

Anticipating Environmental Change in Local Climate Governance

A Case Study of Gothenburg, Sweden

Author: Frida Nilsson

Supervisor(s): Prof. Dr. Caspar van den Berg & Alex C. Belloir

Capstone Project

BSc. Global Responsibility & Leadership

Campus Fryslân, University of Groningen

June 20th, 2021

Abstract

The climate crisis is a wicked problem due to its range of actors, a limitless number of uncertainties, and its relationship to the future. Governing environmental change is therefore challenging, especially because current practices operate on short timescales. As the window of opportunity in which drastic action must be taken is closing, creative and alternative approaches need to be explored. Anticipatory climate governance (ACG) is the act of governing in the present to engage with, adapt or shape uncertain ecological futures. It has an inherent long-term perspective and aims to manage potential events before they result in crises. This can be implemented across levels of governance, but application on a local scale can provide important insights as it is where global and national agreements are translated into action. This paper conducted a review of ACG in the city of Gothenburg due to its ambitious but failing environmental goals. Policies were reviewed and three employees of the environmental administration were interviewed to derive an idea of the conceptualizations of its futures, the actions taken in the present, and its ultimate aims. Conclusively, Gothenburg has discrepancies in its narratives of its environmental future, a strategic, mission-oriented approach in an attempt to procure better control, and ultimately aims to both safeguard and seize opportunities in the future. Overall, there is a conflict between the need for complexity and the requirement for anticipatory elements to be both comprehensible and accessible. As a result, it is suggested that a "Gothenburg Climate Future Lab" is established to encourage citizens to construct multiple ecological futures collaboratively and use these narratives to create change.

Acknowledgements

Firstly, I would like to thank my fantastic supervisors Caspar and Alex. Thank you for helping me develop my ideas and providing me with encouraging yet constructive feedback. A special thanks to you Alex for our bi-weekly meetings, finding time for me in your busy schedule to read through my text, and always having something positive to say.

Secondly, I would like to express my gratitude to my interviewees at the municipality who granted me their time amid very busy days. All of your input is instrumental in the outcome of this thesis. Tack så jättemycket.

Finally, I would like to thank my classmates in the first ever-graduating class of Global Responsibility and Leadership. It has been an incredible three years, and I am beyond grateful to know I always have your support. I could not be more proud of all that we have accomplished.

Table of Contents

1. Introduction	3
2. Literature Review	5
2.1 Anticipation and anticipatory climate governance	7
2.2 The role of local climate governance	9
3. Method	11
4. Case Study: Municipality of Gothenburg	13
4.1 Governance structure	14
4.2 Environmental and climate governance in Gothenburg	17
4.2.1 Gothenburg City's Climate and Environmental Programme, 2021-2030	18
4.2.2 Interview results: Environmental administration	21
5. Discussion	24
5.1 Conceptions of the future	24
5.2 Actions in the present	25
5.3 Ultimate aims	26
5.4 Final remarks	27
6. Recommendations	29
6.1 Practical design	29
6.2 Obstacles to implementation	30
7. Conclusion	31
8. References	32
Appendix	38
A.1 Letter of Consent	38
A.2 Interview Guide (English)	41
A.3 Interview Guide (Swedish)	42
A.4 Governance structure of the municipality of Gothenburg	44
A.5 Hierarchical structure of the planning governing documents	44
A.6 The environmental and climate programme's target, environmental goals, sub-goals and strategies	45

1. Introduction

Despite growing universal scientific agreement on the destructive anthropogenic effects on the planet, there is still a clear lack of adequate governance to address the ongoing climate crisis. It is often characterized as a complex and "wicked" problem, requiring a myriad of actors, with competing interests, goals, and contesting values. Environmental governance and policy at the global level try to rule in the face of extreme uncertainty and normative contention over the existence and extent of future environmental harm (Muiderman et al., 2020; Boyd et al., 2015). The fundamental goal of contemporary environmental governance is to reconcile past and future enclaves: to overcome social opposition to change, establish methods for communities to break free from unsustainable norms, and to learn and develop decision-making support that engages with an uncertain future (Boyd et al., 2015). One major challenge, particularly in the most influential democracies, is the pervasiveness of "political presentism". This is the prioritization of short-term political interests and decisions over issues that require consideration on a longer time scale (Kraznic, 2020; Eckersley, 1995). Climate change is an example of an issue that gets tangled in political presentism, as it is characterized by its relationship to the future while it simultaneously requires an urgent, collective, response in the present. An increasingly explored field of climate governance that may provide alternatives to the ongoing short-sighted approaches is anticipatory climate governance (ACG). ACG can be expressed as the act governing in the present to engage with, adapt or shape uncertain ecological futures (Quay, 2010; Boyd et al., 2015; Muiderman et al., 2020). There are varied interpretations of ACG but it is fundamentally built on the concepts of anticipation and imagination, to envision, comprehend, and benefit from the future (Burch et al., 2019; Boyd et al., 2015). ACG can embrace a long time horizon, and create an understanding of how actions in the present impact the future. Instead of locking ourselves into an idea of what the future *will* be, creative applications of ACG throughout levels of governance may be able to open up the horizon for multiple possibilities of what it *can* be.

