practice there is space to do things differently. This connects to the normativity of practices, and the openness that lies between what is seen as the correct way of acting and other acceptable ways to fulfil the same task. It is here that performativity comes in, from the perspective of the individual performer of a practice. As Behagel *et al*. put it: performativity "implies that knowledge can be performed through improvisation and gives rise to social change from within a practice" (2019, p. 483). Understanding performativity in this way, I have looked for and analysed instances where a performance of the practice challenges or breaks with the expected, to expand or change what is seen as normal in a practice[33]. Performativity thus captures people's capacity to be creative, act and respond to the world differently, while acknowledging that the ability to do something differently is bound up with knowing what is

[32] An example of a descriptive utterance would be: "Here is a rock". Saying "I do" in the context of a wedding is a performative speech act as it creates moral and legal commitments, and a number of other expectations.

[33] Alkemeyer and Buschmann's (2019) uses a similar approach, drawing on Castoriadis work, to enable an analysis beyond the orderliness of practices, to find potential for change coming from within the practice-as-performance.

expected[34]. Using both situated agency and performativity allows for separating, in analytical terms, the constraining aspects (situated agency) and the openness to act differently (performativity) in a given practice. Returning to the issue of change (and inertia), the combination of teleoaffective structure, practical understandings, and situated agency and performativity is key in explaining how and why inertia is reproduced and how change can come about from within a practice.

5.4 Ontological Issues and the First Step of Connecting Practices and Imaginaries

An ongoing debate in the SPT research community is whether and how SPT and the concept of 'practice' can be used to study "large phenomena" (Shove 2022; Nicolini 2017b), such as capitalism, climate change, migration, global financial flows etc. This debate should be seen in the light of SPT often, at least from the outside, being cast as a kind of 'micro-sociology' (Sovacool & Hess, 2017; Holthaus, 2020). For the discussion within the field of SPT this is fundamentally intertwined with ontological issues, where the crux often boils down to sticking with a 'flat ontology'[35] while studying large phenomena. What flat ontology comes down to in SPT is two commitments: 1) there are no 'levels' to reality and 2) 'practice' is the only type entity that exists. Nicolini makes the point succinctly: when it comes to the social "it is practices all the way down" (Nicolini 2017b: 100). Formulating how dynamics outside a specific practice might shape teleoaffective structures then becomes a problem, as anything qualitatively different than practice is very difficult to accommodate in the framework. There is only room for practices endlessly shaping each other. Here, I am side-stepping this discussion and simply positioning myself as adhering to an ordered social ontology, assuming that qualitatively different social categories do exist (for example practices and imaginaries) and that the relation between them is a relevant issue. The question should not be "what exists?" (and stop there) as it is when committing to a 'flat ontology' (Quine, 1948). The question should rather be "what grounds what?" (Schaffer, 2009); or, put differently, 'what are the relations between relevant ontological categories?'

In short, I hold practices and imaginaries as relevant social ontological categories that are qualitatively different. This means that they cannot be

[34] Otherwise, it will not be understood as a challenge, or as doing something differently. It will just be perceived as odd, inappropriate, wrong or crazy etc. In SPT-terms, it will be understood as detached from the current practice, or part of completely different practice.

[35] For a longer elaboration on 'flat ontology' in practice theory, see (Schatzki, 2016; Nicolini, 2017b; Schatzki, 2019)

studied using the same methods, but that they both 'exist' to the extent that they are useful in explaining human behaviour and understanding societies. Furthermore, I understand the relation between practices and imaginaries as dialectical[36]. Imaginaries emerge out of practice over time and some imaginaries become institutionalised, widespread and reified to the point that they are taken-for-granted and start to shape a multitude of different practices. However, from a practice perspective an imaginary will be made sense of in slightly different ways in different settings, depending on the teleoaffective structure of the practice. Considering the openness of practices given by the range between correct and acceptable actions, in combination with the creativity by performers of a practice captured in the concept of performativity, the variation in performances of practices associated with an imaginary can over time aggregate and change the imaginary, as well as create new imaginaries.

5.5 Teleoaffective Regimes, General Understandings and Imaginaries

With the ontological issue addressed, I now turn to 'teleoaffective regimes' and 'general understandings', which are concepts deriving from the early works of Schatzki (2002) that I use to form links to imaginaries. These two concepts have so far not been developed, in the way that for example teleoaffective structures and practical understandings have, and have largely been abandoned because of the difficulty in squaring them with a commitment to a 'flat ontology' (Welch & Warde, 2017). Here I draw on the writings of Schatzki (2002), Nicolini (2017a; 2017b) and Welch and Warde (2017), but use teleoaffective regimes and general understandings as operating on a separate level from practices, thus breaking with a flat ontology. More precisely, I use teleoaffective regimes as part of imaginaries, and general understandings as the understandings given by an imaginary and thus working as a conduit between levels, in order to integrate my frameworks.

Starting with teleoaffective regimes, the connection to the concept of teleoaffective structure is obvious. However, teleoaffective regimes are

[36] This mirrors Giddens' early work on Structuration Theory and the idea of duality of structure. Simply put, individuals make up society and are in turn shaped by society (Giddens, 1986). In this theory, individuals acting, reacting, reproducing and coordinating is the basis, the grounding of society. However, actions are largely based on 'practical consciousness' and therefore tend to create patterns. These patterns in turn exert influence on individuals and their actions (Giddens, 1979). The most reified patterns can be understood as structures (or more precisely, structural properties of social systems). However, these 'structures' only exist in so far they are acted upon and reproduced through actions (Giddens, 1984). In my terminology, I use practices and imaginaries, but I view the relation and processes of reproduction and changes in a similar way.

emergent from practices, not part of a practice. When established a regime operates on an aggregated level, corresponding to societal ends and ideals, which in turn shape the purposes and emotional attachment in many practices. This means that while teleoaffective structures are a property of a specific, situated, practice, teleoaffective regimes are instead common to larger groups of people or even societies (Welch & Warde, 2017). Regimes are therefore supervened on practices, i.e. they operate on a separate level. This opens up for connecting to (structurally inclined) discourse analysis, ideology and the tracing of ideas through genealogy. Teleoaffective regimes thus become a way for practice theory to incorporate the ideas that structure our society, the stories we live by (Stibbe 2021), or imaginaries.

Schatzki (2002) has suggested that profit maximization is an end[37] that has taken on the shape of a 'teleoaffective regime'. He also, through a case study of Shaker communities[38], shows that the concept of teleoaffective regime can be applied to smaller societies by arguing that the commitment to communal property in Shaker society is a regime shaping many practices. Teleoaffective regimes are thus to some extent scalable in themselves, depending on the demarcation of what is seen as the relevant sociocultural group (similar to my usages of imaginaries). What is required, however, are shared common ends and values that shape many practices in that sociocultural group. A teleoaffective regime can thus be seen as corresponding to the values and ends underpinning the vision of desirable society in an imaginary.

Given that I characterize imaginaries as hegemonic projects, it follows that different teleoaffective regimes (understood as the values and ends underpinning the vision of an imaginary) will exist simultaneously and compete, and more than one regime may be relevant in the same context. Taking an example from Paper II: in the context of adaptation in Norrbotten, one vision paints a picture of the region as an international hub providing the world with technological solutions to adapt and support 'green' growth, while a competing vision sees the region develop into a locally connected network of communities focused on (self)sufficiency in order to adapt. In the former, the teleoaffective regime is centred on economic/material prosperity; in the latter, the regime is based on connection and care for the local biosphere and peoples. From the situated practice perspective, one might say that both these visions and associated teleoaffective regimes are relevant in the context, and both can be known to the civil servants but different regimes will be activated depending on the practice they find themselves in. For

[37] Although I agree with Landström's (2023) argument that profit maximization is a false end, as it really is, or should be, a means — not an end. Nonetheless, it has become an end for capitalist societies.

[38] The informal name for the United Society of Believers in Christ's Second Appearing.

example, one practice (and associated regime) in their role as civil servants and another practice (with a different associated regime) in their personal life — both relating to adaptation in Norrbotten. This is connected to my view that practices and imaginaries are in a dialectical relationship.

Turning now to 'general understandings', Schatzki uses the concept for understandings that permeate many different, or sometimes all, practices of a society. General understandings are not necessarily static, but they are implied to be rather stable (Schatzki, 2002). They are not abstract in the sense of being removed from action, but rather often so reified that they are (seen as) unproblematic, and thus remain largely unquestioned. General understanding can thus be seen as corresponding to practical understandings, in a similar way as teleoaffective regimes correspond to teleoaffective structures. That is to say that with the regimes certain understandings will follow. For example, a regime that holds economic growth as the end goal, will translate into a general understanding of prioritizing economic values over all others. How this is acted upon, or performed, is however determined by the practical understanding, as this corresponds to the teleoaffective structure and the situated sense-making (Warde & Welch, 2017). A general understanding thus works as the link between the imaginary, and the associated teleoaffective regime, and the individuals in practice. The individual then has to translate the general understanding into a practical understanding corresponding to the normativity of the practice the individual find themselves in. Another way of putting this point is that general understandings only relate to practice-as-entity, which is to say general understandings are by definition decontextualized understandings; to be actionable, they have to be translated into practical understandings. As the 'correctness' is situated in the practice-as-performance, which always is more messy, complex and unpredictable than our mental reconstructions, the general understandings only narrow down to simplify and work as a frame for practical understandings. It should be noted that for the most part this is not done through conscious deliberation, but facilitated through practical consciousness, which is how assumptions and ideals that we may not actually hold when critically reflecting on our practices may still be reproduced (see Paper III).

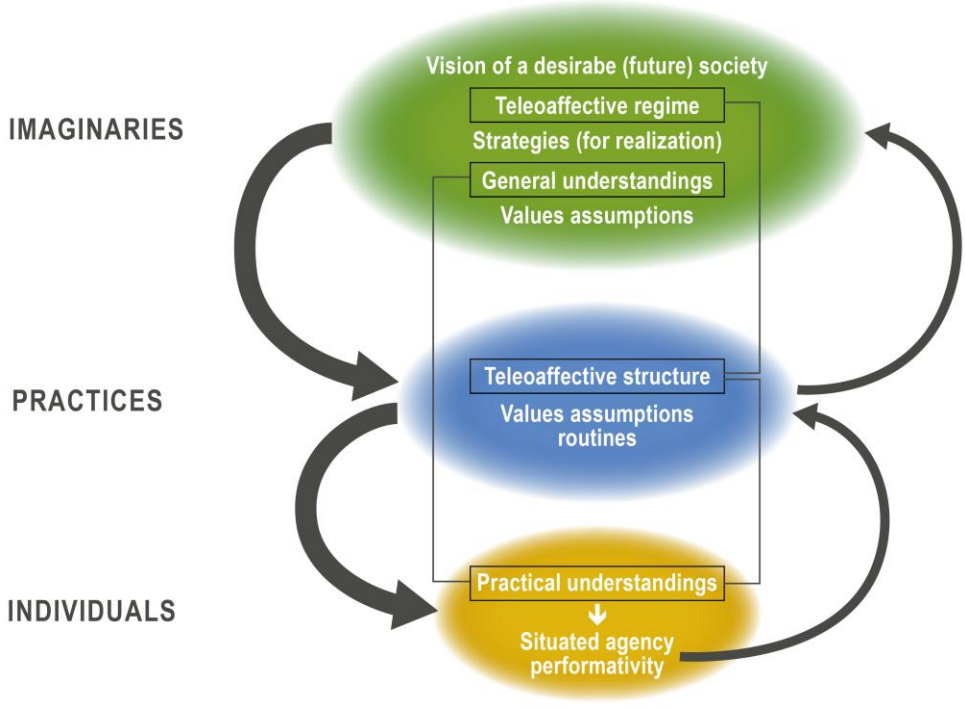

Figure 1. Overview of the theoretical framework.

Figure 1, summarizes my theoretical framework and the relation between concepts. In short, imaginaries shape practices, which in turn shape individuals' actions. The arrows on the left illustrate this. This (usually) reproduces stability, necessary predictability, but also inertia. However, individuals have the ability to, overtime, change practices by breaking from routines and challenge taken-for-granted assumptions and ends of practices — which I capture with individuals' ability to be creative through performative subversive acts. This can eventually shift the teleoaffective structure of the practice, and in doing so also change the associated practical understandings. When teleoaffective structures shift, it can in turn accumulate to produce shifts teleoaffective regimes. The smaller arrows on the right side of the model represent this relationship. When teleoaffective regimes shift, they reshape a multitude of practices, and by extension individuals' practical understandings and actions. The arrows on the left also capture this effect. Lastly, I describe the relationship between imaginaries and individuals through the connection between general understandings, which are given on the imaginaries level, and the practical understanding, which is held by an individual but always activated in the practice an individual finds themselves in.

6. Methodology

In this chapter, I outline the methodological approach in more detail and depth than is possible in the three papers. I describe how the project was originally designed and how it has evolved, and how I have generated data for this thesis. This is followed by a section outlining the analytical procedures and writing process.

6.1 Research Design

The first phase of empirical work focused on the two networks, the National Network for Adaptation (NNfA) and the County Administrative Boards' Network for Adaptation (CABs-network) (described in sections 3.1.2 and 3.1.3). A condition for participation from both networks in the study was that there would be benefits and outputs *during* the projects that could be useful for them. Representatives from both networks expressed a wariness, based on experience[39], of researchers coming in to study aspects of their work, only to leave and not give much back. As one civil servants put it, "at best we get an academic paper you don't understand, and can't use in our daily work". This condition was incorporated into the research plan without any trouble (although what is seen as useful can of course differ substantially) as our ambition in MASA always was to work with an interactive approach (Larsson, 2006).

As MASA was designed, we[40] thought of and described the research project as three interrelated parts intended to involve continuous input from the civil servants. We would be 'Zooming In' on a number of key sites where adaptation is carried out and on the actors making up these sites, 'Zooming Out' to see how these sites and actors related to each other, and 'Looking Forward', reflecting on pathways forward together with the civil servants

[39] This experience came mainly from studies of their work in their respective sectoral authorities or CABs, not the networks specifically, as few if any studies had focused on their work specifically before.

[40] 'We' here (again) refers to Lotten Westberg (project leader), Annette Löf, Steffen Böhm and myself.

involved. The first part, Zooming In, entailed delving into the routines, norms and assumptions that made up the civil servants' practices, as well as understanding the rules and external pressures shaping their work (Nicolini, 2012; Bueger, 2014). The interactive component here consisted in both getting input on what they saw as challenges, and in presenting and testing, our analysis of their practices with the members of the networks. This usually led to fruitful discussions and an opportunity for us to fine-tune the analysis. The Zooming In approach was intended to include case studies of the selected CABs and municipalities, but this was really only achieved in the kind of detail that I see as necessary for a practice theory analysis in the two networks. I did however start fieldwork in the County of Norrbotten, but only had three shorter stays in the region, which mostly focused on the CAB's work, with only one in-person visit to a municipality. This part of the research design, Zooming In, was intended to generate data for characterizing the situated performances of adaptation governance in key sites in the Swedish context (RQ2 of the thesis).

The second phase, Zooming Out, was intended to draw out commonalities and struggles between different sites in making sense of adaptation, combining the practice theory approach with governance theory (Kooiman, 2003; Löf, 2014; Huitema *et al.*, 2016). With the lack of data adequate for capturing the embodied practices in the CABs' and municipalities' work with adaptation, this was not possible. My work instead pivoted towards imaginaries and collectively held visions, as an alternative way to zoom out and explore competing approaches to adaptation. This also meant that the scope in a sense became wider as I, together with my co-authors for Paper I, looked out globally and not just to the Swedish context. Zooming Out thus became about situating Swedish visions and adaptation approaches in a global context, rather than connecting different sites in Sweden, which means it corresponds to RQ1 of the thesis.

The third phase, Looking Forward has run parallel with the other phases, at least since the second year of the project (in 2019). The purpose of this phase was to, together with the civil servants whose practices we studied, reflect upon current ways of organizing the work with adaptation, and discuss (more) desirable outcomes and ways of working, in particular moving towards more transformative approaches. In short, the ambition was critical, engaged and change-oriented scholarship (Joosse *et al.*, 2020). The logic in this phase builds upon the idea that the civil servants are experts on their own practice, and changes to their practices must be grounded in their understanding of what they do, why, and what could work in order to change their practice. What we as researchers, hopefully, can do is to provide an outside perspective and thus help foreground assumptions and routines that

are reified beyond discussion (Westberg & Waldenström, 2017) and in doing so open up space for new kinds of discussions (Westberg, Bergeå & Hallgren, 2024). The primary activities connected to this phase have been two workshops, one with the NNfA and one with the CABs-network (the latter I could not attend due to parental leave). In the workshop with NNfA we worked with a version of back-casting. This entailed describing what we saw as characteristic of their practices (similar to what we describe in Paper III), and creating a forum for the civil servants to discuss how they would want adaptation to be organized. More specifically, we asked, "How would a society in 2040, where adaptation was working and generating desired results, look?" "What would it take to realize this vision?" "What do they see as risks or potential pitfalls in achieving the vision?" Finally, we asked, "What do they identify as of specific importance to start working with in the present to move towards the vision?". The findings from this workshop were published in the report "*Perspektiv på klimatanpassning — Vad görs, vad görs inte och varför?*" (Löf, Kanarp & Westberg, 2022), which was read and commented on by the participating civil servants before being published. We decided to write this report in Swedish in order to make it more accessible for the civil servants and other practitioners.

Additionally, I have throughout the project held a number of presentations and discussions with civil servants working with adaptation; in the first year, these were more about presenting ideas and getting input, and in later stages presenting findings and attempting to create spaces for reflection on current work. The third phase, Looking Forward, has in this way been pivotal for achieving the aim of contributing with empirically grounded reflections on how transformative approaches to adaptation can be induced and supported.

6.2 Generating Data

In the way that I am approaching practices, as embodied performances, it follows that studying practices entails being where the performances happen (Boyer, 2016). One reason why being present where a practice is performed is important is that "competent practitioners usually know more than they can say" (Schön, 1983, p. viii)[41]. The methodology for studying practices in this way is sometimes called praxiography, a term suggested by Mol (2002) for a specific type of ethnography that tells the stories of practices. As such, participant observation is usually the core research strategy employed for generating data (Nicolini, 2012; Westberg, Bergeå & Hallgren, 2024). Participant observation is more of a strategy, rather than a well-defined

[41] As elaborated on in section 5.2, where I discuss the limits of language.

method, as the actual generation of data takes many forms (Davies, 2008), for example observation, participation, studying artefacts (including documents), more informal conversation and impromptu interviews, and making use of field notes (Crang & Cook, 2007). What is always essential is to be 'there', where the phenomena in focus is actually occurring (Geertz, 1988). In this study, where the focus is meaning-making processes in adaptation governance, I have been dropping in an out of 'the field' at sites that are connected through the civil servants working with adaptation (Hannerz, 2003). Additionally, I have conducted semi-structured interviews and analysed relevant documents.

Studying a practice generally involves two parts (Bueger, 2014). One part is studying the situated actions, handling of materials and bodily movements. This is observable (although it is of course filtered through the observer). The other part, studying meaning-making, understandings and the often-implicit purposes of a practice, relies on interpretation, reconstruction and testing one's interpretations. As Calhoun (1995) suggests, this creates a problem of replicability, and positions the researcher as inseparable from the findings; this cannot be solved by traditional methods alone, but must be addressed through practical judgement and transparency. One way I have dealt with this is by testing my interpretations, both with colleagues in the MASA-project and supervisors, but importantly also in conversations with, and presentations for, the civil servants I have worked with.

Generating data for studying imaginaries has not yet acquired a unified methodology (Mutter, 2020). Broadly speaking, imaginaries studies are interested in how "the merely imagined is converted into the solidity of identities and the durability of routines and things" (Jasanoff, 2015b, p. 323). Traditionally this has led to a historical or genealogical approach[42], with a particular focus on comparison, often between different countries (Jasanoff, 2004). In more recent developments imaginaries studies, particularly in STS, have diversified to inquire into the contemporary formation of potentially emerging imaginaries and the function and interpretation of imaginaries at different scales (Karhunmaa, 2019; Mutter, 2020). This has opened up for a diversity of strategies to study imaginaries, from participant observation and interviews, to historical studies, and a focus on contemporary policy developments and legal proceedings. My approach to studying imaginaries can be described as primarily discursive, using texts (documents and interviews). This is however complemented by the participant observations I have done (Paper II).

[42] Similar to what I apply in Chapter 2 on how ideas related to adaptation policy and research have developed over time.

In the following two sections, I describe how I have generated data through my fieldwork, mainly through participant observations (including participant 'listenings'), often with audio recordings and field notes, complemented by agendas and minutes provided by the organizers of the meetings/conferences. In these two sections, I also discuss and reflect on my role in relation to the civil servants and their practices (Joosse *et al.*, 2020), based on the four roles Davies suggests: 'complete observer', 'observer-as-participant', 'participant-as-observer', and 'complete participant' (Davies, 2008, p. 82)[43]. The different roles in relation to the practices, together with the different methods used for generating data, allow for triangulating the meaning-making processes (Alvesson & Sköldberg, 2018), which is an approach I have used in relation to studying both practices and imaginaries.

6.2.1 Participant observation

Throughout the first part of the PhD project, I attended all the in-person meetings of the two networks: two meetings with NNfA, one meeting with the CABs-network, and one joint meeting with both networks. The NNfA meetings focused on information-sharing from ongoing projects outside the network and from the network's own working groups[44]. The meeting with the CABs-network also revolved around information sharing, for example from other relevant networks such as NNfA and reports from regional working groups like the Northern group[45]. The joint meeting between the two networks followed a similar structure, with mostly information sharing for other networks and from the Ministry responsible for adaptation. Additionally, projects that were seen as inspirational and or with outcomes relevant for all government authorities, were presented; these included a "serious game" (Flood *et al.*, 2018; Fernández Galeote & Hamari, 2021) about adaptation produced by SMHI, and a project, led by the Swedish Food Agency, to support market actors in conducting vulnerability analysis and plan adaptation measures. The meetings varied in length between one full day to two full days. Additionally, I visited two meetings, one for each network in the very beginning of the project, just to present our project. Connected to these two networks I also attended working group workshops with the NNfA and a meeting with the Northern group in the CABs-network. Participating in the meetings of these groups (working groups and the

[43] Davies draws here on the early work of Gold and Whyte and their anthropological studies from the 1950s, in their usage a 'complete observer' meant someone who did not at all (at first) understand the social interaction, symbols and meaning-making, while 'complete participant' meant actually becoming part of the community.

[44] For more details, see Paper III.

[45] Comprising the CABs in Norrbotten, Västerbotten, Västernorrland, Jämtland, Gävleborg, Dalarna and Värmland, or as one of the representatives put it: "the counties that still get snow".

Northern group) meant I could explore the practices in settings that the civil servants described as more focused on doing and operationalizing the information-sharing in the full network constellations. Attending these different meetings was important, both for understanding the formal routines, how meetings were conducted and what topics were reoccurring, as well as for getting some sense of the more informal norms and routines governing the work in these groups.

Following the two networks simultaneously also allowed for understanding differences in framing of adaptation and responsibilities. For example, it became clear that there was some tension between the networks, where members of the CABs-network could express that their experience and expertise working with adaptation for more than 10 years were undervalued by what they saw as the "new" network led by SMHI. It also revealed some tensions within the networks: in the CABs-network, between the urban centres and their CABs (primarily Stockholm, Västra Götaland and Skåne) and especially the Northern CABs; and in the NNfA, between authorities with closely associated areas of responsibility, where as one member of the network expressed it, "If we come up with solutions to a problem that affects the work of authority X, there is a problem of stepping on each other toes, and we might not pursue that project". It should be noted that this was immediately denied by the representative of the government authority X, but I take this as an indication that collaborations during this period were not without friction. In these bigger, in-person meetings of the networks, especially at the beginning, 'observer-as-participant' comes closest to describing my role (Davies, 2008). As I engaged little in the formal meeting, I was often placed in the back or on a chair against the wall rather than at the table with the members of the networks. Still, my physical presence meant I could sometimes be asked questions. Additionally, and importantly in the interactive approach, it allowed me to participate, actively listen and converse during coffee breaks and lunches etc., and so gain a deeper understanding of their practices.

During this period of fieldwork, I attended a number of conferences, seminars and courses held by government authorities (such as SMHI and SEPA) or CABs. The conferences included topical conferences focusing on, for example, the social dimensions of adaptation (organized by the CAB in Västra Götaland) and Masculinity and Climate Policies (organized by the CAB in Örebro), to regional conferences like the "Northern Environmental Forum"[46] (Organized by the CAB in Norrbotten). I also attended conferences that drew wider audiences, such as "Climate Impacts – Risk Management and Adaptation" and The Nordic Conference for Climate Change Adaptation

[46] *Miljöforum Norr* in Swedish.

(NOCCA), both of which are attended by practitioners, politicians and academics. All these conferences were well attended by civil servants working with adaptation at different levels in the public sector. My presence therefore served to familiarise myself with the field and the ongoing discussion around adaptation, as well as to network and get to know the people and allow them to get to know me.

Another event that was illuminating in many ways was when I attended "The Basic Course in Climate Change Adaptation", which is a two-day course organized by SMHI and directed to civil servants working in municipalities (but open for anyone employed in the public sector). The course was, and still is, well attended and gathers between 60 and 100 participants. The reasoning for attending the course was two-fold: first, it was a good opportunity to get an insight into how SMHI framed adaptation, climate risks and what was seen as prioritised actions (for the municipalities); secondly, this was intended as a starting point for participant observations focused on the municipalities, since, as previously described (in Chapter 3), fieldwork focused on participant observation in municipalities had to be abandoned due to the pandemic.

One insight from these days on the course was the stark differences in conditions for working with adaptation between different municipalities, depending on financial means and personnel. This is well known (c.f. Rylenius & Hamza 2024), but it became very evident that, especially in the smaller municipalities, successful work with adaptation was heavily dependent on individuals with extraordinary competences. This indicates that even though adaptation has been on the agenda for a long time in municipalities (Olsson, 2018), it has yet to be institutionalised to the degree of not being dependent on specific persons (which Wamsler and Brink identified as a key problem already in 2014).