Notably, local climate and environmental governance are key in overcoming global environmental challenges because it is at the local level where transnational agreements need to be translated into action (Lundqvist & von Borgstede, 2008; Bulkeley, 2010; Fuhr et al., 2018). Consequently, it is crucial to assess the role, process and progress of local governments and their practices in understanding why we are failing to adequately address the climate crisis. Most of the climate-leading European cities are located in the Nordic countries, and Gothenburg in Sweden is far from an exception (Kern, 2018). Gothenburg has exceptionally ambitious climate targets, aiming to be one of the most climate progressive cities in the world and an "ecologically sustainable city" by 2030 (Göteborgs Stad, 2021a). Their current results, however, are not encouraging. 5 years into their 35 year-long climate strategic programme, the

municipality of Gothenburg had failed to meet 10 of its then 12 climate goals (Miljöförvaltningen Göteborgs Stad, 2019). In response, they disrupted this programme and replaced it with the 2021-2030 climate and environmental programme, acting on a much shorter time horizon. Understanding how they conceptualize their environmental future, the actions and decisions they make in the present, and their ultimate aim of doing so can be important in creating an idea of why they are failing.

Therefore, the overarching research question is: *How does the governance of the municipality of Gothenburg anticipate changes to the natural environment and in which ways can this be improved?*

This research project aims to develop an understanding of Gothenburg's climate and environmental governance and the ways as well as the extent to which it engages with the future. As a consequence of the results of this research, the paper will also outline a recommendation to potentially improve Gothenburg's governance. The paper will begin with a literature review consisting of three main components. Firstly, it will evaluate how nature is currently governed, and the reasons it continues to fail by exploring various alternatives. Secondly, ACG will be discussed as an alternative approach to governing climate change, and a theoretical framework will be outlined. Thirdly, the paper will review the role of municipal governance in the battle against climate change to form a justification for the chosen case study. After the literature review, the method will be described, as well as the relevant limitations. Following this will be the case study of the municipality of Gothenburg, which provides background, explores the governance structure, its environmental governance, as well as the results of the interviews conducted. The next section consists of a discussion that aims to evaluate the case study and its overall conceptions of the future, actions in the present, and aim from an anticipatory perspective. The intended outcome of this project is a recommendation based on weaknesses or gaps identified in the case study, to help Gothenburg govern more sustainably. This recommendation suggests the launch of a "Future Lab", that aims to encourage and involve the citizens of Gothenburg to play a more active role in the environmental future-making of the municipality. Finally, the paper arrives at its conclusion, limitations, and ultimately, suggestions for further research.

2. Literature Review

For decades, liberal democracies have operated in a reactive rather than anticipatory fashion to increasing environmental concern, prioritizing short-term outcomes and failing to include longer-term consequences (Niemeyer, 2013). For example, despite being a monumental, future-oriented global accord, nation-states are currently failing to meet the Paris Agreement. As of 2019, 75% of climate pledges to stay below a global warming scenario of 1.5°C are partially or completely insufficient (Watson et al., 2019). Therefore, current systems of governing the future of the environment, particularly within liberal democracies, fall short, and alternatives need to be considered.

Krznaric (2020) describes liberal democracies as exhibiting “political presentism”: a bias towards short-term political interests and decisions, echoing Eckersley’s (1995) notion of their operation on a short time horizon. Krznaric (2020) attributes this presentism to short election cycles, power of special interest groups, the deliberate disregard of future generations, constant (digital) news cycles, as well as the nation-state itself; contemporary society faces global crises that demand collective action, which is partially impeded by certain national interests. This political presentism can be understood to describe the fundamental challenge underpinning the governance of the climate crisis: protecting the environment is an urgent, collective, long-term interest, that takes into account the value of future generations and nature, while the most influential democracies currently operate in an opposing manner (Krznaric, 2020; Niemeyer, 2013). A draconian measure would be to pursue eco-authoritarianism and use the urgency of ecological destruction as an imperative, and consequently override the principles of democracy. Drawing on work by Malthus, this ideology emerged in the 1970s and argued for solutions to ecological crises such as centralised and strict environmental regulation, limited political participation, and population control (Shahar, 2015; Eckersley, 1995). However, this suggestion of political shift is grossly contested. Shahar (2015) expressed that a transition to authoritarianism may simply exacerbate the existing environmental crisis and that centralized authoritarianism has historically struggled. Seward (1993) emphasizes that to advance green governance, uncertainty needs to be embraced, rather than treating green principles as autocratic. Eckersley (1995) urges for the transformation of liberal democracy to include broader public participation, suggesting a governance structure that is more conducive, participatory and deliberative. In abandoning eco-authoritarianism as a governance solution to climate change, and instead embracing democracy, the question of how liberal democracies can be reimagined remains.

In referencing Aristotle’s “Politics”, Dobson (2010) asserts that politics is defined by the ability to speak, and therefore describes politics itself as an inherently discriminatory practice, as it privileges beings with the capability of speech. Hence, agents such as humans of future generations, non-human beings and

nature as a whole are marginalized from present decision-making, despite their welfare being directly (negatively) affected. In contemporary society, the process of ‘strengthening democracy’ has been actualized through the struggle for political recognition, inclusion and ultimately liberation (Eckersley, 1995). For example, the extension of rights for marginalized groups such as women, black people, and LGBTQ+ people, acts as one clear approach to inclusion and increased civil protection. Accordingly, an innovative way of radically protecting the environment is the extension of rights to nature. Ecuador was the first country in the world to adopt the rights of nature in their national legal system in 2008, followed by Bolivia in 2010 (Kauffman, 2019). However, constitutional rights for nature have proven to fall short in actually protecting nature and in being an inhibitory mechanism of climate change. The celebrated inclusion of nature’s rights in Bolivia needs to be considered in relation to the state’s increased right to natural resource extraction as a result of the same constitutional reform (Lalander, 2014). Though several legal battles in Ecuador using the novel constitutional rights of Mother Earth were won, they similarly also contradicted the government’s plans to financially support national development projects related to large-scale mining and oil extraction (Kauffman & Martin, 2017). The formulation of these laws is potentially vague and gives rise to ambiguities, resulting in legal loopholes and a lack of accountability (Kelly, 2019). There is a sharp difference between being officially granted rights and enjoying said rights to one’s full capacity. Inscribing nature’s rights in law can be a good first step towards climate justice, but law carries limitations and needs to be complemented by widespread political, societal and economic shifts (Calzadilla & Kotzé, 2018; Kelly, 2019).

Moving beyond rights discourse, one paradigm argues for nature to be granted its own ‘voice’ in political processes. This suggests a more direct involvement in political decision making, though with weak implementation possibilities. It is difficult to assign non-human beings a similar role to human beings in decision making because of their lack of capacity to speak, meaning they would require the representation of some form of guardian- or trusteeship (Eckersley, 1995; Kelly, 2019; Cano Pecharroman, 2018). Dobson (2010) contends that the paradigm of literally giving nature a “voice” needs to be shifted to a paradigm of listening to what nature has to say. Coles (2004) extends the concept of listening to ‘receptivity’, suggesting an engagement and responsiveness to what has been said. More attentive “listening” to nature and its concerns can result in increased precaution, consequently giving stakeholders foresight to act.

2.1 Anticipation and anticipatory climate governance

An emerging form of governance that embraces the notion of foresight and a long-term time horizon is anticipatory governance. Though there is no widely agreed definition, anticipatory governance can be understood to be based on the premise of anticipation, which aims to envision, understand and benefit from the future (Burch et al., 2019; Boyd et al., 2015). Therefore, ACG can be described as governing in the present to engage with, adapt or shape uncertain ecological futures (Quay, 2010; Boyd et al., 2015; Muiderman et al., 2020). ACG moves past political presentism by intrinsically possessing a long-term temporal policy view, and by aiming to manage potential events before they result in crisis. This shift away from short-term decision-making and towards a longer-term policy view includes the concept of foresight (Boyd et al., 2015). Foresight is the ability to anticipate alternative futures based on the capability of “listening” to (usually weak) signals and envisioning their potential outcomes (Boyd et al., 2015; Fuerth, 2009). Foresight is distinguished from having a vision, as it relies on continuous reflection from multiple perspectives, and is inherently welcoming of a myriad of different futures (Fuerth 2009). In addition, ACG involves the development and implementation of governance tools to govern future earth system transformations, despite extreme normative and scientific uncertainty, as well as fundamental and diverse disagreements about the existence, nature, and distributed consequences of such transformations. (Boyd et al., 2015; Burch et al., 2019).

Anticipation of uncertain futures is an act of the imagination, and social imaginaries are creative and symbolic dimensions that frame imaginations (Burch et al., 2019). Social imaginaries are important in deciding what new approaches to governance can be considered, but also which will be sustained. Governance that recognizes the need for imagination as a tool may have features such as reflexivity, flexibility, being system-oriented and inherently participatory (Burch et al., 2019; Ohta, 2020). This makes the anticipatory perspective relatively suitable for addressing complex, ‘wicked’ problems like the ongoing climate crisis, because it can give the basic, yet meaningful guidance needed to plan for unpredictable future events through such attributes (Ohta, 2020). The participatory element is especially important because humans have been repositioned as the driving force behind extraordinary changes on the planet, meaning we are pushed to view our actions as a collective (Yusoff & Gabrys, 2011). Moreover, in the face of the unknown, visualizing future worlds should empower people to recognize methods to solve future obstacles or envisage and pursue better futures (Vervoort et al, 2015).