The other experience that made an impression was a discussion with a climate scientist who presented during the course. My impression was that the presentation the climate scientist gave was conservative, even compared to IPCC projections. I asked about what they thought, in the break after their presentation. They admitted that they thought that the reality was worse than what they had presented. For example, they said methane emissions were not accounted for properly, nor the potential of crossing over tipping points and setting off feedback loops. They did however give two reasons for keeping the presentation conservative. First, there had been quite a few civil servants who were "forced" to come to the course, some of whom had been sceptical to climate science and the need for adaptation. Therefore they only wanted to present things that were absolutely certain, to avoid getting into debates about the science. Secondly, they felt they needed to keep it relatively 'light'

in order to encourage the civil servants to feel that they actually can do something. This is part of a pattern I have seen through my fieldwork, i.e. the tendency to downplay high-risk scenarios, minimize uncertainty, focus on potential benefits, or provide responses that do not match the problem formulation. An example of the latter can be given from the conference, "Northern Environmental Forum" in Norrbotten. The framing of the problem posed by the climate crisis at this conference was as an existential question demanding structural changes to society. But when discussions turned to concrete measures that could be taken to respond to climate effects, suggestions focused on investing in snow canons and killing red foxes (that are pushing the arctic fox further north) in order to preserve the arctic landscape and protect the tourism industry. This mirrors Brand's (2016) critique of mainstream transformation discourses' tendency to formulate a radical problem only to respond with an incremental approach to solutions. These patterns are detailed in Paper III in relation to the practice of NNfA, and discussed in Paper II with the focus on imaginaries in Norrbotten.

Returning to Davies' (2008) different roles, the roles 'observer-as-participant' and 'participant-as-observer' may be difficult to separate, but in this course (as well as in workshops, seminars and conferences I attended) the role of 'participant-as-observer' seems more fitting. Here the organizers, and the other course participants, knew I was there in the role as a researcher — but for the most part, I participated like everyone else in activities and discussions.

Lastly, a note on the field notes. During the in-person meetings of the networks, the conferences and seminars I attended, I wrote field notes, usually directly on my laptop. These notes focused on describing interactions, discussions and moods that usually are not documented in minutes etc. After the meetings, generally the same day or evening, I went through my notes and described in more detail what I had observed. During visits to CABs, SMHI and other government authorities, I took notes with pen and paper or directly on my phone, and rewrote them on the computer as soon as possible, usually the same day. The field notes have been an important source for describing the actual performances of practices, as well as capturing more informal conversations. This is especially true for contestations between organisations and or levels in the governance of adaptation as these sentiments were more often (and definitely more candidly) described during coffee breaks, discussions during meals or conversations during walks, compared to the more formal interviews described in section 6.3.3.

6.2.2 Virtual meetings and online communication

Both the NNfA and the CABs-network also had virtual meetings (even before the pandemic moved all meetings to digital settings). NNfA had two virtual meetings every year, with the same structure as the in-person meetings, although more dominated by SMHI as chair of the network. Connected to NNfA, I also participated in a few working group meetings and other seminars organized via NNfA. With the CABs-network I have primarily participated in and listened to their steering committee's meetings. The steering committee consists of representatives from three different CABs, with each representative staying on for three years[47]. These meetings were conducted on roughly a monthly basis, and lasted approximately 30 minutes. The topics discussed in the meetings were mostly planning for the next in-person meeting with the whole CABs-network, discussions about regulations, new reports and other political developments that could affect their work, including coordinating responses jointly from all CABs. In total, I participated in 17 meetings with the steering committee between January 2019 and June 2020. In a similar way to the in-person fieldwork, these meetings were important for understanding the issues the civil servants talked about, what routines were created and upheld and how they discussed and reasoned about activities to prioritise. Reflecting about my role in relation to these meetings, it is here I come closest to being a 'complete' observer (Davies, 2008). To what extent one can be a 'complete observer' in the sense of not understanding the meaning of symbols and interactions is debatable, especially in a broadly familiar cultural context (Alvesson and Sköldberg, 2018). However, what I am after here is that in these meetings I have largely been simply 'listening'. My presences have of course been known by the participants in these meetings, but I did not participate by asking questions or joining in the discussions. It was even indicated in some meetings that my presence was forgotten, suggesting my listening affected the discussion minimally. This, however, also created a dilemma regarding using the data. I handled this by asking again if they were okay with me using the recordings in our research, and they always reaffirmed their consent. In all these different virtual meetings I recorded the audio. Sections of meetings connected to NNfA deemed particularly interesting were transcribed for Paper III.

Additionally, I have during the duration of the project been part of both the NNfA's and the CABs-network's emailing list. This means that the information and discussions that have been held through these lists have also been part of my data. This has been particularly enlightening in terms of seeing the different purposes the networks seem to hold for their members. The emailing list of the NNfA has quite consistently been used for

[47] The first year as incoming Vice-chair, the second year as Chair of the network, and the third year as outgoing Vice-chair.

information-sharing, almost exclusively by SMHI, which heads the network and has a central role in the adaptation governance (see Chapter 3). The CABs-network's list on the other hand is used much more for discussions, advice and coordinating responses to policy developments. For the most part, the emails through these lists have worked as important orientation and background information in my research, which has allowed me to follow the debates, developments and worries the civil servants have and wanted to share with their colleagues. For Paper III, the emails sent via these lists connected to NNfA between autumn 2018 and summer 2020 were analysed. In this analysis we categorized messages based on who sent it and if the message was primarily sharing information or asked questions.

6.2.3 Interviews

In addition to the participant observations, and conversations during breaks and lunches etc., I conducted in total 20 semi-structured interviews involving 20 people[48], representing sectoral government authorities (4), CABs (7), and municipalities (9).

During the spring of 2019, after a few months of participant observations, I held four interviews with senior civil servants from different organizations: one with the head of the climate unit in Stockholm City; then an interview with the, at the time, chair of the NNfA and head of SMHI's centre for adaptation; an interview with the adaptation coordinators from Gävleborg and Västernorrland, who both at the time were part of the steering committee of the CABs-network; and lastly, an interview with the coordinator from Norrbotten, who was one of the CABs representatives to NNfA. These initial interviews served to get insights on the different perspectives and priorities in relation to adaptation from the different levels in the public sector. The interviews with the representatives of the CABs and SMHI also focused on the networks and how the networks had developed, the relation between the networks and how they in their roles saw the usefulness of the networks.

During the second year of the project, I conducted five interviews with four civil servants of national authorities (additionally Lotten Westberg conducted three interviews), which were used in Paper III. The selection was 'purposeful' (Silverman, 2014). Based on the participant observations, two categories of members were prioritized. Firstly, we selected members we perceived as influential in the practice, i.e. members that were outspoken in meetings, shaping the discussions and had specific assignments or projects that were seen as central in the network. These members, or performers of the practice, are

[48] However, some civil servants were interviewed more than once, and some interviews were with more than one person, so even though the numbers match, there were not 20 one-on-one interviews.

sometimes referred to as 'veterans' in the SPT literature (Bueger, 2014). Secondly, I wanted to interview new members, or 'neophytes' as Schatzki calls them (2002), who could reflect on the experience of joining the network and its practice. These members are interesting from a practice perspective as they can potentially reflect about the assumptions and routines in the practice that initiated members take for granted.

During the same period, I also interviewed representatives from different CABs, ranging from the west coast, to mid-Sweden and the far north. In total, I conducted twelve interviews, with seven different civil servants. The representatives interviewed more than once was to differentiate between roles in one of the networks, for example the steering committee, and their work in their own CAB.

The interviews with the civil servants representing national authorities or CABs were all semi-structured and followed a similar interview guide. Interviews are important to get reflections and experiences from being in a practice from the performers of a practice (Kvale & Brinkmann, 2015). However, data generated through interviews should be seen as reflections on the practice, from the outside, in an interview setting (Joosse & Marshall, 2020). That is, the interviews provide reflections on the practice-as-entity. As such, interviews can only be secondary data in relation to the studied practice, the practice-as-performance. Creating my interview guide, I had this in mind, as the guide was intended to complement participant observations (Asdal & Reinertsen, 2022). The interview guide consisted of four sections, plus introduction and outro. In the introduction, I asked about recording the interview, I described MASA and my project, and explained that they could withdraw at any time and check the transcribed interview afterwards. I also asked some initial questions about their background. The first section focused on how they would describe an average week and recurring tasks, how adaptation was placed in their organisation, what they saw as their key tasks/responsibilities in relation to adaptation in their role as civil servants. This was followed by a section on where they got information or gained new knowledge about adaptation, where they looked for inspiration, and who they saw as influential actors in shaping adaptation priorities. The third section focused on the network(s), what function it served in their work and how they experienced being a member. This section also asked about regulations and specifically the Climate Ordinance (Swedish Government, 2019), as both networks discussed this frequently at the time. The penultimate section asked about their view on the coming decades considering current climate change projections, specifically if and how current adaption strategies needed to change in order to be part of transformative process. Here, I also asked them to try to step out of their role

as civil servants, in order to reflect more freely on what they thought was needed, rather than what they themselves could do. Lastly, I ended with some questions about how they had experienced being interviewed and if I had missed something of importance to understand their work.

Between September 2019 and April 2020, I conducted interviews with eight civil servants working in municipalities in Norrbotten. Interviews made before the pandemic were done in person and followed a very similar interview guide as the one used for the different government authorities, but I modified the part about the networks. In this section, I asked instead about their relations to the CAB and other municipalities. The four interviews conducted after the breakout of COVID-19, were conducted via video link, and also used a similar interview guide, but here I spent more time on the visions and assumptions about the future and less time on the recurring tasks and routines. This slight change of focus reflects my realization that a proper practice theory analysis would not be possible, which meant I started to pivot towards the assumptions about future developments.

In terms of studying imaginaries, the interviews have been useful in three main ways: 1) the interview material helps gauge to what extent certain visions of the future are embedded, politically performative and collectively held, i.e. if they can be described as imaginaries. 2) With my focus on practices, the interviews can potentially form a bridge between imaginaries and practices, as the interviewees reflect upon both the (implicit) visions, assumptions and ends that shape their work (i.e. the imaginaries) and their actual practice and performance of their role as civil servants working with adaptation. 3) Finally, interviews also allow for exploring alternative visions and potentially counter-hegemonic imaginaries. For more details, see Paper II.

6.2.4 Documents analysis

The last type of data generated, or gathered, in relation to the practices and imaginaries I have studied is brought together in the broad category of 'documents', which includes reports, instructions and regulations, e-mails, meeting protocols, policy brief and academic articles. Generally, my approach to analysing the documents included in his study can be described as thematic content analysis (Silverman, 2014) inspired by Fairclough's (2015) Critical Discourse Analysis. In practical terms, this has meant an abductive approach to find themes (shaped by the interest of my study and my theoretical frameworks), interpreting the conditions of production, intended audience and the assumptions made in the texts[49].

[49] For more details, see papers I, II and III.

The gathering of documents for this study can be categorised in four phases. The first one can be seen as scoping or background reading of, for example, government reports and regulations that have formed the current organization of adaptation in the Swedish public sector, and of course familiarizing myself more with the academic field of (critical) adaptation studies. This was in focus early on, but has continued throughout the project, in order to understand the institutional developments and the developments in the research field.

Secondly, documents produced or disseminated by the two networks were gathered and analysed, and in the case of NNfA used for Paper III. These documents include, for example, meeting agendas and protocols, project reports and descriptions of the network and their activities, such as annual reports. In these documents, describing the network's purpose and important activities produced by the members of that network constitute important reflections or articulation of their own understanding of their practice. Similarly, meeting protocols can serve as an indication of what is seen as important in the practice, and are thus reflections of the teleoaffective structure.

Third, with the focus on Norrbotten as a regional case, I gathered the reports and policy documents produced by the CAB and municipalities relevant for adaptation (including the municipalities' 'Comprehensive Plans'). These were used for Paper II, and the procedure of finding and criteria for inclusion are detailed in the paper. The selected documents were then analysed in terms of their explicit and implicit visions of the future, description of and assumptions about climate change, and what is portrayed as necessary and desirable adaptation strategies. This paper focused on the formation of contemporary imaginaries and potential alternative visions.

Lastly, related to Paper I, we explored globally influential documents on adaptation, both from the academic and the 'grey' literatures. These were sourced through Google Scholar, a process detailed in Paper I. In this paper, we take a genealogical approach, tracing the development of ideas over time in the influential texts on adaptation, and use a thematic approach to characterize the imaginaries that emerge in the aggregated data set.

6.3 Analytical Procedures and Writing Process

Separating data generation and analysis is not entirely possible; for example, while taking field notes and rewriting them the analysis is already under way. During especially the first year of MASA I regularly did field work together with either Lotten Westberg or Annette Löf; this also allowed for joint reflections and comparing field notes. Additionally, we had frequent meetings in the project group where we discussed the data generated and

reflected over themes, curiosities and contradictions. The interviews and the meetings conducted via phone or video link were recorded, and I have re-listened to all these recordings at least once. Additionally, all interviews have been transcribed, about half of them by me and the rest by two research assistants. I have checked and gone through all the transcripts with the audio-files. The systematic coding and analysis of the different types of material generated for this thesis has been driven by the research question and theoretical framework of the papers.

With Paper III, which was the paper I wrote first, the analysis was structured by the practice theory framework and the NNfA was selected as the case study. Transcripts from the interviews with members of the network, agendas, minutes, reports from the network and our field notes were all imported to NVivo. Operationalizing 'logic of practice', we focused on regularities, routines, priorities made in interactions between the studied participants, as well as expressions of success (or failure) in relation to tasks. This analytical process requires, as argued above, a familiarity with the practice, and is an interpretative process. In connection with the characterization of the logic of practice, we also operationalized 'situated agency' to focus on individuals' expressions of the limits of their role in the practice. One such example was recurring expressions of the need to focus on 'low hanging fruit' and get a foot into already ongoing projects. These expressions can also be understood as expressions of the logic of practice, which is why 'situated agency' was eventually left out of Paper III. However, retaining 'situated agency' (and performativity) allows for explaining how individuals in the same practice still have different roles and power in a practice. This was however not the focus of Paper III. In the second iteration of the analysis we used 'performativity', specifically looking at situations of contestation, where the logic of practice, or the usual way-of-doing-things was questioned or challenged.

With Paper II, I decided on the material first, i.e. to focus on the region of Norrbotten. When the majority of the interviews were conducted I still intended to use a Practice Theory approach. However, I was early on interested in assumptions regarding the future and how it affected practices. This meant that I had questions about their views of the future. Returning to these interviews, I realized I needed to apply another theoretical framework, which became Critical Future Studies and specifically developing the concept 'Climate Adaptation Imaginary'. Here too I used NVivo to code the interviews and gathered documents. I specifically focused on visions of the future and the assumptions these visions relied upon, and their relation to adaptation strategies. The imaginaries described in the paper are therefore emergent visions of the future relating to climate change and adaptation,

which were expressed by different people in different settings. Additionally visions and assumptions expressed in policies were given particular weight as these indicated a high degree of institutionalization.

With Paper I, we took a different route. Here we started in the theory and the notion of an emerging global governance regime on adaptation. This lead us to explore influential texts on adaptation (for the strategy of collection, see Paper I). The analysis was guided by questions drawn from our usage of Climate Adaptation Imaginaries, drawing on studies focused on temporalities and critical governance theory. The analysis went through a number of iterations, explained in detail in Paper I. Practically the analysis was based on closely reading coding all documents according to 12 sub questions, which were gathered under four themes. These themes were 1) visions of the future and ideal society, 2) temporality and assumptions about predictability and rate of change, 3) preferred strategies, and 4) what actor group was seen as the lead for adaptation. With this coding done for every text, a second phase focused on commonalities between texts, which resulted in six clusters. This means that, in a similar way to in Paper II, the imaginaries and their names resulted from an inductive process.

7. Summary of papers

7.1 Paper I

Contested Adaptation Futures: The role of imaginaries in climate change adaptation governance

Co-authored by G.C.S. Kanarp, Steffen Böhm and Annette Löf
Revised and Re-submitted to Sustainability Science

Acknowledging that adaptation governance is fundamentally concerned with planning, and that planning is inherently concerned with possible futures, this paper is an explorative review of the assumptions made about the future in influential academic and 'grey' literature on adaptation. Utilizing the concept of 'imaginaries', building on related literature on temporalities in governance and adaptation futures studies, we posit that unpacking the often-implicit visions of what constitutes a desirable society is a crucial part in re-politicizing adaptation. We are thus concerned with the 'futures-for-the-present' mustered by different governance actors in order to promote their preferred adaptation strategy to realize (or maintain) their ideal (future) society. This paper builds upon the assumption that, even if adaptation is often construed as a local concern, the ideals and visions of the future shaping the scope and goals of adaptation governance are being constructed and are circulating globally, and have been so for some time.

The research questions guiding our study are formulated as:

- *What are the main climate adaptation imaginaries and related adaptation strategies articulated by various governance actors globally?*
- *What are the differing political beliefs and values underlying these adaptation imaginaries?*

- *What timeframes and required rates of change do these imaginaries assume, and how does their approach to the future influence present-day climate adaptation action?*

We argue that the traditional governance triangle used to describe the dynamics of state, market and civil society actors must be complemented with the role of academia, as knowledge is not neutral in relation to politics and governance issues. This is especially clear in relation to sustainability and climate governance, where academia is increasingly tasked with being 'policy relevant' and with providing solutions.

Through a close reading of 64 documents (32 academic and 32 'grey') we identify and delineate six globally competing adaptation imaginaries: Eco Modern State, Just Adaptation, Promethean (Green) Growth, High Tech Society, Human Stewardship, and Knowledge Society. Each imaginary has a distinct vision of an ideal society, assumptions about the development of both climate change and societies, preferred adaptation strategies, and a view on who should lead adaptation governance.

We centre our discussion on four emerging themes, which we argue have particular relevance for adaptation policy and politics, challenging business-as-usual and enabling transformational approaches to adaptation specifically. These themes are 1) reflections on temporality, 2) how responsibility for adaptation is portrayed, 3) how a view of predictability and control correlates with incremental vs transformational adaptation, and 4) tensions between 'grey' and academic literature. Firstly, since temporal considerations are central to any adaptation strategy, it is surprising how absent explicit reflections on timeframes are in the reviewed literature. This hampers evaluation and debate on the feasibility of proposed strategies as crucial assumptions are left implicit. It further indicates a lack of engagement with the plausible changes in the near future, as it assumes a continuation of the present. This underlines the still dominant and persistent incremental (and often reactive) approach to adaptation. Secondly, we discern a resurgence of the importance of the state; crucially, this is also true of market actors, as adaptation measures are seen as difficult to turn into profit. Thirdly, we find a clear relationship between viewing climate change as an unpredictable force and the move away from incremental approaches to adaptation. However, this takes two very different forms. In the 'Just Adaptation' imaginary, this is taken as grounds to embrace flexibility and reflexive decentralized governance and arguing for deep and deliberative shifts in political, economic and cultural systems, i.e. transformational adaptation. The 'High Tech Society' and 'Promethean (Green) Growth' imaginaries also show tendencies to view climate change as unpredictable. However, this is

taken as a cue to reassert control through either sweeping technological interventions like geoengineering or gene editing crops (in the former case), or extending the market logic and financialize adaptation (in the latter case). Lastly, we find a clear divide between imaginaries existing in, and promoted by, academia, compared to the other governance actor groups. Notably, 'Just Adaptation' has been a staple in the academic literature since the turn of the millennia, though it has had seemingly very little impact beyond academia. This means that transformational adaptation imaginaries are not lacking, but they are confined to academia, at least with respect to globally circulating expressions of such imaginaries.

This paper contributes with a novel methodology, in relation to imaginaries and adaptation governance, which explores globally circulating and competing 'futures-for-the-present'. This allows for explaining adaptation as a strategies always concerned with more complex ends than just responding to (perceived) climate risks, and connecting these strategies (and implicit ideals) to the dynamics of the key governance actor groups. Thus, the paper contributes to the critical adaptation literature's aim of re-politicizing adaptation, and unpack dynamics reproducing business-as-usual approaches.

7.2 Paper II

"Your research or my tinkering won't help": on (the lack of) Climate Adaptation Imaginaries in the Swedish Arctic

Authored by G.C.S. Kanarp. Published in *Futures*, Vol. 162, September 2024, https://doi.org/10.1016/j.futures.2024.103433

In this paper, I develop 'Climate Adaptation Imaginaries' as the combination of politically performative and collectively held visions of desirable futures relating to climate change, containing strategies to realize these futures. This casts adaptation as a strategy, not only to respond to (perceived) climate risks, but importantly also to create or maintain a desirable future society. Connecting the imaginaries literature with core ideas in the adaptation literature, I construct a typology for adaptation strategies in three layers: 1) approach — reactive vs. proactive, 2) aim - incremental vs. transformational, and 3) focus — direct effects only vs. including transboundary and cascading effects. This allows for mapping competing visions with preferred strategies and the associated priorities and assumptions.

Empirically, the focus is on the Swedish Arctic, specifically the administrative region of Norrbotten. Drawing on fieldwork, interviews, and

policy documents and reports produced by the County Administrative Board and municipalities in the region, I outline and compare different visions and assumptions regarding the future and adaptation strategies.

Norrbotten has seen rapid changes to the climate, with apparent changes to the seasons and the landscape already visible. Additionally, it is promoted as a region leading the efforts to manage the climate crisis in Sweden – primarily through a 'second industrial revolution' based on 'green growth' and technological innovations. From an imaginaries perspective, the public sector and its institutions are of particular interest, since when an imaginary becomes embedded in the public sector's approach to governance, it signifies a high degree of institutionalization and thus shapes practices more broadly. In the paper, I ask:

- *What are the competing visions for society in the Swedish Arctic, in the context of climate change, as presented in policy and by civil servants? Are there visions that can be described as collectively held, materially embedded, and politically dominant, i.e. as imaginaries?*
- *How do the different visions, through assumptions, simplifications and ideals, shape adaptation strategies and priorities?*
- *Who benefits from the currently dominant Climate Adaptation Imaginary?*

I find four visions, of which two can be said to constitute imaginaries. The first imaginary is one based on the premise of continued economic growth, industrialization and increased tourism. In this imaginary adaptation to climate change is hardly seen as necessary to achieve the vision for society. The imaginary promotes a reactive adaptation strategy, where it is largely assumed that society will be able to carry on as it does currently, without any specific adaptation efforts. The second, and more prevalent, imaginary is based on a similar vision of continued economic growth and expanding industrialization and continued resources extraction. But here, there is a distinct 'green' ambition in decoupling the ideal society from fossil fuels. Furthermore, in order to achieve this society, adaptation is understood to be important. The strategy connected to this imaginary can be described as proactive, incremental and focused on direct effects. Curiously, the imaginary builds on the idea of an interconnected global society and transboundary benefits, but ignores transboundary risks.

Two alternative types of vision to these dominant imaginaries emerge from the interviews, indicating a disconnect between the policies and political goals, and the civil servants working with adaptation. A counter-hegemonic vision emerges from a few of the interviews. These civil servants

envision a locally anchored, regenerative and community-based society, where regions are mostly self-sufficient in terms of food and energy, where democracy comes closer to the citizens, and sufficiency, resilience, connection to and respect for nature (rather than unfettered growth) are ideals. This is still a marginalized vision, far from gaining traction to become an imaginary.

The more common response from the interviewed civil servants, as an alternative to the imaginaries, is instead to describe various kinds of dystopias. These dystopias range from adaptation being the primary concern for the public sector in a few decades, to the possibility of societal collapse due to the climate crisis. What unifies these dystopic visions is that they are seen as the expected future, and that the visions of the future are based on acknowledging transboundary risks but adhere to an incremental aim for adaptation.

An important conclusion is thus that challenging the hegemonic imaginaries entails foregrounding transboundary risk — but without convincing alternatives, we are likely to be stuck with dystopic visions.

7.3 Paper III

Adapting Climate Change — how government authorities in Sweden make sense of adaptation through a network practice

Co-authored by G.C.S. Kanarp and Lotten Westberg. Published in *Journal of Environmental Planning and Management*, Vol. 67, 2024, Issue 9: Environmental Communication in Planning, Natural Resource Management and Sustainability Transformations.
https://doi.org/10.1080/09640568.2023.2171278

Recognizing both the need for transformational approaches to adaptation and the key role the public sector plays in adaptation, we explore the transformational capacity of adaptation practices in the public sector. More precisely, the article focus on the sense-making processes of civil servants working with adaptation in the Swedish public sector, and the consequences of these processes. Drawing on the literature that espouses critical reflection and shifting of mind-sets as a prerequisite for transformational change, we explore this capacity empirically in the National Network for Adaptation - a key site in the Swedish adaptation governance regime.

Using Social Practice Theory we argue that the capacity for critical reflection, and ultimately the potential for transformational change, must be explored as a feature of 'practice', rather than a skill of the individual civil servant. By applying a practice approach, we thus focus on the process of sense-making as a supra-individual process shaped in, and through, interaction of knowledgeable 'performers' situated in a material and historical context. We do this with a particular concern for the kinds of assumption and routine that come to shape the Network's understanding of their own role, their understanding of adaptation and its purpose, and the practice's openness to critique and critical (self)reflection.