Due to the ambiguity of the definition, narrowing down ACG into a framework can be a challenge. However, through an extensive literature review across research disciplines, Muiderman et al. (2020) outlined four approaches to ACG with different conceptions of the future, actions in the present, and

ultimate aims. The approaches are (1) “probable futures, strategic planning and risk reduction”, (2) “plausible futures, enhanced preparedness, and navigating uncertainty”, (3) “pluralistic futures, societal mobilization and co-creating alternatives”, and (4) “performative futures, critical interrogation and political implications” (Muiderman et al, 2020, pp. 7-9). In the figure below, the key characteristics of the four approaches have been visualized.

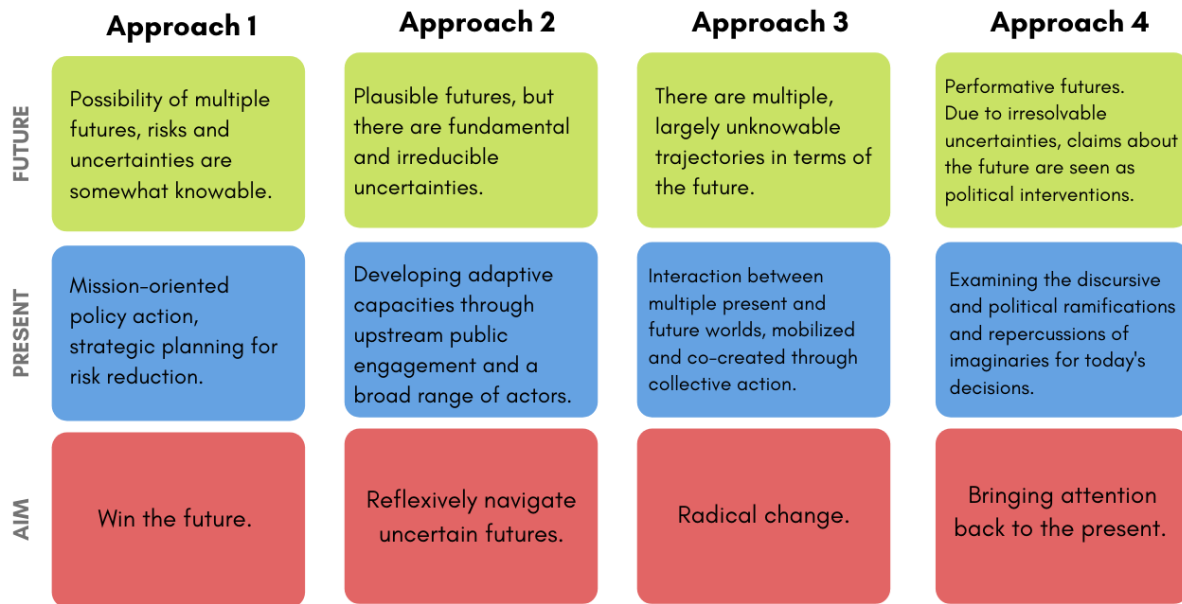


Figure 1. The four approaches to ACG (Muiderman et al., 2020).

Muiderman et al. (2020) further identify an array of practical governance tools related to their defined approaches to ACG. However, they clearly state that these tools overlap and that there is no total dividing line between the different approaches. Nevertheless, it is generalized that within approach one, ACG carries a limited role of citizens, and uses tools to broaden the existing knowledge of the future to discuss potential risks and to develop short-term policies focused on long-term strategies. Approach two has similar tools to approach one, except they are generally more deliberative in the sense that they actively include citizen knowledge in their future-building, but also put greater emphasis on the agency of vulnerable groups. Approach three champions uncertainty, discomfort and gaps in knowledge, attempts to mobilize and organize stakeholders, co-creating shared futures to realize them as opposed to meeting them, overall channelling a more proactive rather than reactive approach. Lastly, approach four is more confined to a scholarly environment, as it applies critical analytical tools of future narratives. Overall, their ACG framework provides a fruitful theoretical basis for the analysis of specific governance responses in practice.

Moreover, it is important to highlight that there are several criticisms of an anticipatory approach. Though the strength of ACG can be understood to be the fact that it includes a long-term temporal perspective, it can simultaneously be a drawback. Those who set out long-term policies based on foresight and projections can easily avoid being held responsible and accountable for the consequences of their work (Aykut et al., 2019; Beck & Mahony, 2017; Boyd et al., 2015). In addition, though imagined futures have political repercussions, they also have political origins. The Intergovernmental Panel on Climate Change pathways are gradually forming the basis of global environmental governance and serving as the standards against which policies can be and are assessed, and with which a global climate governance regime can plan a quantifiable course to accomplish its desired goal (Aykut et al., 2019; Beck & Mahony, 2017). This can be advantageous in creating shared goals and contexts, but it can also limit the boundaries of our narratives and put us on a path of irreversible development (Beck & Mahony, 2017; Boyd et al., 2015). Furthermore, because the definition of ACG is so ambiguous and is not defined to a clear set of actions but rather of attitudes, it may be difficult to implement in practice. Shifting to an anticipatory approach, as Fuerth (2009) put it, necessitates a cultural shift within the core role of government, which can only be accomplished over time. Finally, Aykut et al. (2019) worry that an anticipatory approach may be interpreted as fundamentally performative, but that it can also reduce the social complexity of wicked problems, and that it risks closing down the horizon of possibilities for social and political creation. However, as defined by figure 1, this heavily depends on which kind of ACG is applied and how uncertainties are viewed and complemented with actions in the present, as their criticism is largely focused on approach one and two, rather than three.

2.2 The role of local climate governance

The complexity of the climate change governance challenges can in part be attributed to its multi-level nature (Neil Adger et al., 2005; Lundqvist & von Borgstede, 2008). It is a global phenomenon that is in part governed internationally by, for example, transnational agreements, that in turn needs to be governed nationally, regionally and ultimately locally (Lundqvist & von Borgstede, 2008; Bulkeley, 2010; Fuhr et al., 2018). As it is often in counties and municipalities where global commitments in terms of climate action need to be translated into practice, there is a growing importance of managing and understanding these local responses (Kern, 2018; Bulkeley, 2010). When talking about climate governance on a local scale, a focus on local threats, impacts and capacities arises. This consequently often leads to an emphasis on climate adaptation over mitigation, although cities account for over 60% of global greenhouse emissions (Nilsson et al., 2012; United Nations, 2019). Local climate governance will be key in addressing the wicked problem of climate change, as a paper by Fuhr et al. (2018) argues that, without proactive policies carried out by sub-national governments, the race against a 1.5C warming will be lost.

Furthermore, the responses of local governments vary dramatically for many different reasons. For example, different cities experience different impacts locally, perceive different risks and vulnerabilities, have varying authority and competence in governing climate change, but also have contrasting national programs and transnational networks (Kern, 2018). Important to note is that the authority of cities and or municipalities do not match the scale of climate change and its impact, meaning a high degree of cooperation and coordination between actors is necessary (Lundqvist, 2015). This can make it difficult to examine the impact of a municipality in isolation. Nevertheless, analyzing climate governance with an anticipatory lens on a local scale provides itself with an interesting site of research (see Boyd et al., 2015; Serrao-Neumann et al., 2013; Quay, 2010).

3. Method

A case study of ACG in the municipality of Gothenburg was selected to assess its role in practice. The municipality of Gothenburg was chosen because of its ambition to be one of the most climate-progressive cities in the world, yet it has simultaneously failed to meet the majority of its climate goals. To begin with, a brief outline of Gothenburg’s location, economy, climate challenges, as well as its governance structure was established using primary sources from the municipality and relevant local stakeholders like Business Region Göteborg. This was done to create a framework of its governance behaviour. Further, primary sources in the form of various official reports and documents provided by the city’s website were thoroughly analyzed to understand how environmental changes are anticipated, as well as their capacity to govern the future (see table 1). Moreover, journal articles were obtained from Google Scholar and SmartCart to help support the construction of this case study.

Table 1. *Overview of the analyzed official reports and documents from the Municipality of Gothenburg.*

Title	Type	Author(s)	Year Published
<i>Göteborgs Stads miljö- och klimatprogram 2021–2030</i> (Gothenburg City’s ¹ environment- and climate program)	Program	Developed by the environmental administration in collaboration with the city management office and with the support of officials in the city's administrations and companies.	2021
<i>Klimatstrategiskt program för Göteborg</i> (Strategic climate program for Gothenburg)	Program	Established by the Environment and Climate Committee.	2014
<i>Uppföljning av Göteborgs lokala miljömål 2019</i> (Follow-up of Gothenburg's local environmental goals 2019)	Report	The environmental administration.	2019
Vision Älvstaden	Vision	The city development office.	2012

¹ The municipality of Gothenburg uses “City of Gothenburg” as their official English translation.

The analytical process of understanding the anticipatory nature of Gothenburg's climate governance was carried out by paying close attention to how the future is framed (particularly the environmental future), which time scales are addressed and in what manner, as well as how their action steps are articulated. This way, the information collected can be compared to the theoretical framework in figure 1, and the appropriate ACG approach can be identified. Essentially, the case study aims to paint a picture of Gothenburg's climate future, using a detailed understanding of their current governing practices.

Moreover, the environmental administration was contacted to perform multiple in-depth interviews with employees, working directly with Gothenburg's climate and environmental policy. The purpose of these interviews was to complement the information studied from the reports and documents with a personal perspective of Gothenburg's climate governance. A total of three employees participated, and the questions asked, as well as the summary of their answers, can be found in the appendix. The key themes of these interviews were (1) the time-horizons used in their work and their suitability, (2) their perceived challenges and obstacles to implementation, along with (3) their imagination of Gothenburg's environmental future. The interviews were conducted through a contract of consent, where it was made clear for participants that their data was anonymized (except for the fact that they are employees of the municipality), any recordings were discarded after the transcription process, and that they were able to withdraw from the study at any point in time (see appendix). The data was then analyzed using the theoretical framework of the four approaches to ACG, to critically assess the language use and identify any potential key patterns.