Specifically, the article asks and answers the questions:

- *How does the Network's practice make sense of adaptation and its role in the governance regime, and what distinguishable routines and assumptions reproduce this sense-making?*
- *How are questions and critique related to established ways of making sense of adaptation, coming from the members themselves, dealt with?*

In order to answer these questions, we draw on a rich material generated through ethnographic methods over the course of two years: participant observations of the meetings the Network held during these two years,

interviews with members of the Network, and analysis of relevant documents. Analysing the material, we use 'logic of practice' to elicit the assumptions and routines that shape what comes to serve as the correct performance – the normativity of the practice. We explore what becomes the purpose of the practice, as inferred by what the performers of the practice actually do, and the priorities that are made, in their interactions. We find three key assumptions that characterize their practice: 1) Efficient exchange of, and the continuous production of, more information will lead to appropriate and effective adaptation; 2) An incremental approach to adaptation, and focusing on 'easy' wins, is sufficient to manage the consequences of the climate crisis; 3) Visibility and showing action is crucial. This casts the Network as an information hub, with a tendency to prioritize quick outputs and staying clear of complexities and controversy. Most troubling is the tendency to downplay the seriousness of the climate crisis, for example by recommending adaptation measures based on more optimistic climate scenarios than they say they believe in, or ignoring high impact transboundary risks. These high-risk scenarios and potential consequences are downplayed, or just ignored, as these do not fit with the practice's logic. To put it more bluntly, members of the Network adapt their interpretation of the climate crisis to fit the current modus operandi of the practice, rather than question the logic of the practice in order to respond to the climate crisis more effectively.

Using the concept of 'performativity' we hold that every action of an initiated member of a practice relates to the logic of practice, by either reproducing it or challenging it. By highlighting situations of contestation, we analyse how members of the practice respond to challenges raised in the practice, as a way to assess the capacity of the practice to accommodate and encourage critical reflection. We do find a number of situations where the 'logic of practice' is challenged, but in each case the challenge is closed-down.

Empirically, the paper contributes with new knowledge on the processes of negotiating relevant knowledge and the situated meaning-making and of civil servants in adaptation governance. As such, the paper responds to the call for more empirical studies close to the ground and the actual practices of the governing and governance of adaptation.

Theoretically, the paper advances Social Practice Theory and its conceptual apparatus to situate meaning-making and purpose in a materially embedded supra-individual level in the context of adaptation governance. This helps in explaining the inertia of moving adaptation governance into a more transformative approach. It also illuminates where openings for transformational approaches might be found, and how change may be

induced. However, from a practice theoretical perspective, change would largely depend on the members of the practice jointly creating space within the practice (as it is here that meaning-making and purpose are situated) to reflect upon the implicit assumptions, routines and their current way of organizing and prioritising their activities, in order to sustain critical (self)reflection. This, in turn, is a necessity in order to be able to push adaptation towards transformational ambitions.

8. Discussion

I open Paper II with a quote from Ghosh: "the climate crisis is also a crisis of culture, and thus of the imagination" (Ghosh, 2017, p. 9). Ghosh's point is that we have created a culture that is unable to imagine a world where nature is beyond our control and can therefore not grasp the full depth of the crisis that climate change poses to our societies. In order to respond to climate change in a meaningful way we need to reimagine our place in the biosphere, or cosmos[50]. In essence, this is a call to reformulate the ideas about who we are. Reflecting Ghosh's thinking there are, and have been for quite some time, calls for new visions of how society could and should be organized in the face of climate change, or, put another way, reimagining where we want to go (Bai *et al*., 2016; McPhearson, Iwaniec & Bai 2016; Hajer & Pelzer 2018; see also Chapter 2). An early version of this sentiment, on the lack of desirable futures, was succinctly formulated by Livingstone (1956, p. 99): "if you want a description of our age here is one: the civilization of means without ends". This thesis repeats the call for new visions. From these arguments, it follows that we need to expand our imagination (Yusoff & Gabrys, 2011; Cretney, White & Hanna, 2024; Olazabal *et al.*, 2024), to grapple with where we are currently heading and what kinds of societies we would like to create. Imagining new organizations of society is, however, not sufficient: we need to become those societies (Dryzek, 2016). In the terminology of this thesis: we need to connect visions to practices and move from imagination to practical understandings that shape our everyday actions. This is not going to be easy, smooth or universally consensual. A lot of people, with a lot of power, have a lot to lose. In this thesis, I argue that it is therefore necessary to delve into the visions and assumptions that are currently shaping adaptation governance, and how they connect to practices, and unpack who supports them, in order

[50] For Ghosh this leads to an argument for artists to engage with the question of nature and climate change in a new way (inspired by pre-Enlightenment traditions, drawing on epic rather than prosaic storytelling).

to explain the current inertia and be better equipped for inducing transformative changes through adaptation.

I have divided the following discussion into three parts. The first part discusses the findings in relation to RQs 1 and 2, and the second part revolves around RQ3. The third and last section reflects upon limitations of this study and possibilities for further research.

8.1 Global Visions and Localised Practices

In this thesis, I ask:

RQ1: How do globally circulating imaginaries with a bearing on climate change adaptation relate to and shape imaginaries in Sweden, and what underlying assumptions and values connect these visions?

RQ2: What characterizes current practices in key sites for negotiating adaptation in the Swedish public sector?

In Paper I, we identify six different, overlapping but essentially competing, Climate Adaptation Imaginaries in influential texts on adaptation drawn from academia and the three traditional governance actors (state, market and civil society). Although the sample is relatively small, and the approach we took is exploratory rather than a systematic and exhaustive review of the literature, the imaginaries we delineate are broadly familiar. This is to be expected, as our aim was to identify globally circulating and influential visions and assumptions about the future in the adaptation literature. For example, our imaginaries overlap with Dryzek's (2013) well-known environmental discourses, and Cretney, White, and Hanna's (2024) more recent 'adaptive futures'. In this section of the discussion, I describe the globally circulating adaptation imaginaries again, but take our analysis from Paper I a step further by connecting to the findings of Paper II and Paper III. I here use the theoretical framework, summarized in Section 5.5 and Figure 1, to make empirically based reflections on the connections between globally circulating imaginaries, regional variants and the practices I have studied, and their effects in shaping adaptation governance.

Based on their defining characteristics, and partly relating to previously defined discourses, we named the six imaginaries: Eco Modern State, Promethean (Green) Growth, Just Adaptation, High Tech Society, Human Stewardship and Knowledge Society. In Figure 2, I have plotted these on a vertical axis representing inclination for transformative vs. incremental aim, and on a horizontal axis representing collective vs. individual responsibility. The latter roughly corresponds to state vs market leadership. I have however

chosen the terms ‘collective’ and ‘individual’ as, for example, Just Adaptation generally argues for collective responses, but not necessarily through the current version of nation-states. On the opposite side, there are expressions within the Promethean (Green) Growth imaginary that focus more on the individual’s responsibility (in the role as business owners, consumers, or property owners), rather than broader market responses. The size of the bubbles reflects their prevalence in our corpus for Paper I. The figure also illustrates how the imaginaries have blurred borders, are interlinked and overlap, and which are closer to each other.

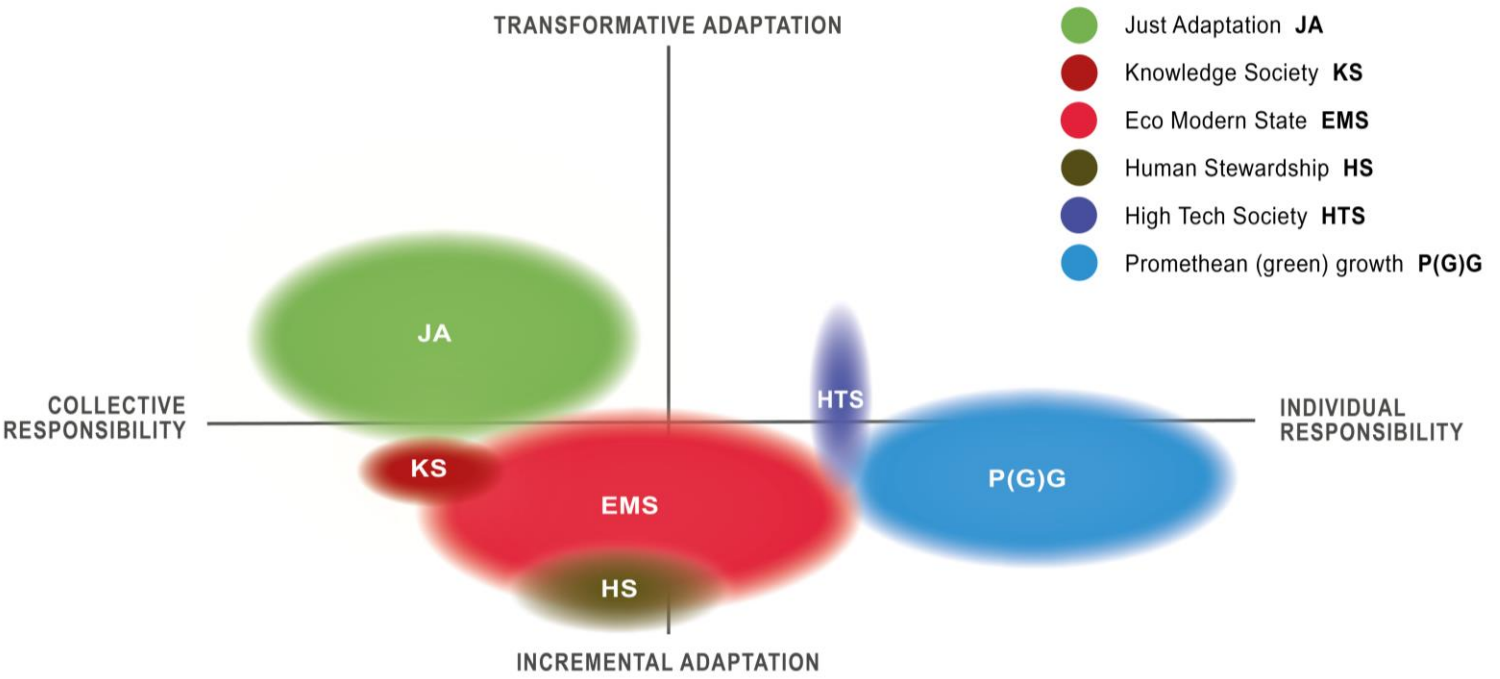

Figure 2. Competing and overlapping Climate Adaptation Imaginaries.

8.1.1 The Eco Modern State

The Eco Modern State imaginary is the most prominent in the literature on adaptation we analysed. The name alludes to its similarities with Eco Modernism (Asafy-Adjaye *et al.*, 2015; Isenhour, 2016; Ellis, Lynas & Nordhaus, 2023), and the argument that the ideals of (Western) late modernity are not in conflict with living in harmony with nature. In simplest terms, it is a vision of a society that actually fulfils the commitments of the Paris Agreement, the Sustainable Development Goals and other international treaties. The teleoaffective regime, underpinning the vision, aims to protect the integrity of the nation-states as the end, and to export Western ideals of institutional organization. The primary means to achieve this is to utilize technology, infrastructure investments and centring economic growth; at the core is expert knowledge and centralized planning. In that sense, it is a vision of a society built around the ideals that, at least on the surface, have been guiding the industrialized part of the world since the creation of the UN. The assumptions and the general understandings that the imaginary fosters, are, however, a relatively predictable future, where societies remain largely the same and climate change is gradual. This leads to adaptation strategies centred on data-driven planning, where incremental steps are seen as sufficient. Naturally, the nation-states and their public sectors are positioned as the leading actor group. Transboundary risks have become a more prominent concern in recent years, but generally, there is little focus on this. This is in a sense expected, as by definition transboundary risks ignore the nation-state boundaries and their jurisdiction. In other words, direct effects are within the capabilities of nation-states in a way transboundary risk never can be. There is little reflection on questioning the capabilities of the states to deal with adaptation beyond direct effects. The Eco Modern State revolves around protecting the current status quo, through proactive and incremental adaptation measures. In our data set for Paper I, among all documents (coded as belonging to this imaginary), there is only one that approaches a discussion of the suitability and adequacy of current political and economic organization of the state for dealing with the climate crisis and its effects (see Betts, 2020). There is also, surprisingly, a lack of discussion regarding one of the states' most powerful instruments — legislative measures.

It is not surprising, however, that the Eco Modern State dominates the literature. Indeed, a starting point for this thesis (and the MASA project as a whole) is that the states are crucial for managing the effects of the climate crisis in something that would resemble a large-scale and orderly fashion

(Eckersley, 2004)[51]. What is more surprising is that even market actors are now increasingly pointing to the state and its capabilities as necessary for dealing with adaptation. This indicates a sort of comeback of the state in the face of long-term threats, not in the form of a transformed state, but perhaps as we discuss in Paper I, a return to a kind of 'green' Keynesianism (Green, 2022). This imaginary has supporters in all of the governance actor groups (based on the analysis made in Paper I). What is clear from our study in Paper I is that the literature in general, including this imaginary, is dominated by Western institutions, and the Eco Modern State undoubtedly privileges states with greater financial resources and technical expertise. The focus on technical and infrastructural solutions also tends to privilege urban centres within countries.

In terms of the ideals that underlie the imaginary and its teleoaffective regime, these come across as hollow. Particularly, its failure to grapple with the dependence on continued natural resource extraction to fuel adaptation efforts and the fundamental assumptions of control and predictability in relation to the future, in particular regarding climate change. There are few expressions of new, and desirable, futures in the texts that represent this imaginary. Instead, the vision at the core of this imaginary is an extension of where we are, or better put, where we would be if we actually tried to uphold commitments such as the Paris Agreement and the Sustainable Development Goals. As such, the Eco Modern State is comparable to Taylor's (2004) idea of a 'Social Imaginary', as a shared foundational understanding of (how we wish, and often act as if) society and the world works. It is in theory an attractive vision. However, this vision has yet to be materialized and it is unlikely to change in time to avoid a degradation of the institutions, ideals and mechanisms that uphold this vision[52].

In Paper III, we outline the assumptions about the future and preferred adaptation strategies from a practice perspective. These match well with what I refer to as the Eco Modern State imaginary. The practice reproduced by the National Network for Adaptation (NNfA) assumes climate change is largely predictable, and that the fundamental institutions of Western societies will remain intact for the foreseeable future. The general understanding that serves as the link between this imaginary and NNfA's practice is downplaying, or simply ignoring, plausible high-risk scenarios that would undermine these assumptions. This leads to a data and information driven

[51] How states should be organized in order to simultaneously achieve democratic ideals and sustainability is however a longstanding debate, usually described on the continuum between ecological vs environmental democracy (c.f. Pickering, Bäckstrand & Schlosberg 2020).

[52] This is also premised on setting aside the unfeasibility of extracting enough resources to allow the entire world's population to live like Westerners; without these unreasonable assumptions, this vision must resort to being a neo-colonial project.

approach, revolving around the states' planning capabilities, an incremental approach, or rather that the problem of climate change is formulated in such a way that a proactive, incremental strategy is viable (Paper III). For the same reason, the imaginary's general understanding also translates into a practical understanding that privileges short-term perspectives and direct effects in Sweden. This is further supported by the finding that the civil servants interviewed for this study were not used to reflecting upon longer time-frames in their work. It is worth reiterating that the civil servants working with adaptation are in an extremely difficult position of trying to respond to an unsolvable problem such as the climate crisis. However, the interpretation of the assignment, and how to respond, is not given. The key paragraph of the Climate Ordinance (Swedish Government, 2019) states that the appointed government authorities are responsible for initiating, supporting and evaluating "measures aimed at protecting the environment, people's lives and health as well as property, by adapting society to the consequences that a changing climate can have". From this it does not follow that an incremental, and data driven approach is the most appropriate. Through the interpretation of their (situated) agency, facilitated by the practice that is reproduced, constraints are imposed by the performers of practice that lead them to focus on actions that do not challenge current priorities. For example, by joining in on already ongoing projects, focusing on 'low-hanging fruit' or claiming adaptation benefits in projects that were not designed with adaptation in mind (Paper III). An alternative approach would be to think outside the box, about what could be done through and beyond the current laws (while staying within the legal requirements) (Larsen *et al.*, 2017). In essence, there is a difference between what the law demands and what the law allows, which may be of critical importance if civil servants are to function as agents of change in relation to responding to the climate crisis. Another approach is to push for new legislation, which the NNfA did before the Climate Ordinance arrived (Paper I). This ambition to affect legislation separates this practice from the strategies espoused through the globally circulating representations of the Eco Modern state imaginary, which illustrates how an overarching vision and assumptions (imaginary) are made sense of in situated practices (potentially) leading to context sensitive strategies.

In this context, it is telling that many of the civil servants I have interviewed express, in different ways, that they believe that the public sector could and should do more, specifically in addressing the complexities and long-term risks which individuals and market actors cannot be expected to manage on their own. However, this is most often expressed in interviews after the interviewees have been prompted to reflect not as civil servants, but

as citizens, and is a view rarely expressed in the performance of adaptation governance practices. This hints at an understanding that the public sector ought to do more, but that this comes to the fore when individuals are detached from their own responsibility as a civil servant, revealing the situatedness, and constrictions, reproduced in the practices of adaptation governance in the Swedish public sector.

In Paper II, which is concerned with regional imaginaries shaping adaptation governance in Norrbotten, I identify two different imaginaries. The first draws on the Eco Modern State and Promethean (Green) Growth imaginaries, but is not a perfect fit with either. The teleoaffective regime connected to this regional variant holds economic growth and high employment as the highest ends. The aim of adaptation is to protect the current political and economic structure, i.e. incremental adaptation strategies. However, while the globally circulating Eco Modern State promotes a proactive approach, the regional variant relies on a reactive approach, dealing with the consequences as they materialize. In our corpus for Paper I, it is only within the Promethean (Green) Growth that there are expressions of reactive adaptation strategies as preferable. Contrary to a market focused imaginary, the regional variant in Norrbotten shows no inclination for pushing responsibility away from the public sector. It is instead assumed that the current system is, and will remain, robust in the face of the climate crisis. This illustrates that the imaginaries are overlapping, and regional imaginaries may draw on a combination of assumptions and ideals. Another interpretation is that this is an imaginary that does not show up through our study in Paper I, but probably is the most dominant Climate Adaptation Imaginary worldwide, beyond those that are discursively represented globally. That is, it is an imaginary that acknowledges that climate change is underway, but holds that there is no need to act differently. The effects are considered ordinary natural catastrophes, which will be dealt with as they happen, as they have been for decades. This mirrors Olsson's (2018) conclusions that current problem formulations are premised on integrating adaptation strategies so as to not conflict with other objectives (especially at the municipal level). The dominance of this imaginary explains the lack of tangible adaptation measures, as documented by, for example, the UNEP Adaptation Gap reports (UNEP, 2022, 2023).

8.1.2 Promethean (Green) Growth

As the name suggests, there is an underlying assumption within this imaginary that economic (and technological) development will outpace negative climate effects, and that economic growth can be decoupled from exploitation of natural resources. The ideal society here is an interconnected

global society with a focus on (the neoliberal ideal of) individual autonomy and freedom. The core issue is the profitability of adaptation measures, with different views being expressed about how this can be achieved. These views range from greater involvement and partnership between state and private sector to ensure continued economic growth, to minimizing the state's involvement in order for market actors to lead adaptation according to profitability, unbound by regulations. Market actors are seen as the natural leaders of adaptation in this imaginary. In our data set for Paper I, most texts belonging to this imaginary promote an incremental approach to adaptation and, in common with the Eco Modern State imaginary, generally assume climate change will develop gradually and predictably. It is similarly assumed that the fundamental structure of societies will remain intact. An example of this is Janssens et al.'s (2020) study on the long-term benefits of 'open' global trade of food as an adaptation strategy to reduce climate change induced hunger. Their study assumes that the relevant institutions that facilitate a globally integrated market remain intact over the coming century, and which is more problematic, ignores extreme weather events by assuming a long-term equilibrium of the stresses induced by climate change. They also indicate that even in their 'best' scenario South Asia and South East Asia (among the most populous, and the most vulnerable, areas in the world) will be disadvantaged. As mentioned in the previous section there are texts, especially earlier adaptation literature (around 2000–2010), representing this imaginary that advocated a reactive approach to adaptation. This goes together with the idea of adaptation being premised on profitability: it is hard(er) to make a profit from the absence of impacts, i.e. successful proactive adaptation measures; it is easier to address already apparent impacts through market mechanisms. Over time, as with adaptation research in general (see Chapter 2) there has been a move towards promoting proactive adaptation strategies, which consequentially has led to greater focus on partnerships and security offered by the public sector in order to ensure the stability of the market. In contrast to the Eco Modern State, it is market actors and the ingenuity of entrepreneurs that are central in the desired future and will provide the solutions — if properly supported.

The most prominent imaginary I find through my study in Norrbotten (Paper II) can be seen as a regional version of this imaginary. The regional version similarly focuses on economic growth and market led technological advances that can not only deal with the adverse effects of the climate crisis but also usher in a new era of economic prosperity — if supported by the public sector. As the study in Norrbotten focused on the public sector, and the study of globally circulating imaginaries aimed to map different governance actors, it is only natural that the public sector has a more

prominent role in my material drawn from the regional study. In the model presented at the start of this chapter, this regional expression should be placed in the left section of the Promethean (Green) Growth bubble, and below the horizontal line, marking it as promoting an incremental aim through the adaptation efforts. It is clear that adaptation should be geared towards protecting industrial expansion and capitalize on the comparative advantages of Norrbotten such as being able to host winter activities further into the future than Dalarna, in Sweden, or the Alps, in central Europe. In that sense the public sector takes a supportive role towards market actors. It is also clear that the imaginary assumes the benefits of an interconnected global society, for example expecting the Barents Sea to be ice-free, leading to increased trade with East Asia within the coming decades, while ignoring the cascading risks the same scenario would entail. There is a curious difference here between the national level and the regional level in my material. While the national level reproduces a version of the Eco Modern State, the regional level positions the public sector as support of the market and aligns more closely with the Promethean (Green) Growth imaginary.

However, we show in Paper I that in recent years the Promethean (Green) Growth imaginary is also showing tendencies of a more radical formulation that I have not encountered through my fieldwork in Sweden. In this version, longer time-frames usually come to the fore, and the inherent uncertainty and threat to global stability is acknowledged by its proponents. This leads to promoting a kind of transformative and disruptive approach to adaptation (Marquardt & Nasiritousi, 2022) — although not as conventionally understood and discussed in this thesis. Instead of re-evaluating the fundamental premises of industrialized societies, the uncertainty produced by the climate crisis is taken as a prompt to reassert control in the form of expanding the market and thoroughly financialize adaptation (and abandon areas where it is not deemed profitable to invest). Proponents of this version of the imaginary also favour minimizing the states' involvement, as the public sector is not only seen as ineffective but also potentially creating a false hope that could discourage vital initiatives from private citizens and businesses.

8.1.3 Just Adaptation

As the name suggests the principle of justice is central to this imaginary and functions as the teleoaffective regime: those causing damage are responsible both for compensating those affected and for reforming current political, economic and cultural structures that are perpetuating the climate crisis and other structural injustices. Compared to the other imaginaries, it is with Just Adaptation that ecological boundaries and limits are most prominent,

signalling the need to adapt *with*, rather than *against*, climate change (see Section 2.1). It is also within this imaginary that both long-term perspectives, uncertainty and limits of incremental and technical adaptation measures are assumed. However, the visions associated with this imaginary are not about constrains and sacrifice; rather, it is focused on cultural flourishing, beyond and decoupled from, economic expansion. This means that this imaginary is the one in our data set that most consistently espouses a transformative approach to adaptation. In a similar way to the critique raised against the transformational adaptation literature (outlined in Chapter 2), there is generally a lack of both concrete measures or more specific visions in this literature. In the terminology of this thesis, it can be expressed as lacking 'general understandings' that can be translated into situated practices and actions. It should be noted though that, due to our methodology, our sample consists of the most circulated documents, which means this does not necessarily mean there are no concrete visions or suggestions for tangible strategies to achieve them. It does however suggest that the more concrete visions or suggestions do not get the same circulation. This is in line with the views of civil servants as reported in Paper II: a number of interviewees express that radical language of transformation is allowed so long as it does not translate into concrete changes (or more precisely any costs) to the current system. However, it should also be acknowledged that the endeavour to change society as a whole, which is the premise of most of the documents representing this imaginary, is needless to say no small feat – and how to go about it is no simple task. Yet, it is noteworthy that the imaginary is basically confined to academic circles. In academia, it has enjoyed a stable presence since the turn of the millennia (although it has grown more influential over the years, as is shown in Chapter 2). As our study shows (Paper I), it is rarely expressed in the grey literature (and when it is, it often is through reports or briefs written by academics). Consequentially, it has had limited effects on concrete adaptation strategies, at least in the context of state-led adaptation efforts (Berrang-Ford *et al.*, 2021; Nalau, 2021). This does not mean that the imaginary is unknown, or uninfluential. For example, the counter hegemonic visions emerging from a few civil servants in Norrbotten (Paper II), have a lot in common with the Just Adaptation imaginary, with an aim of transformative adaptation and creating a society based on principles of justice, sufficiency and cultural rejuvenation. In the local, more concrete, expression it is also notable how transboundary risks are explicitly acknowledged and how a re-imagining of our relation to nature is central. Yet, in common with the imaginary, how this is to be achieved or where to start is nebulous or at least given contradictory responses between different interviewees. It is also clear from the interviewees (and my fieldwork at other

sites) that this imaginary is not particularly influential in the public sector's work with adaptation. This begs the question of what academia should do. It is clear that the traditional way of researching and disseminating findings is no longer enough (Fazey *et al.*, 2020). As Glavovic, Smith, and White starkly put it: "the science-society contract is broken" (2021, p. 1). Their conclusion is that the most powerful response available is to call for a moratorium on climate science, until governments around the world act upon the already settled science. Starting from a similar analysis, Gardner and Wordley (2019) urge fellow researchers to join in civil disobedience. While the exact strategies can be debated, and a multitude is necessary (Sovacool & Dunlap, 2022), I agree that the research community must act upon its own findings, which means changing practices, and the assumptions, routines and ends that guide our work.

8.1.4 Marginalized regions, the missing actor group, and dystopias

As I stated in the section above, our review in Paper I is not exhaustive, which means there are some notable exceptions as a consequence of our methodology. Furthermore, since the rest of my study focuses on the public sector in Sweden, my research leans into exploring dominant imaginaries and associated practices, and so regions, actor groups and communities, which can be expected to promote counter-hegemonic visions and practices, are not in focus. For example, documents emanating from Africa (except South Africa), Latin America (except Brazil), and Small Island Developing States are not represented in the key documents reviewed and analysed. This is partly due to our choice of origins[53] for our searches in Paper I, but also indicates that perspectives from these regions are not well-represented in the influential literature on adaptation (Parsons *et al.*, 2019; Eriksen *et al.*, 2021). Furthermore, documents produced by civil society actors are also largely missing in our sample, indicating their marginalized role in global governance of adaptation (Biermann *et al.*, 2012). In our study this is, however, also connected to our methodology as the majority of civil society actors act locally, or regionally, and rarely focus on producing reports or policy recommendations intended for global circulation. Still, it is surprising that no environmental NGO is represented in our sample, as organizations focused on recurring reports as a means of influencing policy developments do exist (e.g. Carbon Brief, Climate Outreach, and Rights and Resources

[53] In order to simulate searches originating from different regions of the world, combined with our aim of mapping globally influential imaginaries, we used a VPN to make searches from 11 countries that are politically and economically important in their respective regions and in climate negotiations. These countries were: Australia, Brazil, France, Germany, India, Indonesia, Israel, Japan, South Africa, United Kingdom, and USA. We also intended to include China, but were not able to due to China's restrictions on using VPN-services.

Initiative). Additionally, more dystopic and apocalyptic visions are also not showing up in our review. These may indeed exist to the extent that they are shaping practices, as illustrated by a resurgence of eco-villages (Litfin, 2012; Magnusson, 2018) and prepping culture (Campbell, Sinclair & Browne, 2019; Barker, 2020). Dystopic visions are also expressed by most of the civil servants, especially at local level, which I have interviewed. They do not, however, directly shape either globally circulating imaginaries as represented by the influential texts or the practices in the Swedish public sector. It is, however, clear from Paper II that the dystopic visions are based on a broken trust in the ability of the dominant imaginaries to realize their desired futures, or indeed in whether they are desirable at all.

8.2 Imaginaries, Practices and Transformative Adaptation

RQ3: How can transformative approaches to adaptation be understood through the integrated framework of imaginaries and practices, and how can transformative processes be promoted?

The theoretical groundwork for addressing this question is laid out in Chapter 2, Section 2.3 on transformative adaptation, and Chapter 5, Section 5.5 on the relation between practices and imaginaries. To summarize my argument from these chapters, I hold that the relationship between imaginaries and practices is dialectical. Imaginaries emerge out of, and are reproduced through, practices. When imaginaries have been established, i.e. when collectively held visions of a desirable future have gained traction to become materially embedded and politically performative, they in turn shape a number of practices in a sociocultural group/political context. Challenging established imaginaries (such as Eco Modern State and Promethean (Green) Growth), or expanding the influence of existing but confined imaginaries (such as Just Adaptation) are, needless to say, gradual and long-term processes. Part of contributing to these long-term processes concerns foregrounding and unpacking the visions and assumptions that these imaginaries hold, and determining who benefits from them. Unpacking these often implicit visions and the assumptions they rely on, in turn demands critical reflection, going beyond routine response that reproduces them (Grin, 2020). Schön (1983) called this "reflection-in-action" in the seminal book 'The Reflective Practitioner', showing how reflection cannot be dis-connected from action and interaction if it is to be meaningful. The ability to question assumptions and routines must be developed in the context where

they are intended to be used[54]. This idea of critical reflection (in action) as a prerequisite for changing behaviours and systems has long been argued for (as we detail in Paper III). This has generally been held as a capacity of the individual (Shove, 2010). Social Practice Theory (SPT) holds a different view. To reiterate, SPT holds that most of our actions are based on unreflective and embodied understandings, which reproduce social patterns. This does not, however, deny the ability of individuals to consciously reflect and act differently. While this capacity may vary between individuals, educating individuals to strengthen this capacity is in itself not enough. From a practice perspective, this capacity is activated, and responded to, in practice. It is in the performances of practices that taken-for-granted assumptions and ends are challenged, through subversive performative acts. What a practice perspective highlights is that even critical reflection is not entirely an individual phenomenon. For it to have tangible effects, it must be allowed and recognized by the other performers of practice, and responded to with an openness to reconsider routines, assumptions and ends guiding the practice. In short, the outcome of such challenges depends on the response from other members of the practice. It follows that critical reflection, and changing assumptions and ends, is a joint endeavour in practices, which I argue is better captured by the term 'reflection-in-practice'.

As we show in Paper III these kind of challenges, or subversive acts, do occur in the practices I have studied. They are to that extent allowed (as they occur), and the capacity (and courage) to voice them also exist. Where it falls short is in the way other members of the practice respond. Instead of opening up discussion on the routines and ends of the practice, we found that all subversive acts were met with a variety of sanctions (from requesting that a critical question be discussed in a different meeting or over e-mail, to a denial of the relevance of critique, to nervous laughter over concern about food security). By the end of my participant observation period of both NNfA and the County Administrative Boards' network for coordinating adaptation (the CABs-network) there were some encouraging signs, which hint at two ways practices do (potentially) change[55]. In both cases, this was related to the Climate Ordinance that came into effect in 2019. For NNfA, this meant a considerable expansion of the network. One effect this had was the influx of 'neophytes' to the practice, some of whom were senior civil servants. More than one of these new, but senior, civil servants questioned the structure of the meetings of NNfA, arguing that the time would be better spent on cross-

[54] Basically, you only learn so much about growing vegetables from a book, just like you can only learn so much about meaning making process in adaptation by reading a dissertation.

[55] This, however, occurred after we had started writing what became Paper III, and is not part of the data for this article.

sectoral risks and the "really complex issues none of us [government authorities] can deal with on our own". This sparked a restructuring of the next meeting, which organized a number of discussion groups on themes such as Energy and Water, Buildings and Infrastructure, and Nature and Environment. This, however, became a one-off occasion and not a new routine. In the CABs-network, the members themselves set up a working group to evaluate how they were working and how it could be improved. It however quickly became clear that this was not aimed at questioning the purpose of the meetings and what the platform was used for, but rather it focused on how the information sharing could be done more efficiently. This illustrates two points. First, practices may change according to external pressure — for example new regulations. However, how these external changes are interpreted and acted upon is not given, but is filtered through the teleoaffective structure of the particular practice (Westberg and Polk, 2016). Secondly, it illustrates how newcomers to a practice may be more inclined to question fundamental assumptions and the ends of a practice, as they have not yet learnt the practical understandings of the practice (Lave & Wenger, 1991).

In terms of the more specific ambition of inducing and supporting transformative adaptation I have suggested in Section 2.3 that what is sometimes called 'transformative incrementalism' (Buchan, Cloutier & Friedman, 2019) fits well with a practice approach, and is how I see the relation between practices and imaginaries. This is because the view of change through a practice lens is inherently gradual, and understood as small steps that accumulate to produce shifts in teleoaffective structure, and potentially even imaginaries. The key is, however, a sustained aim of transformative change. That intentional transformative change depends on aiming for transformative change is little more than a truism. However, it bears repeating in this context as what I uncover through my study is that most of the subversive performative acts are not questioning the fundamental ends of the practices, i.e. do not have a transformative aim. Based on my interviews, the civil servants can roughly be divided into two camps, where the larger one is essentially arguing for improving adaptation by doing the same work faster and more efficiently, while a smaller group sees the need for more fundamentally changing how they work and what they aim to achieve. It is clear that mid- to long-term (longer than 10 years) perspectives are not immediately present in the current adaptation practices and the civil servants thinking. When these kind of long-term perspectives are prompted, as they were in the interviews and in the workshops we conducted through the MASA project, discussion usually shifts to deeper questions about the relevant assumptions and priorities in the current work. It is also telling that

the workshops in particular have been well received and the participants acknowledge that reflection on the value conflicts and assumptions about the future are seen as an imported and missing piece in their everyday practices (Löf, Kanarp & Westberg, 2022; see also Schrage, 2023). Additionally, both the interviews and the literature study conducted for Paper I show the importance of acknowledging the inherent uncertainty of predicting the future, specifically in relation to the climate crisis, and the risk of transboundary, cascading effects, for moving past assumptions of incremental adaptation as sufficient. However, both the workshops and the interviews are better understood as separate practices (not part of the civil servants' adaptation governance practices). While they may play a small part in challenging currently hegemonic imaginaries of Eco Modern State and Promethean (Green) Growth, if and how they affect the practices in the networks, government authorities and municipalities is questionable. This is because, for their practices to change there have to be sustained efforts to create space for joint critical reflection *within their practices.*

In short, transforming society in response to the climate crisis through adaptation, demands new, ambitious visions of desirable societies, but sustained change will only come about when these visions (and new ideals and assumptions) are internalized to guide our practical understandings in practices.

8.3 Further Research

As with any research this thesis and what it can claim to show (and not), is contingent on the theoretical frameworks used, the methodological choices made and the data generated for answering the posed research questions. For example, as noted, our study of globally circulating Climate Adaptation Imaginaries is limited in its scope and documents studied. Since we, with Paper I, focused on dominant imaginaries shaping adaptation governance our methodology, prioritised the industrial world, which by extension is influencing priorities and financing of adaptation globally. As such, exploration of alternative imaginaries through research targeting specific regions (such as Africa and Latin America), or specific (types of) states that are particularly vulnerable or and already experiencing climate change impacts (such as Small Island Developing States), are important complements to our study. In connection to the need to go beyond the dominant imaginaries (and practices), it is clear we need to go beyond the state and its public sector (as well as the market) to find inspiration for new desirable visions and the practices trying to make them reality. Civil society is an important governance actor in this regard, which has not been in focus

in this study, but which other have examined in more detail (e.g. Sorce 2022; Yan, Lin & Clarke 2018; Koliev, Duit & Park 2024; Vinthagen 2006). Further research could, for example, entail action oriented research (Kemmis, 2010; Egmose, Gleerup & Nielsen, 2020) using, and developing, the theoretical framework outlined in this thesis, to study alternative communities such as eco-villages, Extinction Rebellion (XR) and Scientist Rebellion, and permaculture initiatives, which can be understood as holding counter hegemonic imaginaries, and performing alternative practices (while being enmeshed in the same overarching political, economic and cultural structures). Furthermore, the timing of my own 'discovery' of theoretical frameworks means that the theorization of integrating imaginaries and practices is largely a desk study, since my fieldwork was mostly done before I started to engage with CFS and imaginaries. This means that work on how the mechanisms connecting imaginaries with practices remains to be explored through empirical studies designed for this purpose. Another line of research in connection to this is power, specifically in practice. In this thesis, imaginaries are implicitly positioned as power over practice, which in itself can be further developed. Developing a conceptual framework for power *in* practice remains to be established[56], by for example developing an understanding of how the situated agency of an individual is not only an outcome of a specific practice but intertwined with societal structures. Lastly, this PhD project was significantly shaped by the COVID-19 pandemic, which altered my plan for fieldwork and by extension the theoretical framework used. This has created both limitations and ideas for future research. For example, due to limited participant observations, relative to the original plan, I have given less attention to the role of materiality in shaping both practices and imaginaries of adaptation governance than I made out in the original project plan. That is, how does the physical environment enable or limit certain types of visions and practices? Studies where materiality features as an important analytical component can be found using both practice theory (c.f. Shove, 2017; Evans, 2020; Bäckman, 2024) and imaginaries (c.f. Watkins, 2015; Mutter, 2020; Davoudi & Machen, 2022). Less work has been devoted to the question 'how does materiality connect imaginaries with practices?'. That participant observation was cut short also means that my exploration of the embodied performances at the municipal level was never realized. This remains an interesting and important exploration in its own right, but it also means that I have only scratched the surface of the (potentially) different embodied understandings and ends at

[56] There is a growing literature on the topic of power in Social Practice Theory (Watson, 2017; Schmid & Smith, 2021; Scheurenbrand *et al*., 2024), most of this literature has however worked with 'flat ontology' (see Section 5.4), which has left the analysis of power in practice unresolved, as it leads to a view of practices dominating practices.

different levels and sites in the Swedish adaptation governance regime. Recent studies such as Göransson *et al*. (2023) and Metzger *et al*. (2021) have made important contributions to this end, although primarily through interviews and questionnaires.

9. Concluding Reflections

The climate crisis demands transformative responses, including transforming the governance of adaptation and the purposes of adaptation actions taken (Löf, 2014; Nightingale *et al.*, 2020; Arora & Stirling, 2023). I argue in this thesis for, and outline how, combining Critical Future Studies and imaginaries with Social Practice Theory's use of practices enables exploring the dialectical relationship between imaginaries and practices. This allows for critically exploring the meaning making processes which shape both 1) what is seen as relevant boundaries of the adaptation governance and what it should achieve, and 2) what practical understandings and often-implicit ends guide the 'doings' of adaptation governance. This thesis suggests that it is important to understand the globally circulating visions, assumptions and ideals associated with adaptation — the imaginaries — and which actors promote a specific imaginary, and with what effects. In addition, we need to study the embodied performances, routines and ends of adaptation governance putting these assumptions and ideals to work — that is, we need to study the practices. This is important because it is the basis for being able to unpack the current meaning-making process reproducing the current situation of inertia. Achieving this will make us better equipped to move towards transformative adaptation.

The most influential imaginaries shaping adaptation, identified in this thesis, assume that the future is predictable and controllable. This view of the future is intertwined with Western ideals of modernity such as economic growth, technological innovations and expert-led planning. This leads to the promotion of proactive and incremental adaptations strategies, protecting the current structure of society, specifically the integrity of the nation-states and market institutions. Generally, focus is on direct effects of climate change, ignoring transboundary risks, while assuming continued benefits from an integrated and global market. Uncertainty and complexity are often downplayed, and strategies and visions are usually short-sighted. I interpret this as an outcome of the underlying assumptions of a separation between

society and climate, and a belief in human ability to predict and control the future, as these assumptions are only believable in relation to the near future in a world increasingly shaped by the climate crisis. My fieldwork at different sites in Sweden reveals that similar assumptions shape regional imaginaries and practices. This thesis argues that this lack of engagement with long-term perspectives, transboundary risks and potentially cascading effects of climate driven impacts, is a necessary omission in the dominant imaginaries for them to be coherent. Focusing on direct effects and short-term perspective thus functions as boundaries for adaptation governance in these imaginaries in order to construe proactive but incremental adaptation as a sufficient strategy to realize the desired society envisioned. Through a practice theory approach, this thesis demonstrates how these assumptions are reproduced, not through discussion and conscious choices, but through situated routines and practical understandings. This is illustrated by how civil servants who in other settings (i.e. other practices such as interviews and workshops) express assumptions and values that are contradictory to the dominant imaginaries, are part of reproducing the practical understandings leading to incremental adaptation strategies.

I understand transformative adaptation as adaptation measures that aim to respond to climate risks and or effects, while simultaneously contributing to shifting assumptions, priorities and structures of societies that reproduce the causes of the climate crisis. Transformative adaptation thus entails shifting the imaginaries and practices that reproduce the currently dominant political, economic and cultural systems. As I explain the relationship between imaginaries and practices as dialectical, one can in theory begin at either end. An assembly of practices changes when a new imaginary becomes dominant. It is clear that we need new imaginaries to reshape a multitude of practices, including (public sector's approach to) adaptation governance practices. However, new visions, aspiring to become imaginaries, emerge out of practices, before being able to shape a host of related practices. Changing practices from within entails critical reflection on the assumptions and ends that guide the specific practice, and subversive performative acts that challenge these. This demands that creative, and courageous, individuals with positions in society that give them power to mobilize change, are willing and able to challenge conventions; but just as importantly, it demands receptiveness in the practices — an openness to create and continuously reproduce spaces for joint critical (self)reflection. However, my research on adaptation governance in Sweden indicates that this is rarely realized. Through my fieldwork, I show how performative subversive acts, challenging taken-for-granted ways of doing things, are met with resistance rather than openness at the national level; civil servants express they cannot

voice alternative views on the priorities for adaptation in their work environments.

It is prudent to conclude with some tangible recommendations based on the findings. I have put myself in a difficult position here, since my underlying question is: how do we transform society, through adaptation, in order to manage the climate crisis and create a more desirable society? I have no answer. Transcending this impasse will ultimately require a fundamental shift in how we organize society, and how we understand ourselves in relation to climate and the biosphere. My thesis suggests that it is unlikely that the seeds for this incredible shift in social, economic and cultural systems will begin within the state's public sector (at least in Sweden). However, working from within the system it is possible to carve out spaces to jointly reflect upon the current assumptions and ends shaping practices, which in turn guide routine actions — and whether these are helping us respond to the climate crisis and its causes. As political directives, and imagination, is currently lacking (or at least remains contradictory) and the spaces for joint critical reflection are unrealized, it is natural that civil servants reproduce problem formulations that validate their current way of working. In order to induce and support transformative adaptation, specifically, it is necessary to not only foreground the current routines, assumptions and ends, but also to reflect on alternatives. This thesis contributes to doing this. Key entry points, based on this study, are acknowledging transboundary risks, and adopting not only short, but also long-term perspectives. This confronts us with learning to live with uncertainty. To move beyond the dystopic visions such acknowledgement induces we must create spaces to jointly imagine alternative desirable future societies, and how can we start realizing these imaginaries today by actively changing our practices, subsequently leading to new practical understandings.

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Popular Science Summary

The climate crisis calls for transformative responses, including transforming the governance and purposes of adaptation. This thesis contributes to understanding the inertia that marks adaptation, especially in terms of transformative adaptation led by the public sector in the Global North. Additionally, this thesis offers empirically grounded reflections on what factors are important to and may enable transformative adaptation. This is done by using the theoretical framework of imaginaries, drawing on Critical Future Studies, and the concept of practices, drawing on a Social Practice Theory framework. An imaginary is in this thesis defined as a collectively held vision of a desirable (future) society, that is materially embedded and politically performative, which contain strategies to realize (or maintain) its vision. A practice is in this thesis understood as situated, co-created and routinized way of making sense and acting. A practice guides knowledgeable actors towards shared ends, and shapes what is seen as acceptable ways of acting in order to achieve these ends. This combination of theoretical frameworks allows for exploring meaning-making processes shaping adaptation governance, its purpose, boundaries, and how it is performed. Empirically, this is done by combining an overview of globally circulating and competing climate adaptation imaginaries with a layered case study of regional imaginaries and situated practices of adaptation governance in the Swedish public sector.

In this thesis, transformative adaptation is understood as adaptation actions that not only respond to climate effects, but also aim to shift assumptions, priorities and structures of societies that are part of reproducing the causes of the climate crisis. This means challenging the ideals, assumptions and routines that reproduce the currently dominant political, economic and cultural systems.

The material gathered and generated for this thesis consists of internationally influential academic and ‘grey’ literature on adaptation, and participant observations at key sites in the Swedish adaptation governance

regime, interviews with civil servants at national, regional and municipal levels, as well as documents produced by actors at all levels in the public sector.

In the material, I find six competing Climate Adaptation Imaginaries circulating globally through influential texts on adaptation: The Eco Modern State, Promethean (Green) Growth, Just Adaptation, High Tech Society, Human Stewardship and Knowledge Society. The first three are distinguishable also in the Swedish adaptation context.

The vision guiding the Eco Modern imaginary is a society that upholds the Sustainable Development Goals, by protecting the integrity of the nation-state, economic growth and associated institutions, and exporting them worldwide. It is underpinned by a set of fundamental assumptions, which hold that the future is largely predictable and that the climate crisis is manageable through planning, infrastructure projects and generally data-driven, proactive and incremental adaptation strategies. I demonstrate how a version of this imaginary shapes the practices at the national level in the Swedish public sector. It takes the form of a practice that assumes predictable changes in climate and society, and promotes a strategy based on (more) information and incremental steps of protecting current societal structures. However, this is premised, both in the imaginary and the practices, on downplaying or ignoring plausible high-risk scenarios that would question the assumptions of predictability and the sufficiency of incremental strategies.

The Promethean (Green) Growth imaginary is built around a vision of a global, interconnected market-driven society in which economic growth is the top priority. It is an imaginary that mostly is upheld by market actors, but it has supporters in academia and among state actors as well (especially local and regional actors). Its assumptions typically include a view of the future as predictable, and often a focus on short- to mid-term time-frames, where the market is not only able to solve the problems associated with climate change, but potentially also thrive by finding new grounds for economic expansion. A regional version of this imaginary is found to be the most prominent in the Swedish region of Norrbotten, where the central vision is a second industrial revolution for the region utilizing the vast natural resources and technical expertise to develop the region's economy and industry, and to stimulate export of resources and technology globally. Proactive adaptation is seen as necessary for this to be realized, but it is clear that incremental adaptation aimed at protecting economic activities are a priority. Largely, transboundary climate risks are ignored, while transboundary benefits are assumed, in both the global and the regional versions. Notably, a more radical version of this imaginary is emerging globally, which differs in a key way. While this more

radical version holds the same desirable future as an ideal, it differs by acknowledging that climate change makes the future unpredictable, by factoring in transboundary risks and adopting long-term perspectives. This leads some to argue for what can be described as transformative adaptation. However, this is understood as allowing market actors to assume an even greater role in adaptation, by financializing adaptation to the point of transforming the relation between market actors and states (and academia and civil society). In short, the notion that the future is unpredictable is seen as an anomaly, which prompts efforts to reassert control.

The third globally circulating imaginary, which has relevance in the Swedish context as well, is Just Adaptation. In this imaginary, a transformed society, as it is more conventionally understood, is the collective vision of a desirable future society; a society that moves away from economic growth as the highest good, and centres justice, sufficiency and cultural flourishing decoupled from expanding natural resource extraction. Compared to the other two imaginaries, transboundary risks are frequently acknowledged and humanity is not seen as fully in control, nor separate from the rest of the biosphere. This imaginary has a counterpart in visions expressed by a few civil servants working in the region of Norrbotten. In the Swedish context it is not (yet) an imaginary, in the way I define it in this thesis, as it does not seem to be collectively held, or materially embedded and politically performative, or shape the adaptation strategies in the public sector. It is also notable that expressions of this imaginary, and the regional visions, lack concrete strategies for realizing the ideal society and often differs in its expression on who should lead adaptation or on what level leaderships should be situated.

It is clear the currently dominant imaginaries will not contribute to producing just and desirable futures able to manage the effects of the climate crisis over time. Society needs new, ambitious, imaginaries to reshape the practices currently guiding adaptation governance. Imaginaries do not, of course, come from out of thin air. They start as new visions that emerge from interactions of people, i.e. in practices. If, and when, they are reshaping assumptions and priorities in a practice they may start to influence related practices, until a new imaginary is established, which in turn can start reshaping a host of different practices. This is needless to say slow processes, starting with critical reflection on, and in, the relevant practices. This in turn demands courageous individuals with the power to exert their influence and the will to challenge conventions. Importantly, this demands, from a practice perspective, an openness by other participants who are part of the practice in order for challenges to amount to opportunities to change practices. This

openness is currently lacking in the practices I have studied in the Swedish public sector.

Through this study I show how creating spaces for the critical examination of routines, assumptions and ends of established practices of adaptation governance is a first necessary step in order to move towards transformative adaptation. It is particularly important to highlight long-term perspectives and transboundary risks, in order to move past technical discussion and open up for deeper reflections about the values and taken-for-granted assumptions that currently guide adaptation. However, to move past the dystopic visions that usually follows from opening up to the uncertainty that comes with acknowledging transboundary risk and long-term perspectives, it is necessary to make space for jointly imagining new and desirable futures as a response. Importantly, this must be followed by reflections on how we can start making steps to realize the desirable future society today, by actively changing the practices of adaptation, until they become established as new routines, assumptions and guiding ideals.

Populärvetenskaplig sammanfattning

Klimatkrisen kräver transformativa åtgärder också när det gäller styrningen av klimatanpassning och anpassningsåtgärders syften. Denna avhandling bidrar till bättre förståelse av trögheten i omställningen av samhället genom klimatanpassning, och bidrar med empiriskt grundade reflektioner över hur vi kan röra oss mot transformativ klimatanpassning. Detta görs genom att integrera det teoretiska ramverket kritiska framtidsstudier *(Critical Future Studies)* och konceptet *'imaginary'* (här översatt till framtidsvision), med teorier om sociala praktiker *(Social Practice Theory)*, för att utforska de meningsskapande processer som formar styrning av klimatanpassning, vad klimatanpassning ska uppnå och hur den genomförs. En framtidsvision (*'imaginary')* definieras i denna avhandling som en kollektiv vision av ett önskvärt (framtida) samhälle som är materiellt förankrad och politiskt inflytelserik, och som innehåller strategier för att förverkliga (eller upprätthålla) denna vision. En social praktik förstås i denna avhandling som situerade, gemensamma och rutiniserade sätt att skapa mening och agera. En social praktik vägleder kompetenta aktörer mot gemensamma mål, och formar vad som ses som acceptabla sätt att agera för att uppnå dessa mål. Empiriskt undersöks dessa meningsskapande processer genom att kombinera ett urval övergripande globalt cirkulerande framtidsvisioner med bäring på klimatanpassning, med regionala framitidsvisioner och klimatanpassningspraktiker i svensk offentlig sektor.

Transformativ anpassning förstås i avhandlingen som anpassnings-åtgärder som inte bara svarar mot kända klimateffekter, utan också syftar till att förändra de antaganden, prioriteringar och strukturer i samhällen som är del i att reproducera orsakerna till klimatkrisen. Transformativ anpassning innebär därför att utmana de ideal, antaganden och rutiner som reproducerar de för närvarande dominerande politiska, ekonomiska och kulturella systemen.

Materialet som har samlats in och genererats för avhandlingen består av internationellt inflytelserik akademisk litteratur och rapporter om klimat-anpassning, av deltagande observationer och intervjuer med tjänstepersoner

på nationell, regional och kommunal nivå som arbetar med klimatanpassning i Sverige, samt av dokument producerade av aktörer på alla nivåer i den offentliga sektorn.