The methodological limitations of this paper include the number of personal interviews. This project relied on reports and documents for the majority of its data collection because of their relative abundance and therefore did not prioritize interviewing more than three people. In addition, individuals from the city planning office were also contacted, but could not participate within the given timeframe due to an overload of requests in their system. This limits the personal perspective on the climate governance of Gothenburg. However, though limited in number, the participants' testimonies were of great value for this project, as they helped identify patterns as well as disparities in their perception of the city's climate governance. Moreover, the governing documents provided by the municipality and the interviews were written and conducted in Swedish, meaning there is the potential of lost meaning during translation, particularly with key descriptive words (van Nes et al., 2010). For example, the terms 'nämnd' and 'styrelse' both translate to 'board', though they have slightly different meanings in practice. It also meant that the amount of data studied needed to be limited as proper translation requires additional time.

4. Case Study: Municipality of Gothenburg

The municipality of Gothenburg is located on the west coast of Sweden within Västra Götaland County and is made up of four official urban areas: Hisingen, Sydväst, Nordost and Centrum (see figure 2). With a population of approximately 580,000 people, the city of Gothenburg, which makes up the majority of the municipality, is the second-largest city in Sweden (City of Gothenburg, 2021; Göteborgs Stad, 2014).

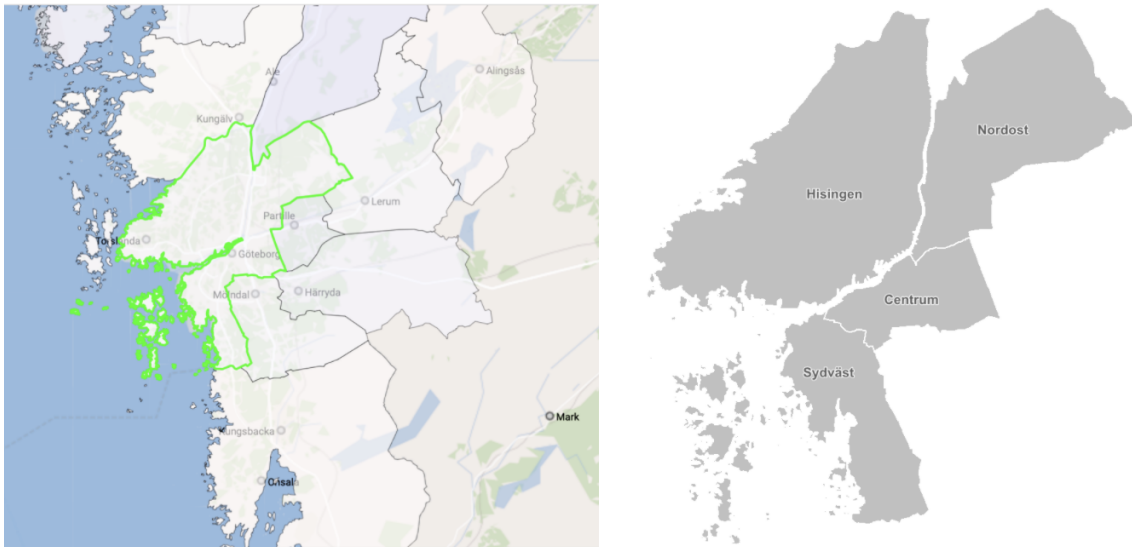


Figure 2. Map of Swedish west-coast: the municipality of Gothenburg outlined in green in the left-hand image, and the four official urban areas of the municipality in the right-hand image (Brinkhoff, 2021; Göteborgs Stad 2021b).

Gothenburg has Scandinavia's largest seaport and has historically been a hub for shipping and trade, with several known multinational companies headquartered there like Volvo, SKF and AstraZeneca (City of Gothenburg, 2009; Business Region Göteborg, 2020). It neighbours 12 other municipalities, from which many people commute into the city centre to work (Tahvilzadeh et al., 2017). Consequently, the majority of Gothenburg's greenhouse gas emissions can be attributed to its energy plants, industry, road and sea transport (Göteborgs Stad, 2014). In terms of planning for an ecologically sustainable future, this can be seen as both a challenge and an opportunity.

Regarding socio-economic conditions, Gothenburg struggles with pronounced racialized segregation (Andersson et al., 2009). Over time, the difference between high- and low-income earners has drastically increased, and the variation between areas is striking (Göteborgs Stad, 2017a; Tahvilzadeh et al., 2017). In 2006, the area of Hovås (high-income) had a 262% difference in disposable income as compared to the area of Hammarkullen (low-income), which is a dramatic increase from a 40% difference in 1990 (Göteborgs Stad, 2017a). This divide is strongly correlated with ethnicity; the greater the proportion of

those living in an area in a detached house, the higher is the average earned income and employment rate, and the lower is the proportion of somebody with a foreign background (Andersson et al., 2009). These stark contrasts translate to differences in the involvement in the city's social and political life and have multiple negative consequences including social unrest (Tahvilzadeh et al., 2017; Andersson et al., 2009). These may potentially also give rise to concern regarding the municipality's response to climate change, as willingness, trust, and engagement of all citizens are necessary for the transition to a sustainable city (Hawkins, & Wang, 2011).