Genom analysen identifierar jag sex konkurrerande framtidsvisioner för samhället i relation till klimatanpassning *(climate adaptation imaginaries)* som cirkulerar globalt genom inflytelserika texter om anpassning: Den Ekomoderna Staten (*The Eco Modern State),* (Grön) Tillväxt *(Promethean (Green) Growth),* Rättvis Anpassning *(Just Adaptation),* Det Högteknologiska Samhället *(High Tech Society),* Mänskligt Förvaltarskap (*Human Stewardship)* och Kunskapssamhället *(Knowledge Society)*. De tre första framtidsvisionerna är urskiljbara även i materialet som fokuserar på svensk offentlig sektor.

Visionen som vägleder Den Ekomoderna Staten beskriver ett samhälle som upprätthåller målen för hållbar utveckling genom att skydda nationalstatens integritet, ekonomisk tillväxt och tillhörande institutioner. Denna framtidsvision bygger på en uppsättning grundläggande antaganden om att framtiden är förutsägbar och att klimatkrisen kan hanteras genom planering, infrastrukturprojekt och datadrivna, proaktiva och inkrementella anpassningsstrategier. Genom min studie visar jag hur en version av denna framtidsvision influerarar den sociala praktik som upprätthålls inom svensk offentlig sektor på nationell nivå. Här förutsätts förändringar i klimat och samhälle vara förutsägbara vilket främjar en klimatanpassningsstrategi baserad på (mer) information och inkrementella åtgärder för att skydda nuvarande samhällsstrukturer. Både den globalt cirkulerande framtidsvisionen och den sociala praktiken förringar, eller helt ignorerar, dock rimliga högriskscenarier som skulle ifrågasätta de grundläggande antaganden om förutsägbarhet och kontroll som de inkrementella klimatanpassningsstrategierna bygger på.

Den centrala framtidsvisionen inom (Grön) Tillväxt är ett globalt, marknadsdrivet samhälle där ekonomisk tillväxt är högsta prioritet. Denna vision förordas och upprätthålls framförallt av marknadsaktörer, men den har även anhängare inom akademin och bland statliga aktörer (främst på regional och lokal nivå). Framtidsvisionens antaganden inkluderar en syn på framtiden som förutsägbar med fokus på korta till medellånga tidsramar. Marknaden antas inte bara kunna lösa problemen förknippade med klimatförändringar, utan potentiellt också frodas genom att hitta nya vägar till ekonomisk expansion och tillväxt.

En regional version av denna framtidsvision visas genom denna studie vara den mest framträdande inom offentlig sektor i Norrbottens län. I denna regionala version är en andra industriell revolution för Norrbotten central, där de stora naturresurserna ska exploateras och regionens tekniska expertis

användas för att utveckla regionens ekonomi och industri. Detta antas i sin tur stimulera export av resurser och teknik globalt. Proaktiv klimatanpassning ses som nödvändigt för att visionen ska kunna realiseras, men det är uppenbart att inkrementell klimatanpassning som syftar till att skydda ekonomisk verksamhet är högsta prioritet. Gränsöverskridande och indirekta klimatrisker ignoreras i stort sett, medan gränsöverskridande fördelar antas, både i den globala och den regionala versionen av (Grön) Tillväxt. På global nivå är det tydligt att en mer radikal version av denna framtidsvision för samhället håller på att växa fram. Denna mer radikala version har samma vision för ett önskvärt samhälle, men skiljer sig från den regionala genom att erkänna att klimatförändringar gör framtiden oförutsägbar, genom att ta hänsyn till gränsöverskridande risker och anta långsiktiga perspektiv. Detta får en del anhängare av (Grön) Tillväxt att argumentera för vad som kan beskrivas som transformativ klimatanpassning. Här förstås dock transformativt som att klimatanpassning i mycket större utsträckning bör överlåtas till marknadsaktörer genom att reducera klimatanpassning till en fråga om finansiering till den grad att relationen mellan marknadsaktörer och stater (och akademi och civilsamhälle) förändras i grunden. Kort sagt, föreställningen att framtiden är oförutsägbar ses som en anomali, vilket kan hanteras genom att återta kontrollen.

Den tredje globalt cirkulerande framtidsvisionen som har relevans även i det svenska sammanhanget är Rättvis Anpassning. I denna vision liknar föreställningen om ett transformerat samhälle den konventionella föreställningen av omställning (inom akademin): ett samhälle som går bortom ekonomisk tillväxt som den högsta nyttan. Här är målet istället rättvisa, måtta *(sufficency)* och kulturell blomstring frikopplad från expanderande naturresursutvinning. Jämfört med de andra två framtidsvisionerna (Den ekomoderna staten och (Grön) Tillväxt) erkänns ofta gränsöverskridande risker och mänskligheten ses inte ha fullständig kontroll, eller som skild från resten av biosfären. Rättvis Anpassning överensstämmer med individuellt utryckta visioner framförda av ett fåtal tjänstepersoner som arbetar i Norrbotten. Dessa visioner uppfyller inte (ännu) begreppet framtidsvision *('imaginary')* så som det definieras i denna avhandling. Det är också viktigt att påpeka att både den globalt cirkulerande framtidsvisionen Rättvis Anpassning, och de individuellt utryckta visionerna, saknar konkreta strategier för att förverkliga framtidsvisionens ideala samhälle. Dessutom går åsikterna ofta isär när det handlar om vem eller vilka som ska leda klimatanpassning, och även på vilken nivå ledarskap för klimatanpassning (och omställning) ska placeras.

Det är uppenbart att de nuvarande dominerande framtidsvisionerna inte kommer att bidra till att skapa rättvisa och önskvärda framtida samhällen

som kan hantera effekterna av klimatkrisen över tid. Samhället behöver nya, ambitiösa framtidsvisioner för att förändra de sociala praktiker som för närvarande styr klimatanpassning. Nya framtidsvisioner *('imaginaries')* kommer naturligtvis inte ur tomma luften. De börjar som nya idéer och visioner som uppstår genom interaktioner mellan människor, det vill säga i sociala praktiker. Om och när de blivit etablerade till den grad att de förändrar antaganden och prioriteringar i en social praktik, kan de börja påverka relaterade sociala praktiker, så att en ny framtidsvision (*'imaginary')* etableras som i sin tur kan börja förändra en mängd sociala praktiker. Detta är långsamma processer som börjar med kritisk reflektion över förgivet taganden och rutiner i relevanta sociala praktiker. Detta kräver i sin tur modiga individer, med makt att utöva sitt inflytande och med viljan att utmana konventioner. Utifrån teorier om sociala praktiker är det viktigt att påpeka att det krävs en öppenhet bland dem som ingår i en given social praktik för att utmaningar av konventioner ska skapa möjligheter till att förändra praktiken i fråga. Denna öppenhet saknas för närvarande i de sociala praktiker inom den svenska offentliga sektorn som har studerats i denna avhandling.

I avhandlingen visar jag hur steg mot transformativ klimatanpassning kan tas genom att skapa utrymme för att kritiskt granska och gemensamt reflektera över de rutiner, antaganden och mål som reproduceras i de sociala praktiker som nu vägleder klimatanpassning inom offentlig sektor. För att gå bortom kortsiktiga, tekniskt inriktade och inkrementella klimatanpassningsstrategier är det viktigt att explicit lyfta fram längre tidsperspektiv och synliggöra gränsöverskridande och indirekta klimatrisker. Detta riskerar dock att leda till dystopiska visioner. Det är därför nödvändigt att samtidigt skapa förutsättningar för gemensam reflektion och diskussion kring nya framtidsvisioner som erkänner den osäkerhet som kommer med inkluderingen av klimatkrisens indirekta effekter och längre tidsperspektiv. Dessa diskussioner behöver också inbegripa frågor om hur vi gemensamt kan ta steg för att gå från nya visioner av önskvärda samhällen till att etablera nya sociala praktiker, med nya rutiner, antaganden och ideal som vägleder handlingar.

Papers

II

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”Your research or my tinkering won’t help”: On (the lack of) Climate Adaptation Imaginaries in the Swedish Arctic

G.C.S. Kanarp

Division of Environmental Communication, Department of Urban and Rural Development at the Swedish University of Agricultural Sciences, P.O. Box 7012, 750 07 Uppsala, Sweden

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ABSTRACT

Developing ‘Climate Adaptation Imaginaries’, this paper explores visions of futures in relation to climate change and adaptation in the Swedish Arctic, a region where climatic changes are rapid and pronounced. The analysis draws on interviews with civil servants working with adaptation, fieldwork in the region of Norrbotten in Sweden, and relevant documents. The analysis focuses on future visions and whether, and how, they incorporate adaptation to the climate crisis as a strategy to achieve the vision. Particular focus is given to how adaptation is understood in terms of approach (reactive vs. proactive), aim (incremental vs. transformational) and focus (direct effects, or whether transboundary effects are included). Four different kinds of visions emerge in the material: economic growth coupled with a reactive approach; ‘green’ economic growth with proactive and incremental adaptation; a transformed locally anchored and regenerative society; and finally, a range of dystopia(s). It is only the two visions based on economic growth that are collectively held, materially embedded and hold political influence in the region. A variety of dystopias emerge as the main alternative presented by civil servants. This leaves adaptation guided by at best proactive, incremental and short-term focused strategies, and at worst driven by disparate dystopic visions.

1. Introduction

> …for let us make no mistake: the climate crisis is also a crisis of culture, and thus of the imagination.
>
> (Ghosh, 2017, 9)

In his book *The Great Derangement – Climate Change and the Unthinkable,* Amitav Ghosh (2017) argues that the ideas and ideals of the Enlightenment have locked science and politics in assumptions of uniform and gradual processes, where Nature is the inert and a passive backdrop to humanity’s progress. Ghosh takes this point a step further by showing how these assumptions have become foundational for our culture in general. He argues that if the disruptive and devastating events caused by the climate crisis were described in a novel we would not accept them as plausible. According to Ghosh, we have lost the imagination needed to understand the world we are creating. This means that the climate crisis is not only, or even primarily, a technical or financial problem (for a similar argument see Hulme, 2009). It is a crisis of culture that goes deep, posing fundamental ethical and political questions about humanity’s place in the cosmos and how we create a good society in the Anthropocene (Frame and Cradock-Henry, 2022; Otto, 2018).

E-mail address: christoffer.soderlund@slu.se.

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It is clear that we need new ways to exist in the world (Eriksen et al., 2015). The first step is then to *imagine* new ways to exist, as individuals, but more importantly as a society (Khotari, 2021). We need to imagine new, desirable and ambitious futures that respond to and accommodate this new climate-changed world. Imagining the future is thus political; conversely, political action is also (or should be) profoundly imaginative (Ghosh, 2017; Jasanoff, 2015b).

This study aligns with Critical Futures Studies (Godhe and Goode, 2018) and thus concerns itself with how our assumptions of the future shape what we see as possible and necessary today (Andersson and Westholm, 2019; Van Assche, Verschraegen, and Gruez-macher, 2021; Veenman, Kusters, and Beckers, 2021; Vervoort and Gupta, 2018). In the context of the climate crisis the importance of visions and assumptions is clear. We need to think not only of the present, but also a few years and up to several centuries ahead, simultaneously (Magnan, 2014). Indeed, climate governance, and especially adaptation, always has a future-oriented component (DeLeo, 2017). This means assumptions, priorities and simplifications are necessary (Jessop, 2010). It further means that these as-sumptions underpinning our visions of the future are powerful drivers of action (or inaction) and therefore central to explore (Tozer and Klenk, 2018).

Indeed, within social science and humanity studies engaging with suitability issues there has been an increased interest in anticipation and temporalities (Godhe and Goode, 2018). The role of imagination is also coming to the fore, in for example environmental politics scholarship (Hammond, 2021). Yet combining the role of assumptions, temporalities and imagination, especially with a critical edge, remains an overlooked area for climate research (Andersson and Westholm, 2019; Stoddard et al., 2021) – not least in the more specific adaptation governance literature (Vervoort and Gupta, 2018). This study aims to contribute to filling this gap in the literature by utilizing and developing the concept of 'Climate Adaptation Imaginaries' in relation to climate adaptation governance.

In this study I understand adaptation as 'active future making' (Bauriedl and Müller-Mahn, 2018), but rather than focus on what kind of futures specific adaptation actions might lead to, I explore visions of the future that shape adaptation strategies in the present. I draw primarily on the Political Economy strand of the imaginaries literature (e.g. Fairclough, 2013; Jessop, 2010; Levy and Spicer, 2013) and define imaginaries broadly as collectively held, materially embedded, normative and politically contested visions of desirable futures to strive for. Importantly, imaginaries in this literature by definition contain strategies to create conditions in the present to achieve their desired future (Levidow and Papaioannou, 2013). It is in this context that I insert adaptation to be understood as a specific category of strategy to achieve the collective vision of an imaginary (that relates and responds to the climate crisis).

To capture and categorise important assumptions in relation to adaptation I distinguish between different approaches, aims and focuses. I categorise adaptation according to: 1) reactive or proactive approach (Biagini et al., 2014); 2) incremental or transformative aim (Pelling, 2011); and lastly, 3) focus, whether adaption is only concerned with direct effects or if and to what extent transboundary risks are recognized and addressed (Anisimov and Magnan, 2023). What imaginaries, or the composite term of 'Climate Adaptation Imaginaries', thus highlights is how assumptions of the future, and often implicit ideals and values of what a desirable society is, shape the space for adaptation policy and action in the present.

The empirical context is the Swedish Arctic, more precisely the Norrbotten administrative region. The Arctic is a geographical area where climatic changes are rapid. Here, warming has been between two and four times faster than the global average (Jacobs et al., 2021; Rantanen et al., 2022), and the effects of climate change are already visible in the changing seasons and landscape (Rosqvist, Inga, and Eriksson, 2022). The public sector, not least the municipalities, have a key role in adaptation (Carlsson-Kanyama, Carlsen, and Dreborg, 2013; Kanarp and Westberg, 2023; Lidskog and Rabe, 2022). The public sector and its institutions are also of particular significance from an imaginaries perspective. When an imaginary becomes integrated into the governance discourses of public in-stitutions, the imaginary tends to shape the life worlds of the people under those institutions' jurisdiction (Jasanoff, 2015b). The empirical material includes interviews with civil servants working with adaptation, notes from fieldwork, and documents from mu-nicipalities and the County Administrative Board in Norrbotten. The geographical location, with rapid and pronounced changes, can be expected to promote early development of new imaginaries relating to a changing climate. Civil servants working with adaptation in the Arctic thus become an especially interesting group. As the Arctic is regarded as a canary in the coal mine for climate change (Borgå, 2019; Voosen, 2021), the Climate Adaptation Imaginaries in the public sector in the Arctic may be seen as an indication of where we are currently heading in response to the climate crisis.

Taking the need for new imaginaries as a starting point, this study asks:

- *What are the competing visions for society in the Swedish Arctic, in the context of climate change, as presented in policy and by civil servants? Are there visions that can be described as collectively held, materially embedded, and politically dominant,* i.e. *as imaginaries?*
- *How do the different visions, through assumptions, simplifications and ideals, shape adaptation strategies and priorities?*
- *Who benefits from the currently dominant Climate Adaptation Imaginary?*

2. Theory: imaginaries and adaptation

I start this section by outlining my understanding and usage of imaginaries. I draw here on aspects from the 'Political Economy', 'Sociotechnical' and 'Social' literature on imaginaries, as they contribute with different important insights when applying imaginaries to climate adaptation governance. In the first section, I combine the Sociotechnical understanding of imaginaries as future-oriented

and collectively held visions of desirable futures, with the Political Economy literature's focus on the strategies and political functions of imaginaries. As imaginaries by definition are collective, and part of my material is based on interviews with individuals, I address the relation between individuals and imaginaries in the second section. It is here in the second section that I draw more explicitly on the Social imaginaries literature. In the third and last section, I move to connect imaginaries to climate adaptation governance and provide a definition of Climate Adaptation Imaginaries.

2.1. Imaginaries as collective, embedded and political

Imaginaries are "collectively held and performed visions of desirable futures" (Jasanoff, 2015a, 19). Fundamentally, an imaginary aims to create conditions in the present to achieve its vision of a desired (future) society (Levidow and Papaioannou, 2013). Imaginaries have consequences not only by shaping priorities and political goals, but also in (re)arranging material conditions and outcomes (Eriksson, Fischer, and Ulfbecker, 2020). It follows that imaginaries are by definition normative (Mutter, 2021) and, building upon the Political Economy strand of the literature, imaginaries are striving for hegemony (Jessop, 2012). Which in turn means that imaginaries are contested, and they should be understood as "performative" in the political landscape in which they exist (Wissman-Weber and Levy, 2018).

As Davoudi, 97f et al. (2018) aptly put it:

> [imaginaries] are produced through political struggles over conceptions, perceptions and lived experience [and] circulated and propagated through images, stories, texts, data, algorithms and performances. They are infused by relations of power in which contestation and resistance are ever present.

In this struggle to define the desirable future, imaginaries carry strategies and the distribution of responsibility for particular issues, like adaptation, as well as ideas on how to organize society in order to achieve the desired future. All imaginaries thus imply a mode of "organizing production and consumption, and a prioritization of environmental, cultural and consumerist values" (Levy and Spicer, 2013, 660), which means "imaginaries of a climate changed future also hold significant consequences for the organization of social life and production of space" not only in the future, but also in the present (Paprocki, 2020, 253).

2.2. Individuals, visions and imaginaries

In the previous section, I outlined the characteristics and functions of imaginaries at the societal level. In this article, I am also interested in how civil servants view the future and how this relates to imaginaries as expressed in policy (Salazar, 2012). The relation between individuals and the, by definition, collective imaginaries thus needs to be addressed.

In Jessop's view, an imaginary denotes a kind of *shared* mental map, with assumptions and simplifications, necessary to process and make sense of a "supercomplex reality" (Jessop, 2010). These interpretive schemata (Salazar, 2012) are "semiotic systems" informing understanding (Levy and Spicer, 2013) and social cohesion (Dawney, 2011; Taylor, 2002). When imaginaries become widely shared, naturalized and institutionalized, they shape the interpretations and practices of individuals. At the opposite end of the spectrum, before being naturalized, the vision developing into an imaginary can originate from a small group of people or even a single individual (Frame and Cradock-Henry, 2022; Jasanoff, 2015a). Exploring individuals' ideas and assumptions about the future thus serves two purposes. Firstly, it can indicate whether, and which, imaginaries have a hegemonic position, by exploring visions that reoccur and shape practices in different settings. Secondly, small groups of people in circumstances that prime future-looking practices (for example civil servants responsible for adaptation in a rapidly changing landscape such as the Swedish Arctic) can also be expected to have visions with potential to get traction and evolve into new imaginaries.

A word on the terminology going forward. A key element of an imaginary is its vision of the future. For it be considered an imaginary this vision must be collectively held, with material and political influence to shape the present. It is however in the vision, and the assumptions and simplifications it demands, that the connection between the collective and the individual lies. I therefore use vision (of the future) both for individuals and, when collectively held, for imaginaries. Key here then is that an individual can express an individual vision (that is not part of an imaginary), or an individual can express a vision that is collectively held and then (potentially) part of an imaginary. Studying imaginaries thus entails studying visions of the future, and figuring out which are collectively held.

2.3. 'Climate Adaptation Imaginaries' – adaptation as a strategy to achieve an (implicit) ideal society

Adaptation to human-induced climate change is today fundamentally intertwined with, and responding to, expectations of climate-induced shocks and stresses (Biagini et al., 2014; DeLeo, 2017; Wissman-Weber and Levy, 2018). In short, adaptation is a future-oriented practice. Hence, it is crucial to understand the assumptions guiding the visions of different futures in order to understand preferred adaptation strategies.

What thinking with imaginaries highlights is that adaptation is not an end in itself. Adaptation is always bound up in, and struggled over, in competing visions of desirable futures. In this perspective the preferred adaptation pathway is not simply a response to an (anticipated) climate effect. Instead adaptation becomes a strategy for creating (or maintaining) the desirable society of an imaginary. Thus, a 'Climate Adaptation Imaginary' holds a collective vision of a desirable future society that at least relates to the changing climate conditions and promotes specific adaptation strategies to realize its desired society.

Analysing Climate Adaptation Imaginaries thus comprises eliciting the vision of desirable future guiding adaptation policy and

work, and exploring what assumptions are foundational for the preferred adaptation strategy. In this paper, I analyse adaptation, understood as a strategy to achieve a vision, according to three aspects. The first aspect considers whether the visions of the future assume a reactive or proactive[1] approach to adaptation (Biagini et al., 2014; Löf, 2013). This differentiation has been used for a long time in the adaptation literature (c.f. Smit et al., 2000), and sits at the intersection between stimuli, timing, and expectations. Responding to a heat wave as it is occurring or enhancing capacity to deal with a flash flood after an area has been flooded, are examples of reactive approaches. A proactive approach to adaptation is aiming to manage and prepare for expected climate-induced shocks or stresses that have not yet occurred. Reactive responses as a future-oriented practice may seem counter-intuitive. However, reactive responses relate to expectations and an overarching anticipatory understanding of adaptation in two ways. First, a reactive approach is based on expectations of either unlikelihood of climate change having a substantial effect or that these effects are manageable without targeted preparations (c.f. Vervoort and Gupta [2018] for a general argument along the same lines). Secondly, if adaptation measures are implemented after a shock, like a heat wave, this action is based on the assumption that it could happen again.[2] Arguably then, all adaptation measures today have an anticipatory element.

The second aspect of adaptation I use is the aim of the strategy, whether it aligns with an incremental or transformational ambition with adaptation (Shi and Moser, 2021). Another way of describing this distinction is to ask whether the strategy aims to maintain the current political, economic, and cultural systems, or to fundamentally change (parts of) these aspects of society in response to the climate crisis. The incremental approach is often driven by (a belief in) technological developments to ensure the persistence of the current system; it can also include modification to institutions and organisational formations in order to protect the functional integrity of the system (Read, 2021; Pelling, 2011).[3] Transformational adaptation refers instead to reconfigurations of a system in order to adapt (Löf, 2010). The focus is on causes of vulnerability to the climate crisis, with an aim to reform or radically alter aspects of the social, political, economic or cultural norms of society (Read, 2021; Pelling, 2011). Transformational adaptation is, depending on the scale and system definition used, beyond the capacity of a municipality or a region acting on its own. Nevertheless, it is important to note that both IPCC and The Swedish Expert Council on Climate Change Adaptation are urging for a transformational approach to adap-tation, recognising that fundamental changes in society are necessary (IPCC, 2022; Schultze et al., 2022). In this paper, I address this by taking a pragmatic approach to transformational adaptation by focusing on the intention or recognition of the need for trans-formational approaches, as expressed in documents and or by interviewees. This focus on intention and recognition further connects to an important aspect of transformational approaches to adaptation, namely the openness and willingness to "undertake major psy-chological adjustments" in order to respond effectively to the unfolding climate crisis (Read, 2021, 291; see also Wamsler et al., 2020).

The third and last aspect in relation to adaptation and future visions is what types of risks are in focus. Here I distinguish between direct effects in the geographical vicinity, and transboundary (including cascading) effects. Direct effects are rather self-explanatory, i. e. shocks and stresses, such as heat waves, droughts, cloud bursts etc. occurring in the municipality (or region). Transboundary climate effects are impacts that cross or even jump over national/administrative borders, such as large forest fires, disruptions in international supply lines, food security and migration (Anisimov and Magnan, 2023). Transboundary risks are of particular importance to Norr-botten (and Sweden and other industrialised countries in general), since both the region and the country are highly integrated with, and dependent on, international markets (Berninger et al., 2022).

3. Material and methods

This section is divided into four parts. The first situates the case and gives a brief historical background, and the second provides a short description of how the public sector in Sweden works with adaptation governance. The third section describes the material in more detail, how it was generated or collected. Finally, the fourth explains how the material was analysed.

3.1. The Swedish Arctic: "Where the green transformation is already happening"

The Arctic is a contested term, and Sweden practically became an 'Arctic country' with the creation of the Arctic Council in 1996 (Keskitalo, 2019). However, in all definitions (part of, or all of) Norrbotten is included in the Arctic. More importantly for this study, Norrbotten, its municipalities and the people I have met in my work increasingly describe and promote the region as Arctic. One example is how the municipalities are marketing themselves internationally as the Swedish Arctic, with "untamed" nature and Arctic lifestyles.[4] This is relevant to the extent that the Arctic imagery is used to revive problematic images of Northern Sweden, and Norrbotten in particular, as an untouched, wild and a largely empty region with vast natural resources. This is reminiscent of discourses from the beginning of the 1900s when the region went through rapid industrialisation as forests, ores and rivers were exploited by the Swedish state to fuel the development of the whole country. At the time, there were explicit comparisons with resource-rich colonies (Persson, Harnesk, and Islar, 2017), and the region was described as the Swedish America and "the Land of the Future" (Sörlin 1988). This is problematic, not least since it is a cultural landscape where the indigenous S´ami people have established land

[1] I have opted for using proactive instead of the, in the adaptation literature, more common 'anticipatory'. This is to minimize confusion as I argue that adaptation to human-induced climate change regardless of approach can be considered an anticipatory practice.

[2] Consider a meteor-strike in a city centre as a counter-example. It is unlikely the city would take measures to reduce its vulnerability to another meteor strike.

[3] Read terms this 'shallow adaptation' and Pelling uses the term 'resilience' in the current system to describe this approach.

[4] See "This is Swedish Lapland,": https://www.swedishlapland.com/this-is-swedish-lapland/

rights according to immemorial prescription (e.g. Allard, 2011) - it is not (nor was) empty.

Today the region is experiencing a second industrial revolution, with the focus once again on the vast natural resources waiting to be used in a region again described as a "land of the future" (Persson, Harnesk, and Islar, 2017). The pressure this time is not only to fuel the economic development of Sweden, but also increasingly the EU and a global market (European Commission, 2023; OECD, 2021). However, the new industrialization project has a distinct 'green' focus. The County Governor[5] of Norrbotten recently described the region as the place "where the green transformation is already happening" (Swedish Climate Policy Council, 2023). The Swedish Government, the region itself and the representatives of the private sector describe it as a region that is leading the response to the climate crisis (cf Larsson, 2022; Sveriges Radio, 2022). (Pictures 1 and 2).

3.2. Responsibilities for adaptation in the Swedish governing system

As this study focuses on the public sector in Norrbotten, particularly the municipalities and the County Administrative Board (CAB), I briefly describe the roles and responsibilities of these organisations in relation to adaptation in Sweden.

The municipalities have a central role in adaptation (Carlsson-Kanyama, Carlsen, and Dreborg, 2013; Lidskog and Rabe, 2022), not least through their 'planning monopoly', as land use is primarily decided by each municipality through its Comprehensive Plan[6] (Fredriksson, 2011). The municipalities' Comprehensive Plans are interesting and important in the context of Climate Adaptation Imaginaries in two ways. First, the municipalities are required to assess and respond to climate related risks in their Comprehensive Plans (Government, 2018). Second, the Comprehensive Plan is the municipality's most important strategic instrument for long-term management and planning of the entire municipality. It is fundamentally forward-looking and essentially describes the municipality's vision for its development (Fredriksson, 2011). The Comprehensive Plan is not legally binding; rather it spells out the municipality's intentions. However, in practice, it is important whether, and how, adaptation is addressed in the comprehensive plan. As one of the interviewees expressed it: "if it is not in the Comprehensive Plan it does not exist".

The CABs, which are extensions of the Swedish Government into the regions of Sweden, have had a coordinating role in climate change adaptation since 2009 (Government Offices of Sweden, 2009). The CABs have limited capacity for policy-making on adaptation but instead primarily provide expertise and supervision on adaptation for regional actors, including coordination in the region and vertical coordination between local and national levels (Keskitalo, 2010). The CABs also have an important role in evaluating the municipalities' work with adaptation, not least with the Comprehensive Plans, and have the power to prevent development plans if climate risks, such as floods, erosion and sea level rise, are not adequately accounted for. In 2019 a new climate ordinace extended the CABs' responsibilities to actively work with adaptation, not just support and coordinate in the region (Swedish Government, 2019) .

3.3. Material and data generating methods

The material generated and analysed for this study consists of fieldwork in the region, 10 in-depth interviews and analysis of 15 documents. The primary material is represented by 10 semi-structured, in-depth interviews conducted by me between April 2019 and April 2020. Each interview lasted 50 - 100 min, and followed an interview guide consisting of four parts: 1) the interviewees' background, both professionally and academically, and how they got into working with adaptation; 2) their current work, how much was related to adaptation and how adaptation was placed and prioritised in their organisation; 3) other important and influential actors in their work with adaptation; 4) their view of the future and priorities for their organisation (and society) in relation to adaptation and the climate crisis. The interviews closed with a meta-interview on how they experienced being interviewed and whether they felt I had missed anything of importance for understanding their work. Two research assistants transcribed all interviews. The translations from Swedish to English are my own.

The interviewees represent five municipalities in Norrbotten and the CAB of the region. All are either a contact person and a chief operative civil servant in their organisation, or they are head of the department responsible for adaptation in their organisation. In some cases, this is the same person, i.e. they are both head of department and chief operative civil servant.

The material also includes notes from fieldwork. The fieldwork has been valuable to make connections to a number of civil servants, hear reflections and discussion in work situations and more informal situations, and situate the reasoning and perspectives emerging from interviews and documents in a broader political context. The fieldwork, during September 2019 and February 2020, included visits to the CAB in Norrbotten and Municipality A, and a number of conferences, seminars and lunch meetings with civil servants in Norrbotten.

Additionally, searching the six organisations' web pages for all documents mentioning 'adaptation' or 'climate' generated more than 150 documents. Most of these documents were irrelevant for this study, either addressing 'business climate' or less frequently protocols from meetings where headings included 'climate' but did not mention climate change or adaptation in the following text. These were not included in the data set analysed and presented in the findings. From the five municipalities and the CAB, 15 documents were in the end selected for the analysis: the five comprehensive plans from the municipalities, three policy documents from Mu-nicipality A, the regional development plan and six other relevant reports and policies on adaptation from the CAB.

Because of the interviews' primary focus on adaptation, priorities and assumptions about climate impacts, the future aspect is largely implicit, except for the last segment of the interviews. The comprehensive plans are, in contrast, explicitly future-oriented as

[5] I.e. the Head of the County Administrative Board

[6] "Översiktsplan", in Swedish

Picture 1. Norrbotten County in Sweden. [Soruce: WikiCommons].

Picture 2. Sweden in Europe. [Soruce: The World Factbook 2021.].

Box 1
The Interviewees.

1. Head of department, and specialized in security issues.
2. Long career in public sector in different roles, and more than 10 years with adaptation.
3. Head of the department, with a background as an engineer and Environment & Health Inspector. Worked for more than two decades with most things connected to municipal planning and environmental issues.
4. Environment and Energy Advisor with international experience and a long career working with mitigation and adaptation projects.
5. Chief operative civil servant regarding adaptation. Holds a PhD in geology and has worked with water issues.
6. Head of comprehensive planning and with many years of experience with municipal planning, focused on longer perspectives, in a number of different municipalities in Norrbotten.
7. Head of department and a civil engineer by training. Many years at the municipality, mainly working with water issues and infrastructure.
8. Municipal ecologist, with three decades of experience in the municipality, working with strategic issues and long term planning with a focus on environmental issues.
9. Project leader and head of comprehensive planning, with three decades of experience in the municipality, and more than five years work with adaptation specifically.
10. Head of department and chief city gardener with more than two decades experience in the municipality. Works with implementation of adaptation measures.

they describe the visions and plans of and for the municipalities. Here, adaptation is not necessarily explicit, but when it is it indicates a degree of institutionalisation.

In an effort to anonymize the interviewees they are referred to by an assigned number, not by name, and described only in terms of their experience in Box 1, and cited using only their given number in the Findings section. Similarly, the municipalities have been given a capital letter rather than being named. It is not possible to anonymise the County Administrative Board, which is simply referred to as the CAB. General characteristics of the municipalities are briefly sketched in Box 2. The experiences and roles of the individuals, and the size and characteristics of the organisations, have relevance for the analysis, yet my focus is not on the individuals or on comparison of the municipalities per se. I am interested in the visions emerging, and the assumptions made, about climate change, adaptation and the future(s), particularly to the extent that emerging visions can be understood as collectively held, with political and material consequences and accompanying strategies to realize the vision, i.e. Climate Adaptation Imaginaries. The use of different methods for generating data has in this regard been important as it allows for a triangulating approach in analysing the data (Alvesson and Sköldberg, 2018), in order to elicit which visions are collectively held.

3.4. Data analysis

Following Salazar, I understand imaginaries to be intangible, meaning that the "only way to study them is by focusing on the multiple conduits through which they pass and become visible" (Salazar, 2012, 866), which can be in the form of discourses, images, practices or architecture etc. Studying imaginaries thus entails tracing how collective and often implicitly held visions of the future, in a certain field, are manifested in, for example, discourse. Variations on discourse and qualitative content analysis are thus common approaches to study imaginaries (c.f. Hagbert et al., 2020; Levidow and Papaioannou, 2013; Lewis, 2018; Olin and Mladenovi´c, 2022; ¨Osgård and Spierings, 2021; Preece et al., 2022; Sokolova, 2023). Drawing on insights from these recent studies, the first round of analysis used an inductive approach, combining 'open coding' and progressive focusing (Crang and Cook, 2007; Iphofen, n.d.),

Box 2
The Municipalities.

A – Comparatively large urban area situated by the coast.
B – A coastal municipality, with relatively small population.
C – Among the poorer municipalities in Sweden, situated along the coast.
D – Inland municipality with growing population. Recognized for its work with adaptation.
E – A big inland municipality with a decreasing population and huge areas of protected land.

exploring themes emerging from the interviews. The second iteration used an athematic approach (Veenman, Kusters, and Beckers, 2021) and focused on: 1) visions of the future; 2) strategies to achieve these futures; 3) responsibilities and/or how society should be organised according to the vision; and finally 4) the likelihood that the different visions would materialise, as perceived by the in-terviewees. The third iteration focused on how the visions and strategies to achieve the visions incorporated adaptation, specifically in terms of reactive vs. proactive, incremental vs. transformation, and direct and transboundary effects.

The second part of the analysis is based on the comprehensive plans and other relevant documents on adaptation and followed a similar procedure. The process was more structured here and focused on the explicit visions in the documents, followed by searching for all instances that mentioned climate. The analyses of the visions of the future are quite straightforward, as describing a vision for the municipality is one of the main purposes of the comprehensive plans; here my interest is primarily to what extent climate change is part of, or seen as affecting, the realisation of the vision. Focus areas and priorities to achieve the vision are also expressed in these documents and are of importance from an imaginaries perspective as they express the equivalent of strategies. The segments mentioning climate have been read first of all with the focus on whether adaptation is mentioned explicitly or implicitly. Secondly, the documents have been analysed using the same categories applied to the interviews: reactive vs. proactive, incremental vs. transformation, and direct and transboundary effects.

4. Findings

The findings are structured as a response to the first research questions: *What are the competing visions for society in the Swedish Arctic, in the context of climate change, as presented in policy and by civil servants? Are there visions that can be described as collectively held, materially embedded, and politically dominant,* i.e. *as imaginaries?* Four visions emerge through my material and are presented in turn in the findings. The first two of these can be described as part of Climate Adaptation Imaginaries.

In each section I connect to and answer the second research question: *How do the different visions, through assumptions, simplifications and ideals, shape adaptation strategies and priorities?* This is approached through describing the adaptation strategy promoted in the vision through the categories of approach, aim and focus as described in the theory section. In the fourth section on dystopias it is rather the disconnect between current strategies and a desirable vision of society that is in focus.

A fifth and last section is added to reflect upon the third research question: *Who benefits from the currently dominant climate adaptation imaginary?* In this section I also present findings on the relation between visions in the documents and the visions presented by individuals, which in many organizations show a disconnect between the visions of the civil servants working with adaptation and the written policies that guide their work.

4.1. An imaginary of maintaining economic growth, with reactive and incremental adaptation

The goal in the first collectively held vision is continued economic growth, increased tourism and further industrialisation, and adaptation is barely seen as necessary for achieving this vision. To the extent that adaptation is addressed, it is through a reactive approach. The aim is incremental, although this is a broad understanding of 'incremental' because rather than espousing an effort to protect the current economic, political and cultural system, it is more based on an assumption that these systems will continue to exist and function even without proactive adaptation. Since the need for adaptation is assumed to be covered through a reactive strategy, the identification of different types of risk is not really addressed. In short, transboundary risks are not on the radar.

To give some concrete examples: Municipalities B and C have no strategy or priorities relating to adaptation in their Comprehensive Plan, and Municipality E only has an implicit mention stating that it is "important to take climate change effects into account" in the planning (Municipality E's Comprehensive Plan). The future visions in these three documents all centre on economic development, with no mention of climate change or adaptation. Municipality B frames their vision for the municipality as an organisation that actively engages in global changes, yet do not mention climate at all in their elaboration of their vision. Instead, the future vision is focused on economic growth, effective use of funds and being an attractive place for people and businesses (Municipality B's Comprehensive Plan). Municipality E's vision focuses on being a meeting place known for its culture and grand landscapes in the Arctic. The elaboration on how to get there is, however, through a growing economy, explicitly connecting to the regional economic growth plan (Municipality E's Comprehensive Plan).

Three interviewees (3, 4, 7), representing these municipalities, give a similar picture. There is no long-term planning or strategies, no money, no political leadership, and adaptation is understood as a technical and reactive issue in their organisations. When looking ahead there are no problems on the horizon, according to the political leadership. The future of these municipalities will not be decided by climate effects, nor barely even influenced by them, it seems.

The CAB has a slightly different take, in that they do mention climate change explicitly in many steering documents; this does not, however, translate into a more proactive adaptation strategy. In their regional development plan,[7] and related innovation strategy, climate change and sustainable development are mentioned, but the focus is firmly on economic development, formulated as sustainable economic growth. Climate change, especially mitigation, is described in relation to innovation and business opportunities. The region's vast (uninhabited) land and natural resources, combined with high-tech and heavy industries, are repeatedly highlighted as comparative advantages on the global market, positioning Norrbotten as a potential leader for testing and developing innovations to

[7] Corresponding to the municipalities' comprehensive plan.

drive sustainable economic growth, not just in Norrbotten and Sweden, but also to export solutions globally (Havneskold, Andersson, and Medelid 2013; Länsstyrelsen Norrbotten, 2012). Adaptation is never mentioned in these documents.

The interviewees (1 and 2) working with adaptation in the CAB confirm that the dominant vision in the CAB does not consider adaptation much at all. If leadership, higher up in the CAB hierarchy, mention adaptation, it is often misunderstood and / or confused with mitigation, according to the interviewees. As interviewee 2 puts it: "the focus is generally only on business development and economic growth in the region" and mitigation has a place in that vision, while adaptation does not.

Given that this vision of a desirable society is spread over different organizations and presented in documents, interviews and pop-up in seminars and through my fieldwork, it is a collectively held vision. This vision is present in the testimonies of the interviewees and also written into the Comprehensive Plans, indicating that it indeed shapes the political landscape and adaptation strategies – even if those strategies are reactive and incremental, meaning they are more concerned with maintaining the current society.

4.2. An imaginary of transitioning to 'green' economic growth, with proactive and incremental adaptation

The second collectively held vision shares many features with the first, not least in having the ideal of a society built around economic growth; but here, it takes on a distinct 'green' version of economic growth and industrial expansion. In this version, proactive adaptation is seen as a necessary strategy for achieving the vision of an ideal society.

For example, this collectively held vision can be found in the Comprehensive Plans of Municipalities D and A, which both engage with adaptation in their Comprehensive Plans. In Municipality D's Comprehensive Plan, adaptation features both as an important aspect in itself but is also integrated in many other parts of the document, especially in maintenance and construction of buildings, (green) infrastructure, agriculture, nature conservation etc. The overarching vision is a growing municipality, with high employment (Municipality D's Comprehensive Plan). The specifications, or strategic foci, on how to achieve the vision focus on (ubiquitous) growth, safety and quality of life (ibid.). In none of these three strategic and more concrete foci is climate or adaptation mentioned, despite the general inclusion of climate change as an important factor.

Municipality A stands out in a number of ways from the other municipalities in the county. As with Municipality D, both climate change and adaptation is reoccurring in the Comprehensive Plan. Municipality A is unique in the region in having a policy document specifically on adaptation. Additionally, they have a Vision Document that looks ahead further than the Comprehensive Plan, and a report on global issues that are seen as relevant for the municipality. In these three additional documents, the engagement with potential and desirable futures are clear, and there are some strong formulations on climate change and sustainability in general. For example they write that "we view our nature and its resources as a treasure, from which we borrow from coming generations" and they see "sustainability [as a matter of] survival" (Municipality A's Vision Document). Part of the vision addresses being "prepared for change" through adaptation, which includes changes in consumption patterns, and a high degree of self-sufficiency in the region regarding food, energy and other goods. The Vision Document repeatedly returns to the importance of a positive outlook on the future. It is, however, clear this positive outlook is connected to economic growth and technological development in the region, where they see themselves as placed in a uniquely privileged position to innovate and export solutions. In the Comprehensive Plan, which takes precedence over the Vision Document, adaptation to climate change is mentioned as an important guiding principle in all of the municipality's work. Adaptation also gets its own section under the heading "better climate change adaptation", which somewhat paradoxically states that the municipality is, and will be, generally unaffected by climate change (Municipality A's Comprehensive Plan).

The CAB, being a larger organization, exhibits two competing imaginaries, even in documents. As explained in the previous section, the most important guiding documents from the CAB (the Regional Development Plan and Innovation Strategy) both assume reactive adaptation is an adequate strategy. The reports and policies coming from the department working with adaptation naturally have a different view on adaptation needs in the region. The approach to adaptation in these documents is, unsurprisingly, proactive. Additionally, having a role in coordinating and maintaining an overview, the CAB's adaptation policy document is the one that goes furthest in considering transboundary and even cascading effects. One example is how climate shocks can have devastating effects on crucial infrastructure in Norrbotten, which would have severe consequences locally, but also spill over into Northern Norway and Finland (Länsstyrelsen Norrbotten, 2014).

What emerges from these documents from Municipalities A and D, and the adaptation policy and reports from the CAB, is a proactive approach to adaptation, with some elements of transformational aspirations highlighting behavioural changes and balancing resource extraction with nature's regenerative capacity (Municipality A's Vision Document and Adaptation Policy), and connecting adaptation with justice and equality (Länsstyrelsen Norrbotten, 2020). This is, however, subsumed under a collective vision of a society based on continued economic growth and increased exports made possible by Norrbotten's "unique position to provide tech solutions" to climate change (Länsstyrelsen Norrbotten, 2017); i.e. the adaptation aim is clearly incremental, geared towards protecting the economic core. The CAB mentions transboundary risks to a limited extent in reports, but without any strategy to deal with these risks. Similarly, for Municipality A, despite the in many ways ambitious formulations on sustainability, and focus on global trends and markets, adaptation remains a local affair, as it is only direct effects in the geographical area that are considered in the documents.

Interviewees 5 and 6, and 8, 9 and 10, representing different roles in two different organisations that uphold the collective vision of society based on 'green' economic growth, all say they are working with adaptation based on the IPCC's scenario RCP8.5. Interviewee 9 elaborates on the choice by saying:

> we are closer to the RCP8.5 scenario right now than any other, and as a municipality we cannot change the [emission] development on our own. But we are responsible for adaptation and it would be irresponsible to not plan for the worst feasible scenario.

However, it is clear from all five interviewees that they focus exclusively on direct effects in their geographical location. It also becomes clear that even though their Comprehensive Plans and policies mention mid-century and even end-of-century time frames, in practice they work with a 10 year period of planning. This means that "it does not really matter what scenario we use" (interviewee 8), since the scenarios start to diverge beyond the time frames that are used in the everyday work in the organisations. Crucially, it also means that an ambitious framing (bordering on transformational language) can be combined with a practical approach to adaptation that is limited, incremental and focused on maintaining current systems. Interviewee 9 expands on this, stating that there is a sense of politicians allowing the progressive language and high ambitions on climate mitigation and adaptation, as long as it does not cost anything.

This too can be described as a specific climate adaptation imaginary, as it is collectively held to the extent that versions of a very similar vision of an ideal future society is presented in different mediums by different people in different organizations. It is further accompanied by an adaptation strategy in order to achieve this ideal society. The vision and accompanying strategies are also clearly embedded in policy and shaping the work with adaptation in the region.

4.3. Beyond economic growth - the alternative visions

In the interviews, the civil servants were prompted to look ahead towards 2050 and beyond. They were asked to consider their organisation (and region) in a global context of transboundary risks, and assess their current work, plans and priorities for adaptation. Most of the interviewees found the act of looking ahead, and considering if they thought current strategies were adequate, somewhat unsettling and unusual. They indicated that these longer timeframes are not something they usually discuss. However, in their response to the questions, almost all of them opened up in different ways into either more dystopic or desirable futures, or both. So, what surfaced was something other than the two Climate Adaptation Imaginaries described above. One of the interviewees, representing a front-runner municipality, was instead mildly shocked by the question, insinuating that it is inappropriate as it raises such troubling issues and dark thoughts. This interviewee then quickly self-identified as an optimist, stating "I think, and hope, humanity will be able to act in time to solve the crisis. It is important, I remind myself, to see the little changes and believe in the difference we all can make do in our small way" (interviewee 6), and then did not want to expand on this issue further.

4.3.1. A vision of a local and regenerative society, achieved through transformational adaptation

An alternative to the Climate Adaptation Imaginaries focused on economic growth emerges from three of the interviewees. Interestingly, all three present a very similar vision of a transformed society responding not only to direct but also transboundary effects. It is a vision that centres on a locally anchored, community-based society, where food and energy are largely produced locally, fossil free and sustainably over time; this is achieved by balancing resource extraction and consumption against nature's regenerative capacity. This would, according to the interviewees, mean not only reductions in general consumption, energy use, transport and travelling, but also a society that is more just and resilient against shocks and stresses, in which democracy comes closer to the citizens. In addition, the sense of connection to nature and the local environment is increased and indigenous rights are respected. The description of the desirable society that is adapted and adapting to climate change is rather similar across these three interviews, but the emphasis on what needs to change and how to get there differs between them.

The first version of this vision begins in the economic structures. Specifically, that we need to break with the current economic paradigm geared towards economic growth at all costs. Creating a properly circular economy should be combined with, or even achieved through, strengthening local communities and bringing democracy closer to the citizens. A reformed municipality is seen as the centre of this transformed society, acting as "a natural hub for local collaborations and partnerships" (interviewee 4), anchoring society and its economy in the local environment and creating resilience in the region. In this way, society will be able to withstand shocks in, for example, the global food market or energy system. Furthermore, the municipalities ought to collaborate more directly internationally to share experiences and solutions, whereas the national level can support with expertise and focus on law making and monitoring that laws are followed.

The second variety of this vision starts with a focus on democracy and justice, on the right to livelihoods in rural areas and fair resource distribution, both within Sweden and globally. As interviewee 3 puts it: "There is a hypocrisy at the heart of our climate crisis debate", and as long as fair resource distribution is not addressed we will not progress in transforming society. Here too, the aim is transformation to a society which produces (most) of its own food and energy in the region, and only trades for necessities. This will mean, according to interviewee 3, that we in the high-emitting societies, like Sweden, need to work on sufficiency (using less and being content with less) to be able to distribute resources more fairly. The pathway to the envisioned society, according to interviewee 3, goes through strengthening democracy, by focusing the political discussion on justice and fair distribution globally. In extension, it means enabling people being able to sustain themselves and have a decent life wherever they choose to live. As interviewee 3 concludes, the "climate crisis is for me primarily a crisis for democracy". It is unclear where the responsibility for moving towards this future lies. On the one hand, the interviewee sees that municipalities have a role to play in shaping its inhabitants' behaviour, but national (and international) leadership is necessary, not least to "reign in the market and big companies". On the other hand, it is clear that the interviewee has low confidence in current political leadership and political structure, as they see it as hypocritical and focused on centralisation and unsustainable economic growth.

From interviewee 2, this vision is prompted by questions of how they view the future, where they think we are heading right now, what they think we need to do. The interviewee then draws inspiration from S´ami communities and culture and puts emphasis on how "we must learn to see ourselves as co-existing and dependent on Nature". Economic and political reforms are implied, but not in focus. The strategy to achieve this new society goes through education and new types of knowledge-exchanges, and in that sense it can be categorised as anticipatory, even potentially transformational, as it aims to build new capacities and mind-sets (Feinstein and Mach, 2020). While both drawing inspiration from S´ami communities and promoting smaller, and increasingly self-reliant communities, interviewee 2 at the same time argues for an active and strong state. Interviewee 2 sees this as important, especially to enable the planning and enforcement of land use regulation over large areas and long periods, but also in relation to the behavioural changes needed in terms of both mitigation and adaptation. Using themselves as an example, the interviewee admits that despite working with climate issues they "eat meat", "drive a diesel car", "fly a lot for work" and "consume quite a lot" in general. Although they support reducing their impact in all those areas, they finish with saying "we can't all be Greta Thunberg" and suggests regulation is needed.

These three interviewees all express a vision of a society that has transformed economic, political and cultural parts of society in order to respond meaningfully to the climate crisis. In terms of adaptation as a strategy to achieve this society, it is clearly a proactive approach, with a transformational aim, with a strong focus not only on direct effects but also on transboundary and cascading effects. Digging a little bit deeper into how the transformations should be achieved, the three interviewee's visions become a little less ho-mogenous. But they all include a focus on education, strengthening local democracy and increasing collaboration and trade in the region (not necessarily within Sweden's borders). The role of the State is mostly to set the rules and enforce them, not least regulating big companies. There are some differences here though. Where one interviewee sees that the State needs to play an active role and be more intrusive, another sees a shift in power to local governments that can be closer the citizens. The third interviewee is more sceptical of the State altogether. Setting aside that these visions cannot be described as collectively held in the public sector in Norrbotten, the differences in strategies and where responsibility lies would also suggest it is not a Climate Adaptation Imaginary. What unifies these three visions, however, is that none of the interviewees, sadly, really believes in the vision materialising.

It should be highlighted that these more coherent alternative visions are the exceptions. Two interviewees do not express any desirable visions of the future when prompted to look ahead towards mid-century and beyond (interviewees 5 and 6); a third provides a vague vision that is not connected to climate change or adaptation (interviewee 7). Interviewee 1 provides a vision where adaptation takes the path of militarization, which according to them will make adaptation more efficient and keep Sweden safe and democratic, but is not necessarily a desirable future even for them. Finally, interviewees 8, 9 and 10 do, when prompted, and on the back of dystopic visions, turn to a more positive vision of a society that is more regionally self-reliant and welcoming of migrants, but all quickly dismiss this as unlikely.

4.3.2. Dystopias emerge as the main alternative to current imaginaries

If alternative desirable futures were generally hard to imagine, what emerges instead from all but one of the interviewees are different versions of dystopias. There is a range of different dystopic visions here, beginning with a 'mild' dystopia of increasing climate-related shocks and stresses, including more flooding, heavy rain and heavy snow, heat waves, landslides and buildings damaged by rising humidity. It will get worse but it will be manageable is the sentiment (interviewee 5).