Moreover, Gothenburg's slogan "Sustainable city - open to the world" reflects how sustainability plays a large part in their image (City of Gothenburg, 2021, p. 1). Like all municipalities in Sweden, Gothenburg is required to have a "Comprehensive Plan" which indicates how they want to use land and water areas and provides guidance for decisions made by the municipality and relevant stakeholders (City of Gothenburg, 2009). The most recent plan was adopted in 2009, while a new one is expected to be adopted at the end of 2021. Sustainable development is a core component of this plan, as they express that "Göteborg will develop into a vibrant and sustainable city that balances social, economic and environmental considerations for the long term. (...) Göteborg will be a city where a good life is possible for everyone, both now and in the future." (City of Gothenburg, 2009, p 4).

Furthermore, the alarming threat of climate change is not only important to the municipality because of its role in the global effort to reduce greenhouse gas emissions, but also because of the anticipated local impacts. As Gothenburg is a coastal municipality, it is particularly at risk of sea-level rise (Berglöv et al., 2015). This may potentially cause disruptions in the power supply, the waste and sewage system, as well as the transport system (Göteborgs Stad, 2014). Another concern is the issue of rising temperatures leading to a higher risk of landslides, but also of increased heat stress which may result in deaths of vulnerable groups (Göteborgs Stad, 2014). In light of this, municipal action is not only recommended but crucial to the city's climate footprint and the likely consequences in the face of inaction.

4.1 Governance structure

Gothenburg is one out of 290 municipalities in Sweden, acting on the lowest level of national governance (SKR, 2021; Stegmann Mccallion, 2007). Municipalities in Sweden are self-governing, meaning that they can make independent decisions and tax their citizens as means of completing their assignments (SKR, 2021; Lundqvist & Borgstede, 2008). As they are popularly elected, citizens have great opportunities to influence the decision-making process of the municipality. After the last election in 2018, the 18 councillors of the municipal board in Gothenburg were made up of 9 different political parties, with the biggest party being Socialdemokraterna (the Social Democrats) holding 4 seats (Göteborgs Stad, 2021c).

The City of Gothenburg is organized into 24 professional administrations and multiple municipal companies. The city management office is responsible for the overall management, governance and follow-up of the administrations and companies on behalf of the municipal board (Göteborgs Stad, 2021d). The municipal board is appointed by the municipal council and is responsible for ensuring that the city council’s decisions are implemented, monitored, and evaluated.

The city describes their governance structure as consisting of three key components: their starting points, systematics and prerequisites, as can be seen in figure 3.

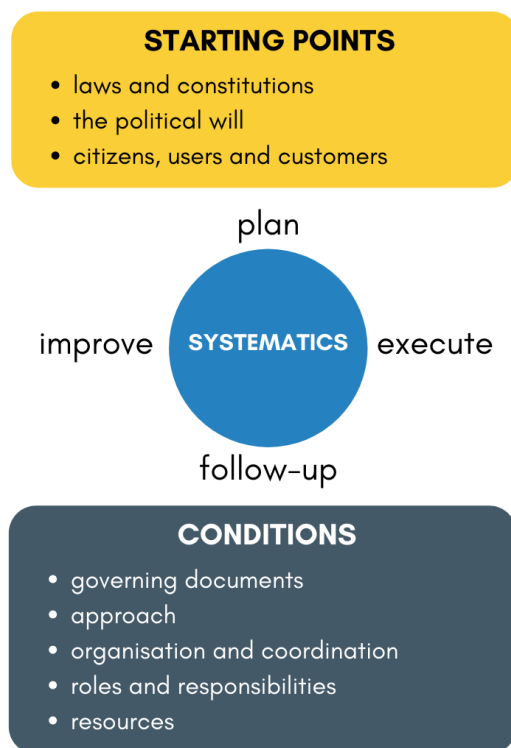


Figure 3. An adapted version of the municipality of Gothenburg’s governance approach (Göteborgs Stad, 2021a).²

The starting points for their governance require certain conditions to function, and the systematics describe the overarching process of governance. For example, the city’s politicians can use governing documents to describe how they wish to realize the political will and would begin this process by creating a plan.

Within the City of Gothenburg, the governing documents adopted by the municipal council and the municipal board apply. In addition, committees and company boards establish their governing documents for their operations. Governing documents are incredibly important in their work as they describe what stakeholders should do, who should do it, and how they should do it. Preparing and realizing these

² See original in appendix A4.

documents is critical to upholding the city’s core values, and the documents also carry an accountability mechanism, forming the basis for demanding responsibility when the municipality is not working per what has been decided. The city of Gothenburg budget, which is adopted annually by the city council, takes precedence over all policy documents across governance domains.