Two other interviewees take the same kind of mild dystopia as a starting point, but shift focus. According to interviewees 10 and 3, the climate is already visibly changing, and even if the current changes are not threatening liveability in Norrbotten, they are already fundamentally reshaping the landscape and the seasons. Interviewee 10 points out that many who live in Norrbotten do so because they enjoy the cold and snowy winters and that the region is also marketing itself as an Arctic region. Hence, the most immediate and difficult adaptation measure needed, according to interviewee 10, is psychological rather than technical: dealing with the looming identity crisis for individuals and the region as a whole, as the wintery 'arctic' landscapes increasingly disappear. Interviewee 3 is more personal, and in a sense gives voice to the problem of 'solastalgia' (Albrecht et al., 2007), as they are "already mourning the dis-appearing winter landscapes and the loss of species in the area".

Interestingly, when prompted to think in longer perspectives and consider the possibility of transboundary risks, interviewee 5 acknowledges the need for "radically decreasing consumption, limiting flying, and making energy production fossil free". The vision is similar to the positive, rural and local community vision that emerges from other interviewees, but here it takes on a distinctly negative and dystopic framing, involving sacrifice and a less enjoyable life.

Darker scenarios emerge as well, where the public sector's work is driven exclusively by reacting to the shocks and stresses of climate change (interviewee 5). Another version sees the need for adaptation continuously increase but the funds remain insufficient and responding effectively is continuously pushed aside by other political priorities, in turn making marginalised and already vulnerable groups pay the price (interviewee 2). Future visions envisage melting glaciers, rapid sea-level rise and fresh water shortages (interviewees 8 and 9) leading to conflicts, mass migration even full-scale wars (interviewees 1, 8, 9, 10). The darkest scenarios range all the way to global collapse and the end of society as we know it (interviewees 3 and 4).

There is a sense from all the interviewees, except number 6, that regardless of the depth of the darkness, it is the dystopic visions that are seen as most likely, or even expected. As interviewee 4 elaborates: they identify the economic growth paradigm as the fundamental problem, but see no indication that we will break free from this paradigm in time to stop catastrophic consequences. Society as we know it will most likely end, and as they put it, "your research or my tinkering with projects here in the far north won't change anything". Still, they say, it is the right thing to try, and to continue trying, to do something. Interviewee 4 concludes: "it is sad and ethically wrong that so many people and species will have to die due to avoidable climate changes", but even in this dystopia humans are believed to survive and rebuild.

4.4. A disconnect between policy and the civil servants' visions

Examination of the Comprehensive Plans reveals a division between municipalities that include adaptation in their Comprehensive Plans and those that do not. From the interviews, a division emerges between interviewees who provide desirable visions of the future and those that struggle to do so. An interesting finding is that these two divisions do not coincide, as one would expect. Individuals providing visions of desirable futures, with a transformed society, represent municipalities that do not actively work with adaptation. In contrast, individuals working in municipalities that have included adaptation in Comprehensive Plans (often the interviewees are even responsible for the inclusion of adaptation in the Comprehensive Plans) struggle to formulate visions of desirable futures. This indicates that the two Climate Adaptation Imaginaries, are not believable or desirable for the civil servants, as the adaptation strategies promoted do not seem convincing, especially in mid- to long-term perspectives, and especially when faced with transboundary risks. Clearly, the Climate Adaptation Imaginaries protect the current status quo, possibly with a shift within the industry and business sector in the 'green' version.

Furthermore, all interviews point to how interviewees' academic and professional background shape their understanding and priorities in relation to adaptation. This reinforces Wamsler and Brink's (2014) findings that the lack of mainstreaming and related knowledge has rendered the public sector's work with adaptation fragmented and often technical. However, this study finds that adaptation often becomes framed in whatever relevant personal experience, not just technical experience, is available. For example: military experience frames adaptation as a security issue; engineers define adaptation as a technical problem; experience working with marginalised groups leads to a focus on impacts on vulnerable people; a previous focus on water issues leads to focus on water in adaptation as well. On the surface, this is perhaps expected. However, it points to a lack of core skills and knowledge that comes with working with adaptation and, more importantly, a lack of priorities and vision. As interviewee 4 expresses it, "it is difficult to do something when there is no clear assignment, no direction, and no clear aim of what we want to achieve".

5. Concluding discussion

This study started out with the proposition that we need new, ambitious and collective visions in order to adapt to the climate crisis, i.e. new Climate Adaptation Imaginaries. The findings suggest there are no such Climate Adaptation Imaginaries in the Swedish Arctic. Instead, what emerges are two Climate Adaptation Imaginaries that share a similar vision of a society based on continued economic growth and industrial expansion. These two imaginaries are primarily separated by the engagement with climate change and the accompanied adaptation strategy to achieve its vision of society. In the first version, climate change is primarily cast as an opportunity for the region to leverage its natural resources and technical expertise to cater to an international market – adaptation is barely needed to achieve this vision.

In the other, more progressive and prominent, 'green' version of the economic growth imaginary, climate change is seen both as an opportunity and as a concern. It is seen as an opportunity in the same way as the competing imaginary, but climate change is acknowledged as a concern to the extent that proactive adaptation is promoted as the preferred strategy. This is however limited to an incremental approach focused on direct effects. This simplification, focusing on direct effects, is somewhat paradoxical as the imaginary of 'clean' and 'green' growth at the same time builds upon assumptions of continued dependence on international trade and the interconnectedness of global markets (Vezzoni, 2023). Both these imaginaries hold a vision of a society that is still heavily reliant on massive energy use and resource extraction, which rather than taking us forward puts us back at square one (Össbo, 2023). Conse-quentially continued "green colonialism" (Fjellheim, 2023; Normann, 2021) or "developmentality" (Khotari, 2021) is built in to these imaginaries. Transformational aims and recognition of negative transboundary effects simply do not fit in these imaginaries, as this would question fundamental assumptions and feasibility of the end goals and the ideal (future) society.

There are counter hegemonic visions emerging. They are not widely shared, nor materially and politically embedded, to the extent that warrants a label as an imaginary. However, the visions are remarkably similar at the surface and presented by representatives from different organisations. It is a vision of a transformed society, locally anchored, community based, mostly self-reliant on food and energy, with fair distribution of resources and a rejuvenation of democracy where sufficiency is a guiding principle. Importantly, this vision includes and responds to transboundary risks, indicating that this is an important starting point for imagining new desirable futures, which are relating to, and relevant for, a world increasingly shaped by the climate crisis. This vision is clearly marginal, both in my material but also, as the interviewees make clear, it is not widely shared or accepted in their organisations.

Furthermore, it is clear that even for professionals working with climate change and adaptation, consideration of long-term perspectives and transboundary risks is seen as unsettling. It is also clearly something they are unused to consider and talk about. This mirrors findings from both Coulter et al. (2019) and Hyytiäinen et al. (2022) and is a reminder that the affective aspect of Climate Adaptation Imaginaries is important even, or perhaps especially, in professional settings (Riesto et al., 2022). This is significant because what emerges as the predominant alternative to the dominant Climate Adaptation Imaginaries are different dystopic visions of the future. Dystopic aspects are not necessarily unusual in relation to imaginaries. Indeed, it has been argued that dystopias, or 'monsters' to avoid, can function as the main driver of imaginaries (Giuliani, 2020; Dennis, 2015). However, in the case of Norrbotten what emerges is not a unified vision of a dystopia to avoid, which could serve as common driver, but a range of very different dystopias. Crucially, what some view as a desirable future is painted as a dystopia by others. What unifies these dystopias are two things: 1) they are largely seen as the expected future(s); and 2) they are based on a vision of the future that acknowledges transboundary risks but stays with an incremental approach to adaptation.

Through developing Climate Adaptation Imaginaries, this study contributes to the growing literature on anticipation and foresight in adaptation governance by turning the relationship upside down. It is rarely an explicit vision of a society, which is continuously

adapting to the climate and within the ecological boundaries, that shapes adaptation policy; rather, it is an often-implicit vision of an ideal society (disconnected from climate and ecological boundaries) and associated assumptions that shape adaptation policy. This disconnectedness from climate and ecological boundaries, by necessity, leads to short-sightedness (even in a policy area that demands long-term perspectives) as the assumptions given by the imaginary's vision are only believable in a very limited time frame. How we move past the impasse of our 'crisis of culture' is beyond the scope of this paper. However, one important finding from this study is clearly that we need to open up to and acknowledge transboundary risks, but without new collectively shared visions of desirable futures, we are likely to realise dystopias.

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III

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Adapting climate change – how government authorities in Sweden make sense of adaptation through a network practice

G. C. S. Kanarp* and Lotten Westberg

Division of Environmental Communication, Department of Urban and Rural Development, Swedish University of Agricultural Sciences, Uppsala, Sweden

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Calls for transformational adaptation are increasing. Government authorities, expected to lead adaptation, are in the difficult situation of changing a governance system from within. This demands a capacity for critical reflection among civil servants involved. Adopting a Social Practice Theory approach, we argue this capacity must be understood as emerging in practice, not simply held by individuals. Empirically, we focus on a central network of government authorities in Sweden's adaptation governance, and identify assumptions and routines guiding their meaning making process. We focus on how situations of contestation are dealt with to explore the practice's capacity to facilitate critical reflection. We show how a focus on efficient information transmission and an assumption of incremental adaptation as sufficient leads their practice to play down the consequences of the climate crisis. A practice approach suggests interventions to the group level in order to create joint critical reflection, necessary for enabling transformational adaptation.

KEYWORDS: climate change adaptation; logic of practice; performativity; transformational adaptation; critical reflection

1. Introduction – critical reflection as a basis for transformational practices

The 1.5 °C target of the Paris Agreement is slipping away, and it is still highly uncertain if staying below 2 ° C warming will be achieved (Anderson, Broderick, and Stoddard 2020; Böhm and Sullivan 2021; Roelfsema *et al*. 2020). The risk of crossing tipping points and unleashing uncontrollable cascading effects increases with every ton of CO_2 released into the atmosphere (AghaKouchak *et al*. 2020; Lenton *et al*. 2019; Milner *et al*. 2017). This has raised serious doubt about the effectiveness of the react-ive and incremental approach to adaptation that has dominated governments' polices and strategies (Kates, Travis, and Wilbanks 2012; Nightingale *et al*. 2020), and has led to increased calls to go beyond such approaches towards transformational adaptation (Fazey *et al*. 2018; Fook 2017; Jacob and Ekins 2020).

The call for transformational adaptation places particular focus on government authorities, as they have a significant role to play in leading adaptation (Keskitalo, Juhola, and Westerhoff 2012; Köhler *et al*. 2019; Oberlack 2017; Scott and Moloney 2022), and ultimately contribute to a sustainable society able to deal with the climate

*Corresponding author. Email: christoffer.soderlund@slu.se

crisis. These authorities are, however, part of systems that have led to the situation we as a society now find ourselves in. The call for transformational adaptation, therefore, puts government authorities tasked with leading the process in the difficult position of being expected to change a system they themselves are part of.

Changing a system from within presupposes the capacity of those involved to create work situations that encourage them to critically examine organizational routines and identify shortcomings of their own approaches. They need to be prepared to reflect upon, challenge and discard routines, assumptions and mind-sets that keep them in the status quo (Göpel 2016; Grin 2020; Löf 2010; O'Brien 2012; Rietig 2019; Gerlak, Heikkila, and Newig 2020). It follows that changing the current governance system, a crucial part of achieving transformational adaptation (Ulibarri *et al*. 2022), demands a capacity for critical reflection (Grin 2020; Schön 1983). In order to understand the potential for transformational adaptation, responsible actors in adaptation governance, such as government authorities, need to be scrutinised for this particular capacity (Paschen and Ison 2014).

In this paper, we build on this reasoning about the need for critical reflection and changing mind-sets in order to create transformational adaptation. Further, we argue that this capacity cannot be regarded as a capacity simply held or not held by individual civil servants. It must be explored in the social context, or the *practice*, in which civil servants responsible for adaptation are embedded (Hoffman and Loeber 2016). Using Social Practice Theory, we focus on the "practice" as the unit of analysis, instead of the civil servants as isolated individuals. Social Practice Theory views "practice" as a situated patterning of behaviour (speech, body language, even thoughts) that, through taken for granted assumptions and routines, guide its performers towards a shared purpose. However, even if a practice shapes the assumptions and behaviour of its performers, it remains open-ended to the extent that subversive acts carried out by the performers themselves, can challenge assumptions and routines (Behagel, Arts, and Turnhout 2019; Butler 1990; Nicolini 2012).

We apply these insights to explore the potential of a central government actor in Sweden, the National Network for Adaptation[1], to initiate and maintain transformational approaches to adaptation. Sweden is a particularly interesting case as a country with high ambitions in sustainability and high adaptive capacity (Metzger *et al*. 2021; Sarkodie and Strezov 2019) and where government authorities and their civil servants have a high degree of independence to perform their given tasks (Pierre 2020). It can, thus, be described as a "most likely" case (Flyvbjerg 2006) for transformational adaptation led from inside the system, i.e. by civil servants.

To explore the Network and its practice we have followed it over the course of two years, through participant observations combined with interviews and document analysis. This has allowed us to delve into how the ongoing interaction forms and reproduces the sensemaking process, routines and assumptions that maintain the Network's approach to adaptation. Further, it has allowed us to identify openings for critical reflection and change induced by the members of the Network, and to discuss the Network's potential and limitations as a catalyst for transformational adaptation in Sweden. Specifically, we ask: *How does the Network's practice make sense of adaptation and its role in the gov-ernance regime, and what distinguishable routines and assumptions reproduce this sensemaking?* To explore the space for, and openness to, critical reflection in the prac-tice we ask: *How are questions and critique related to established ways of making sense of adaptation, coming from the members themselves, dealt with?*

The main contribution of this paper is to demonstrate the usefulness of understanding potentials for transformational adaptation and the necessary mind-shift required through a Social Practice Theory approach. Based on our findings, we discuss how such an approach helps to focus attention beyond individual capacity to more promising interventions, targeting situated and shared sensemaking to move towards transformational adaptation.

Our approach means that we explore communication and other forms of interaction as a co-construction of meaning in the context where it is carried out. In our case, this context is the Network's practice created by the participating civil servants engaged in climate change adaptation in Sweden. A practice approach contributes to this special issue by highlighting how meaning making is context dependent, as assumptions, priorities and identities change depending on what practice an individual perceives themselves to be in. Our study further contributes to showing how meaning making processes around key ideas, such as adaptation, link to action. More specifically we show how assumptions on what needs to be done and why, are (re)produced and negotiated in practice, in turn shaping the space and limitations for how central actors respond to one of the greatest sustainability challenges of our time, the climate crisis.

We introduce our empirical context and the Network in the next section (Section 2), before moving on to explaining our theoretical framework (Section 3), followed by descriptions of methods and materials (Section 4). We then return to the Network and describe its main activities and arenas for interaction (in Section 5), before moving on to analysis (Section 6), and concluding discussion (Section 7).

2. Empirical background: the emergence of the national network for adaptation

Adaptation has primarily been seen as a largely apolitical and technical planning issue (Eriksen, Nightingale, and Eakin 2015; Remling 2019) and Sweden is no exception in this regard. As a consequence, municipalities in charge of planning land use have been seen as the natural level for adaptation (Granberg *et al*. 2019; Hjerpe, Storbjörk, and Alberth 2015). This has, however, led to a void at the national level (Massey *et al*. 2015). This lack of political leadership is not unique to Sweden either. A common response to this void has been to find new types of governance approaches, often through the creation of networks (Broto 2017; Di Gregorio *et al*. 2019; Ulibarri *et al*. 2022). The Network we have followed started as such a response.

The Network began with a few national government authorities coming together in 2005 to share knowledge and start capacity building. Adaptation was seen as increasingly important by these members, but there was a sense of lacking regulation, guidance and knowledge (National Network for Adaptation 2019). The central activity of the Network in its early and more informal state was a website, where activities and events related to adaptation were published (Keskitalo in Keskitalo 2010, 205).

In 2016, the Network was formalised and reshaped into the National Network for Adaptation, as the members wanted to use the network constellation "to do something more" (Interview 1). This formalisation saw the Network take on a more ambitious purpose, not just to build the competence of its members, but to work more with outreach, strengthening other actors in society and work towards improvements in regulations and instruments (National Network for Adaptation 2018). The knowledge sharing and capacity building among the participating authorities was still the main activity, but a coordinated push for legislation was now initiated as well (Interview 1). With

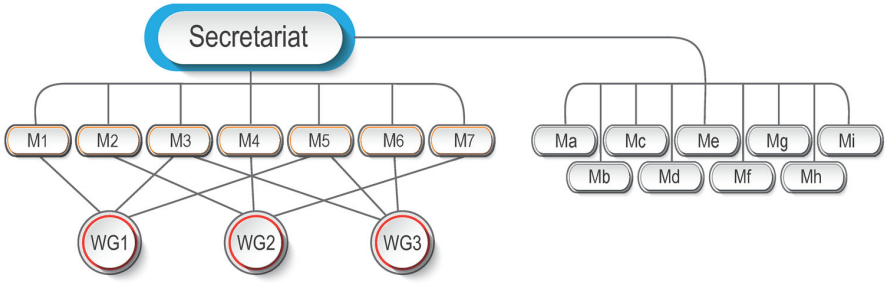

Figure 1. The organisational structure of the Network. "M" for Member organisation. "WG" for Working Group. The right side represents the expansion of the Network following the new legislation in 2019.

this restructuring of the Network, the Swedish Metrological and Hydrological Institute (SMHI) offered to take on the role of secretariat (leading the meetings, taking notes, hosting servers, etc.), giving them a central role in the reshaped Network. For a representation of the Network's structure, see Figure 1.

Finally, at the beginning of 2019, the national legislation on adaptation, which members of the Network and the Network itself had been pushing for, took effect. The new legislation meant that 53 authorities were charged with planning for, and regularly reporting, their work with adaptation (Ministry of the Environment 2018). The Network expanded to include the newly charged authorities. With the new legislation and the expansion of the Network the explicit purpose was slightly revised to read:

> "the purpose of the network is to contribute to the development of a long-term sustainable and robust society that actively meets climate change by reducing vulnerability and taking advantage of opportunities" (National Network for Adaptation 2019, 3, authors' translation from Swedish).

The Network has four arenas offering members space to interact: meetings, working groups, a shared virtual workspace and a joint e-mail list. In addition to these, there is the website for external communication. Since the activities in these arenas form the basis for our findings, we have chosen to describe them in more detail in section 5 in close connection to our analysis.

3. Theory: understanding adaptation governance practice from within

Research focusing on the contribution of state actors in developing transformational adaption approaches is mainly discussed in governance literature. This literature covers questions related to the conditions for institutional innovations to open up for changes (Heikkila and Gerlak 2019; Patterson and Huitema 2019), and coordination between different government levels to make use of synergies (Clar 2019; Howes *et al*. 2015). In addition, many scholars emphasize that governing transformational change requires transformation of the governance systems themselves (Termeer, Dewulf, and Biesbroek 2017) and show an increasing interest in learning as crucial for deeper system shifts initiated from within (Gonzales-Iwanciw, Dewulf, and Karlsson-Vinkhuyzen 2020). However, so far research has, with few exceptions (see e.g. Metzger *et al*. 2021; Wamsler *et al*. 2020), focused on methodological approaches limited to outside

assessment of governance actors' efforts and achievements with adaptation (cf. Baker *et al*. 2012; Glaas and Juhola 2013; Owen 2020; Bauer, Feichtinger, and Steurer 2012). This has led to calls for studies that manage to gain in-depth understanding of adaptation governance and the situated meaning making of governance actors (Denton and Wilbanks 2014; Patterson 2021). Our study is a direct response to this call by taking a Social Practice Theory approach that allows us to study the potential for transformational adaptation from within a governance setting.

3.1. Using social practice theory to identify potentials for change

A key characteristic of Social Practice Theory is to view "practice" as the unit of analysis. This means that agency and structures are always seen in relation to, and even as a product of, the practice in focus (Arts *et al*. 2014). Agency is thus always situated (Bevir 2005) and structures are only relevant to the extent that they are *made* relevant in the specific practice. This view allows for a fine-grained analysis of how stability is "achieved" and how change can be initiated, since neither stability nor change are external to the analysis (Nicolini 2012).

We understand practices as shared and routinized ways of making sense and acting performed by knowledgeable actors that are historically, socially and materially situated; Practices have normative dimensions, implying that they guide the participants in how to act and in what is seen as normal and or acceptable (Birtchnell 2012; Nicolini 2017; Spaargaren, Lamers and Weenink 2016).

The Network and its activities can fruitfully be understood as a practice. To develop understanding of the Network's practice, and thereby discuss its potential and limitations to contribute to transformational adaptation, we have chosen one concept to capture its stability, "the logic of practice", and another to capture deviations from this stability as openings for change, "performativity".

3.2. Analytical Concepts: Logic of practice and performativity

3.2.1. Logic of practice

We utilise Bourdieu's (1990) concept "logic of practice", to explore the organizing principles of the activities taking place in the Network. This logic "is not that of the logician" (Bourdieu 1990, 86), but rather the logic that guides what makes sense for members of a practice to perceive, think, say and do (and not). A practice, and the logic that guides it, activates and reproduces certain "routine behaviour and collective sense-making" (Arts *et al*. 2014, 6). Moreover, a practice is always practical in the sense that it has a purpose. The logic of the practice thus comprises a normativity, as it carries assumptions on how members of a practice ought to (re)act and make sense of tasks at hand in order to fulfil its purpose. For Bourdieu (1990) this "ought to" means that practices contain regularities and continuation, guiding which ways of making sense and act are regarded as "correct" given the situation. The correctness is seldom explicit and hardly anything that the members consciously relate to. Rather it is hidden behind routines, norms and assumptions that newcomers to a practice need to "learn" in order to be accepted as full members (Lave and Wenger 1991). Focusing on the logic of the Network's practice, we capture the routines, norms and assumptions that govern its approach to adaptation.

3.2.2. *Performativity*

The logic of a practice carries a normativity that guides how its members ought to make sense of, and act upon, tasks to fulfil its purpose. This prompts a "correct" reaction to a given situation. For example, a raised hand during a lecture usually prompts the lecturer to the "correct" response of pausing the presentation to answer the question. However, there are also actions that are seen as acceptable in the sense that they do not conflict with the opportunities to meet the given purpose of the teaching practice. For instance, the lecturer could acknowledge the raised hand, but state: "questions will be answered after the presentation". In this example, the purpose of presenting is not compromised in either of the responses. If the lecturer, on the other hand, acknowledges the raised hand and invites the student to speak and the student expresses a wish to use more time for discussion and less for listening to monologues by the lecturer, the student challenges the particular teaching norm. The lecturer could shut down the suggestion by responding: "No, I have not planned for that". Alternatively, the lecturer could open up the practice by inviting the students to discuss the suggestion.

The examples above illustrate how tolerance for irregularities of a practice opens up for a multitude of acceptable actions to fulfil its purpose, implying that a practice is, in principle, always open to change through the dialectical relationship between the logic of practice and its performance (Higginson *et al*. 2015; Westberg and Waldenström 2017).

To capture this openness analytically we use "performativity". We regard every action as performative since it either reproduces the norm (or the "ought to"), or is subversive, meaning it challenges what is expected in the practice (Butler 1990). If an action does neither it means that the initiated members of the practice do not recognize it as a meaningful action in the practice (Salih 2007). Crucially, "performativity" assumes a degree of improvisation and creativity, which allows for changing practices from within (Behagel, Arts, and Turnhout 2019).

In our analysis, we focus on subversive performative acts to understand when and how members of the Network's practice deviate and challenge norms, routines and taken for granted assumptions about what to do and why. This means that we see subversive performative acts as interactions challenging the logic of the practice. Such situations also highlight how these deviations are responded to by other members of the practice and, thereby, the openness to the change implied by the challenge of the subversive act.

3.2.3. *Applying "logic of practice" and "performativity"*

We use "logic of practice" to answer the first research question. The concept captures what assumptions and routines steer the practice, and how the Network makes sense of key ideas, e.g. adaptation, and of its own role in the Swedish climate change adaptation governance regime. We need to understand the logic of the Network's practice in order to also be able to identify deviations and disruptions. Subversive performative acts cause disruptions, and it is these disruptions from the routines that can offer openings for reflection. Answering our second research question, we focus on these situations of contestation. We explore the openness and potential of the practice to take these challenges as opportunities to reflect on routine ways of thinking and acting, in order to be able to discuss the Network's capacity to enable and contribute to transformational adaptation. This means that we view critical reflection as accomplished jointly in the practice: when successful it is enabled by the practice, initiated by a subversive performative act and fulfilled through acknowledging responses by the members.

4. Methods and materials

In this section, we start by explaining why Sweden was chosen as a context for our case. This is followed by a description of the types of data that we generated and how it was analysed. In Section 5 we return to our case, the Network, and describe their arenas for interaction in more detail.

Our argument for choosing Sweden is twofold. First, as described in the introduction, the circumstances for transformational adaptation led by government authorities are more likely in Sweden than in many other countries, which makes Sweden a "most likely" case (Flyvbjerg 2006). Second, the Social Practice Theory approach we adopt in this study demands familiarity with the broader social context in which the cases under study unfold. As is implied in the theory section, it also demands developed understanding of the language in use (including body language) in order to be at its most effective. Since we (the authors) are based in Sweden the choice of Sweden as a case is methodologically relevant.

4.1. Data generating methods

Drawing on a range of methods used in ethnographic studies, such as participant observation, interviews and document analysis (Crang and Cook 2007), we generated a rich material following the Network between autumn 2018 and spring 2020. During this period, the first author participated in all the Network's meetings, both the physical and digital. The second author was present at the majority of these gatherings. All meetings were audio recorded and additionally individual field notes where taken. Concluding each participatory observation we had a short joint reflection, alternatively a debriefing by the first author to the second author. When we gained access as observers to the meetings, we were also added to the Network's email list. It is from this list and the associated website that we have gathered the documents analysed in this study.

During the same period, semi-structured, in-depth interviews were conducted with members of the Network. The interviews focused on the informants' view on the Network and its value and role in the Swedish adaptation governance regime, including their experiences of being members (Kvale and Brinkmann 2015). Five were conducted via a videoconference program and the remaining three in person. We purposively selected interviewees (Silverman 2014) among members that we perceived as dominant in shaping the Network's practice. These members were particularly vocal in meetings, successful in getting projects funded, and or represented authorities charged with spe-cific responsibilities by the government. All interviews were recorded, transcribed by two research assistants working with an audio-to-transcript software, and the transcripts were finally checked by the interviewer. To keep the informants anonymous, we are not naming them or the authorities they represent in the text. Instead, we present a list of all members in the Appendix (online supplemental material).

4.2. Types and quantities of data used

The material we generated includes recordings and notes from four physical meetings (M1-M4), one virtual meeting (VM1, rearranged due to the Covid-19 pandemic), four phone meetings (PM1-PM4), two working group meetings (WGM1-WGM2) and eight interviews (I1-I8). In total, our material consists of approximately 60 recorded hours (12 h of interviews and 48 h of participatory observations).

The documents included in the material consist of meeting agendas and minutes (taken by the secretariat of the Network), reports produced by Network members and distributed via the email list, and the purpose statement of the Network. Additionally, the yearly activity reports of the Network and relevant legal texts were included in the data.

4.3. Data analysis methods

The combination of participatory observations, interviews and document analysis allows for triangulation of the Network's practice and its logic (Alvesson and Sköldberg 2018). Furthermore, it allows us to delve into the experiences of the civil servants in the nexus between policy, climate science and on-the-ground implementation, which Goodman describes as the purpose of "climate ethnography" (Goodman 2018).

By following the Network over time in various arenas, and continuously making field notes, combined with reading the collected reports and documents, we developed our understanding of important routines that appear to maintain the practice. We continued by developing tentative ideas of the logic characterising the Network's practice and what functions it serves for its members, by asking questions like "why does it make sense for the members to do what they do?" (Schatzki 1996), and "what assumptions must the practice hold for these norms and routines to make sense?" (Bueger 2014).

These initial insights were used to build our interview guide. Through the interviews, we gained access to the members' own perspective and reflections on the importance of the Network for their own work. Importantly, this gave use their reflection on the Network with a degree of distance as the interviews, by definition, were outside of the Network's practice.

Through repeated listening to meeting recordings and reading of interview transcripts, we made categories of routines in the Network and what kind of reactions deviations from these routines generated. This was done in several iterations. The first author made a first categorization of themes in NVivo. In the second iteration, the second author narrowed the material down, focusing on the Network's view on its own role and the value of the network as perceived by the civil servants, while the first author focused on the civil servants' understanding of adaptation. In the third iteration, we worked closely focusing on interactions where routines and assumptions were identified in order to develop a description of the logic of practice. With the logic of the practice in mind, we identified *subversive performative acts,* when members of the practice on occasions deviated or challenged the logic of the practice, including how these actions were responded to. For example if they were appreciated or only accepted, or if they led to open or hidden disputes, or even immediate sanctions.

5. The main activities of the network

The Network has four arenas within which members interact: meetings, working groups, a shared virtual workspace and a joint e-mail list. In addition to these, there is a website for external communication. Understanding the purpose of these arenas and how the members use them is important for our analysis. Therefore, we described them in some detail. For an overview of these arenas see Figure 2.

The dominant communication in these arenas was concerned with how the authorities map, plan, model, pilot, and investigate etc. to address knowledge gaps in the preparedness to meet climate change within their respective areas of responsibility.

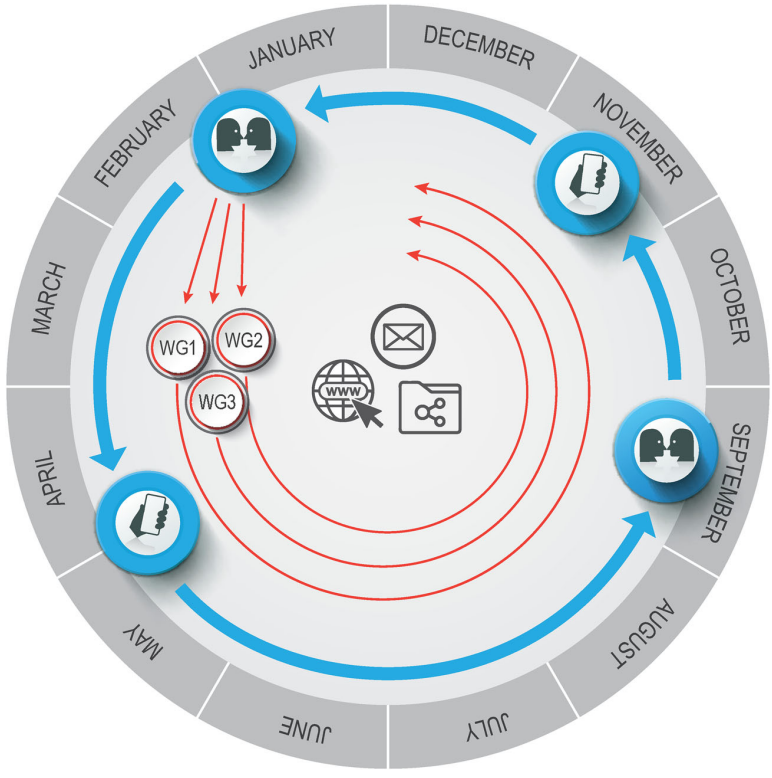

Figure 2. The yearly activities and the virtual arenas of the Network. "WG" for Working Group.

Climate change as a phenomenon (for example scenarios or scientific developments) or the consequences (especially indirect effects, cross-sectoral consequences and cascading effects) were very rarely discussed or even mentioned. Rather, climate change and its consequences served as a seldom explicitly acknowledged backdrop to this communication. Below, we give a brief description of each arena.

5.1. The meetings

Four times per year, the Network arranges meetings, two by phone and two in person, to which all members are invited.

The two annual phone meetings last for about 90 min and follow a standard agenda to update the members on the latest information regarding the website and progress of the working groups (described in more detail below). The Chair of the Network from SMHI leads the meetings with encouraging exclamations indicating that the agenda is tight. Discussions are very rare during these meetings. Questions asked by the members are of a clarifying nature, including, for example, the content of the website or details related to the ongoing working groups.

Between the two phone meetings, the Network meets in person twice a year, as a minimum (replaced by virtual meetings in 2020). These meetings are hosted by one of

the members of the Network, i.e. at the head office of one of the authorities. One is a full-day meeting held at the beginning of the year and the other, held six months later, runs from lunch to lunch with an overnight stay. The first part of these meetings has the same general agenda as the phone meetings. The difference is that there is more room for discussion and questions compared to the phone meetings, but in general, they are kept short and move along quickly in order to get through the whole agenda. The second part of the meetings is used for presenting and discussing ideas for new working groups, study visits abroad or new responsibilities or assignments given by the government to specific government authorities. In addition, coffee breaks, lunches, and for the two-day meeting, a joint dinner and breakfast, allow for small talk and making contacts. The two annual in-person meetings are the only opportunities for formal and informal discussions among the members organised within the Network.

5.2. Working groups

The working groups take a central role when it comes to the actual outputs from the Network. The working groups are set up to foster practical collaboration between the members, and to address perceived knowledge gaps by producing reports, models and guides etc. The groups are created through an intricate and complex process of proposal, evaluation through voting, and finally funding through SMHI's budget for adaptation projects. At least three different authorities need to support a proposal for a project to be eligible for funding. All the proposals are submitted and evaluated individually by all members of the Network through a multi-criteria scheme, created jointly in 2016, where different aspects of the proposed projects are judged and scored. The projects are then ranked according to average score and funded from top downwards until the budget for the current year is allocated, provided the projects meet a certain minimum score. The projects are always on a one-year basis, but in reality they start in the second quarter and have to finish before the year ends. A consultant often does the practical work decided upon by the working group.

5.3. The shared virtual workspace and the email list

The Network also has a shared platform for working on and uploading documents. Agendas, minutes, reports, suggestions for working groups are uploaded here. We have not been allowed into this virtual space. However, it has been increasingly clear to us through the meetings and interviews that it works more as a repository or archive, rather than as an active workspace.

Finally, the Network also has an email list of all the individual civil servants who participate in the Network's activities. This list is almost exclusively used by the secretariat and other functions at SMHI for information prior to meetings, and for reminders about material that has been uploaded to the shared workspace. Occasionally, other members use the list to inform the Network of an upcoming seminar or final report from a working group.

5.4. The Website – klimatanpassning.se

In addition to the spaces where representatives can interact, described above, the Network hosts a website. Essentially, the Network started as a website-network, and

the website still has a special standing within the Network. It is, as already described, a standing item on the agenda of every meeting, but it is additionally often mentioned spontaneously during the meetings; especially by the Chair, who reminds members to contribute with information to and promote the website when appropriate.

6. Results and analysis

The analysis is presented in two segments corresponding to our analytical concepts and research questions. The first section uses "logic of practice" to capture the dominant sense-making process, routines and assumptions regarding adaptation and the Network's own role in the adaptation governance regime, i.e. responding to our first question. The second section focuses on subversive performative acts and the responses to which they give rise. Subversive performative acts are challenges to the logic of practice, and therefore openings for critical reflection. Exploring this potential for joint critical reflection is key to understanding the practice's potential for leading transformational adaptation.

6.1. The logic of the practice: sharing information and demonstrating action

The arenas for interaction, described above, were all used in ways that facilitated effective information sharing and favoured activities that provided fast and visible results. The standard agenda for the *Network meetings* was tight, focusing on presentations and updates from the Chair and the members. The Chair often dominated, especially in the phone meetings and the virtual meeting. The Chair rarely reminded the members of the tight agenda, but instead led the meetings by cheerful and rapid speaking to encourage them to move on. The members showed how well accepted this way of conducting the meetings was by only asking clarifying questions demanding simple answers, thereby reproducing the idea that deviations from the agenda were not desirable. On occasions when questions related to presentations were more open and complicated, they were tabled and it was suggested that they be solved later, e.g. via email or a separate meeting. One interviewee demonstrated how the ability to keep to the agenda and be time efficient in meetings makes sense by commenting: "the members are well-trained, which is necessary. Otherwise the meetings would turn into a cacophony!" (I1). During the in-person meetings, there was more room for discussion, but the discussions were, with few exceptions, instrumental in character.

The activities in the other three arenas followed a similar pattern, focusing on efficient information sharing with little room or inclination to go beyond clarifying questions. The *working groups* have been initiated for two reasons: to implement projects to produce information to address knowledge gaps related to adaptation, and to strengthen the collaboration between the members. However, as the selection of projects was based on the individual members voting on proposals without prior discussion, there was no room for joint explorations on whether the chosen projects actually target the most relevant gaps. Some of those we interviewed considered the voting process to be too complicated and said they did not feel qualified to make judgements about the relevance of the proposed projects. Others said the outcomes and the scores given were too subjective and driven by the knowledge and interest of individual civil servants and the authority they represent (I1, I2, I3, I6). The selection procedure was up for discussion in two meetings (M2 & M4) but did not lead to any changes. As

already mentioned, to facilitate collaboration at least three authorities must support new project proposals for funding. Based on the interviews, documents and meeting notes, it is clear the projects usually lasted for less than a year, were often driven by a single authority that hired a consultant to produce the report, with two other authorities as tag-alongs to fulfil the requirements to obtain funding.

The *email list* was, according to our interviewees, used for information spreading and as a shorthand to get in contact directly with civil servants at other authorities, rather than for questions or discussions directed to the whole network. Similarly, the *virtual working space* was used as an archive rather than as a collaborative space. For example, it was indicated that the working groups, which perhaps should benefit the most from this virtual working space, usually found other ways of communicating, and only uploaded the final reports.

Our analysis makes clear that the arenas for interaction did not offer space for the members to discuss matters that are more complex. This was not based on any explicit discussions or decisions made by the Network. Rather, their design and the way of using them have taken form in a routine way, guided by a logic that emphasizes the importance of efficient information sharing. From this logic, it makes sense to disregard and ignore information and questions that would demand deeper and more critical discussions related to the work and priorities of the Network.

The other characteristic of the logic of the Network's practice is the importance of demonstrating energy and action. Two recurring phrases that were used when the members reported on their activities were: "pick the low hanging fruits" and "join things that are already happening". Taking this a step further, indicating how it is internalized into practice, a representative of one of the central authorities, during a presentation for the entire Network proclaimed: "The low hanging fruits are the most prioritized!". Since these phrases were never openly questioned or commented, we interpret them as reflecting the implicit normativity and logic behind an incremental approach to climate change adaptation: Members "ought to" do anything that is easy to accomplish in order to show that things are moving forward, get a foot in with other already ongoing projects, to gain some small wins.

The way the *website* was used reveals similar logic. The Network was once formed around the website to share information and it still served the members' need to keep themselves updated on what is happening concerning adaptation in Sweden's public sector. But the website also had another, less explicit but as salient, purpose. It was regarded important to keep it constantly updated with knowledge that the Network produced and with activities that were arranged, as it was seen as the face of the Network towards the public, politicians and decision-makers. The website was a standing item on the meeting agenda and members were reminded to promote the page when appropriate. On occasions, members apologized (without prompting) for having forgotten to send new information to be published on the website since the last meeting. This shows that the members collectively share the understanding of the importance of their work being visible and appearing effective to the outside world.

To summarize, three key ideas characterise the practice and work as taken for granted assumptions shaping the logic of the practice. First, efficient exchange of information and the continuous production of more information are assumed to lead to appropriate and effective adaptation action. Second, an incremental approach to adaptation, focusing on "easy" wins, as sufficient to manage the consequences of the climate crisis. Third, visibility is seen key for the Network to be able to fulfil its mission of

being part of developing "a long-term sustainable and robust society that actively meets climate change" (National Network for Adaptation 2019, 3, authors' translation from Swedish).

With the logic of the practice, its routines and assumptions described, we now turn to describing situations where these are challenged by subversive performative acts.

6.2. Subversive performative acts: challenges to the "logic" and the subsequent responses

The members did not always strictly follow the logic described above. Challenges occurred, especially during the physical meetings (M2 and M4), where there was more time and it was somewhat easier to intervene than during the phone meetings. Occasionally, they challenged what we have identified as the "ought to" of the practice by commenting or asking questions that significantly differed from the typical questions, along the lines of "when will a report be available?" or" how long will a specific project run?". We interpret these challenges as openings for critical reflection on the logic of practice and, therefore, a window for change. Below, we provide four examples of subversive performative acts, as well as the reactions they gave rise to by the other members of the practice.

At one meeting (M4), a member challenged the "more information is needed" logic by hinting at the indisposition of the Network to take advantage of the opportunities offered to jointly maintain overviews of activities and connect previous projects with new ones. Two influential members of the practice had recently been given a government assignment concerning land changes (e.g. erosion, mudslides and landslides) due to climate effects. This assignment was presented together with an outline for the project. Another Network member pointed out that the proposed project strongly overlapped with an already finished project, and thus questioned the relevance of yet another scoping project. Why not, instead, build upon and use the previous project, and aim more for implementation of ideas already presented in the previous report? The presenters replied that they would look into this overlap, but also pointed out that the government assignment needed to be completed, regardless of any duplication of work, effectively putting themselves beyond responsibility and shutting down the opportunity for reflection.

A similar notion, but more questioning the effectiveness of information alone, was aired at one of the Working Group Meetings (WGM2). Here, the project manager expressed a hope to "actually do something" in the next project, as the last two projects this member had initiated had gathered valuable information, but so far stayed as desk products. This was said in earnest, but light-heartedly. As it was said by the project manager, who also acted as chair of the meeting, at the very end of the meeting, we do not interpret it as an intention to open up a discussion. Rather the person behind the suggestion was aware that the suggestion violated the norms of the practice.

At another meeting (M2), a member addressed the consequences of changing climate and thus broke with the unspoken norm that meetings should serve instrumental purposes of information sharing and not deviate from the agenda. The member made reflections based on a report concerning how climate change will have devastating effects on food production globally, and in turn in Sweden, which is a food importing country. The member continued by saying, "this is really worrying and could be a real crisis in just a couple of decades". There was a moment of silence before the same

member continued: “it makes you think that maybe we need to rethink weekend trips to New York and so on”. The issues raised here clearly point to concerns about how the Network’s incremental approach to adaptation neglects obvious risks with the climate crisis. However, the response to this challenge of the prevailing logic was sanctioning through laughter, silence, and quickly moving on to the next item on the agenda by the other members.

At the same meeting (M2), a discussion emerged about how the Network has interpreted the legislation that took effect at the beginning of 2019 and that many of the members had been pushing for. The legislation instructs the member authorities to analyse their vulnerabilities and adaptation needs, as well as their already taken adaptation measures. At the meeting, the author of one of the first reports presented their process and the results. They based their report on the RCP 4.5 scenario to assess their vulnerabilities, while “only looking at some aspects of 8.5”. This raised a challenge from another member: “Did they (the authors) think that RCP 4.5 was the correct or sensible scenario to plan for?” to which the answer by the author was “no, probably not”. The answer did not give rise to any further discussion or questions. This highlights the high acceptance of the tendency to produce and show visibility (in form of a quickly finished report) at the cost of more complex and, most likely, more useful results.

These four challenges were aimed at different aspects of the logic of practice, but shared the same outcome. None of these situations led to further reflection or discussions. Other members of the practice closed three of them down, and one was more of a quip than a serious attempt for discussion.

7. Concluding Discussion

In this article, we have started from the assumption that the unprecedented, unpredictable and existential situation we as society find ourselves in due to the unfolding climate cri-sis cannot be dealt with solely through predetermined ideas and familiar measures. To contribute to a society able to withstand known and unknown effects of the climate crisis (Hallgren and Ljung 2005), those responsible for developing, enabling and implementing adaptation measures need to question ingrained thought patterns, routines and precon-ceived working methods. They need to create practices that are open and reflexive in planning, prioritising and decision-making, and foster critical (self) reflection (Paschen and Ison 2014). Empirically we have focused on a government network in Sweden and theoretically we have utilized a framework of Social Practice Theory to explore this cap-acity for critical reflection necessary for achieving transformational adaptation.

In this section, we start by discussing our findings relating to the case in two sections corresponding to our research questions. The third and last part extrapolates these findings and brings them into discussion with related studies concerned with transformational adaptation, especially from an institutional and governance perspective.

7.1. The “low hanging fruit” strategy – making sense of roles and priorities

Our analysis shows that the Network’s practice assumes (more) information is a sufficient (or at the very least the prioritised) catalyst for effective and appropriate adaptation action. This, in turn, leads to positioning the Network as an information hub, producing reports, handbooks and visual guides, mainly for government authorities and municipalities. The analysis further reveals a strong tendency to prioritise and promote

"low hanging fruit" and bandwagoning on ongoing projects in order to achieve easy, quick and generally small victories. Consequently, an incremental approach to adaptation is promoted and an implicit assumption of transformational adaptation being unnecessary permeates the practice. Related to the idea of focusing on "low hanging fruit", and efficient information flow, is the notion of visibility as crucial for the Network and its members. The routines (re)producing this sensemaking are tightly scheduled meetings, focused on efficient information sharing and favouring questions of an instrumental and technical character, while pushing deeper discussion into separate venues (effectively out of the practice). It is clear that the logic of practice is well established, as members rarely deviate. The routines and sensemaking the practice fosters make it difficult for members to question the assumptions. Instead, focus is on implementing and demonstrating activities that can be carried out without threatening the prevailing logic of the practice.

7.2. Adapting climate change – on the closing of critical questions

Still, even stable practices are open to challenges and change. Using the concept of "performativity" to understand this openness we identified subversive performative acts in our material. Challenges occur, but we find that instead of opening up for joint reflection the challengers are often sanctioned for breaking the norms. The responses from the other members imply that questions and views that do not correspond to the assumptions in practice must not be actively engaged. However, since members are reacting to the deviations, it is also clear that they do not go unnoticed, i.e. they fulfil the criteria of being within the conceivable bounds of the practice. Rather, what is lacking is a capacity of the practice to appreciate them and treat them as openings for critical reflection on routines, priorities and taken for granted assumptions.

The gravest consequence of the sensemaking the practice fosters is downplaying the seriousness of the climate crisis. This is shown, for example, in the way disruptions to routine assumptions are reacted to, such as the (nervous) laughter to potential food crisis and concerns about the relevance of the Network's approach to adaptation. Another example is the way the choice of a more optimistic climate scenario than they say they believe in as a base for a strategy, does not lead to further discussions. To put it more bluntly, members of the network adapt their interpretation of the climate crisis to fit the current modus operandi of the practice, rather than question the logic of the practice in order to respond to the climate crisis more effectively.

Interviewees, who expressed that they find their way of working unsatisfactory, and that they would like to see more ambitious and radical action, support our interpretation. Members thus show they, in fact, have the ability to reflect, express doubts about and criticise the prevailing adaptation approach, which reveals how the "logic of practice" stifles this ability in their joint practice in the Network.

We acknowledge that the civil servants we have followed and worked with are competent, committed and set on reducing vulnerabilities through their adaptation strategies. We therefore see considerable potential in the Network as a central actor within the Swedish adaptation governance regime, with the ability to influence both vertically (from the ministries to the municipalities) and horizontally (building momentum and pushing government authorities lagging) to steer adaptation into a more transformational approach. This potential can be realised if the members can be encouraged to raise awareness of, and jointly explore, the implicit assumptions behind their

routines and current way of organizing and prioritizing their activities (Patterson and Huitema 2019). To create conditions for this joint critical reflection they need to at least partially "de-routinize" their practice (Hoffman and Loeber 2016) and deliberately create space for exploring different sets of values and knowledge (Gerlak, Heikkila, and Newig 2020). We argue such conditions could prompt and inspire them to create joint working procedures that enable continuous reflection on how they can utilize the opportunities the Network offers, and the vast knowledge they collectively hold. In doing so it would open up for jointly contesting ongoing activities, identifying gaps in priorities, acknowledge high impact scenarios, and consider their work and ambitions in relation to long- and short-term impacts of the climate crisis.

7.3. Social Practice theory insights for achieving transformational adaptation

In this paper, our main thrust has been to introduce a Social Practice Theory approach to transformational adaptation. We are, here, bringing our practice approach into dialogue with the governance literature focused on institutional (re-)arrangements to induce transformational adaptation, which has dominated this literature.

Our results are relevant for, and have parallels with, studies of adaptation governance that recognise the need for reorganisation of current ways of working to meet the climate crisis. For example, we largely agree with Grin (2020) who states that governance actors less committed, or reluctant, need inspiration to actively start re-thinking the logics that govern their work. We would add that, from a practice theoretical view, assumptions, routines and know-how are being created and activated within the social practices the actors are in (rather than something individual members carry in their heads). This indicates that group-level interventions are needed to achieve the desired changes. This conclusion is supported by the disparate ideas regarding what constitutes effective adaptation presented by the same individuals, depending on whether they are in the Network practice or in the interview practice.

The results of our study also feed into the debate about coordination as a means for achieving adequate adaptation (Clar 2019; Howes *et al*. 2015). The very nature of the climate crisis demands responses that are coordinated over sectors and governing levels. However, following a Network that largely strives to work for coordinating and amplifying adaptation measures, horizontally on the national level and vertically between governing levels, casts doubt over coordination as a silver bullet for adaptation. The Network excels at coordinating (at least horizontally), but what is coordinated is dictated by the meaning making process shaped by the practice. In other words, if incremental (and often reactive) adaptation is understood as sufficiently effective to deal with climate change effects, coordinating this across actors is not necessarily beneficial.

Our conclusions also have bearings on Termeer, Dewulf, and Biesbroek's (2017) suggested third way for effective adaptation, to continuously seek small wins with high impact instead of either incremental or transformational adaptation. The Network's practice seems to favour a similar approach, which is indicated by quotes like "the low hanging fruit are the most prioritized!". However, our study shows that even in generally favourable conditions, this strategy may end up in the same insufficient incremental and often reactive adaptation measures deemed inadequate by large parts of the science community (Kates, Travis, and Wilbanks 2012; Nightingale *et al*. 2020; Schultze *et al.* 2022). Considering the increasing alarm with which even the IPCC now is urging (Western) societies to transform their ways of adaptation (IPCC

2022), it is worth questioning all strategies that build upon the assumption of small efforts leading to big effects.

Using practice as the unit of analysis, we join in the framing of meaning making as social endeavour created in interaction. A practice approach brings a specific focus on how routines and norms, in situ, is part of shaping interaction and thereby meaning making process. This implies that changes in meaning making processes are not only an issue of communicating differently, but rather changing the conditions in which the communication occurs. By focusing on subversive performative acts, understood as a way of critical engagement and challenging the prevailing order, our study contributes with a method to distinguish openings for joint critical reflection, as a strategy to change the conditions. Recognizing such challenges as opportunities for making assumptions, routines and norms explicit is crucial to change meaning making process, which in turn is necessary to create a more sustainable society.

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Supplemental data

Supplemental data for this article can be accessed here.

Note

1. Hereafter called ‘the Network’.

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ORCID

G. C. S. Kanarp http://orcid.org/0000-0002-2658-3406
Lotten Westberg http://orcid.org/0000-0003-1769-2798

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History's been leaning on me lately;
I can feel the future breathing down my neck.
And all the things I thought were true
When I was young, and you were too,
Turned out to be broken,
And I don't know what comes next.
In a world that has decided that it's going to lose its mind,
Be more kind, my friends, try to be more kind.

Frank Turner, Be More Kind (2018)

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Exploring meaning-making processes shaping adaptation governance, its purpose, boundaries, and how it is performed, this study finds that dominant imaginaries and practices in the Swedish public sector assume that the future is predictable and controllable. These assumptions are intertwined with (often) unspoken ideals of economic growth, technological innovations and expert-led planning. This leads to downplaying long-term perspectives, uncertainty, transboundary risks, and plausible high-risk scenarios, in order for making incremental adaptation strategies seem plausible.

Gunnar Christoffer Söderlund Kanarp holds a BA in Economics from Stockholm University and a BA in Political Science from the Swedish Defence University. He received his MSc in Environmental Communication from SLU, and undertook his doctoral studies at the Department of Urban and Rural Development at SLU.

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