Furthermore, the municipality has two distinct categories of governing documents: planning and regulatory documents. Both can act as descriptions of what should be done, by who and which results it should achieve, and differ in a sense that planning governing documents are related to initiatives that will take place in the future, and regulatory documents are more contextualized in the present and directed at existing projects (Göteborgs Stad, 2017b). Planning documents are more relevant in discussing environmental governance and will therefore have a focus on this research project. The three types of documents employed within planning documents are visions, programs, and plans, and these exist together. In figure 4, these documents in relation to their detail, room for manoeuvre, and time-horizon have been visualized.

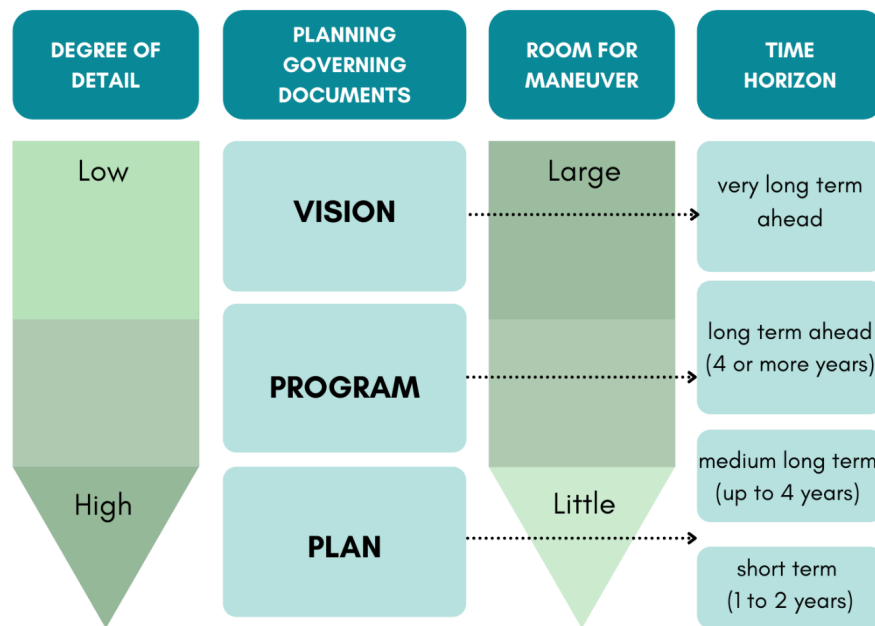


Figure 4. Characteristics of the different planning governing documents in the Municipality of Gothenburg (Göteborgs Stad, 2017b).³

³See original in appendix A5.

4.2 Environmental and climate governance in Gothenburg

Over 20 years ago, the Swedish government set up an environmental quality objectives system to create a robust environmental action framework with 16 objectives that has since been continuously updated (Prop. 1997/98:145). Unique to these 16 objectives is the overarching “generation goal”, in which they state they should “... be able to hand over to the next generation a society where the major environmental problems are solved, without causing increased environmental and health problems outside Sweden's borders.” (Prop. 2009/10:155). In 2018, the government adopted the Swedish Climate Act as part of this framework, with the overarching aim of achieving net-zero emissions by 2045 and negative net emissions thereafter (Karlsson, 2021). To achieve this ambitious goal, actors on all levels of Swedish governance – ranging from the government, the county administrative boards, and municipalities – need to collaborate, engage and show responsibility. While these national limits formally put local governments on an equal footing when it comes to climate-related action, there are disparities in their response depending on their size, capacity, and organisation (Lundqvist & Borgstede, 2008).

One of Gothenburg's 24 official administrations is the environmental administration. Its mission is to ensure a good living environment for its citizens, and that the negative impact of Gothenburg on health and the environment is as small as possible. They are tasked with leading and coordinating the city's strategic environmental and climate work. This entails monitoring and reporting environmental conditions, as well as proposing measures and decisions within the environmental arena. Moreover, they contribute expertise in the community planning of developing Gothenburg into a long-term sustainable city. Nevertheless, environmental governance within Gothenburg transcends this administration, as, for example, climate adaptation is pursued by the city planning office.

The environmental administration responds to and develops a range of planning governing documents. One city-wide document that influences their work is vision Älvstaden (“River City”). It was published in 2012 and is the largest city development project in the Nordic region, acting as a guide to what Gothenburg should become. Älvstaden is a co-created conceptualisation of the future of the city that emphasizes openness and inclusivity, that is green and highly dynamic, and that relies on a strong, diversified economy. It was a collaborative project developed by the joint effort of the municipality, interest groups, primary and high school children, companies, and ordinary citizens. It consists of three strategies: “entire city”, “meet the water” and “strengthen the core”, of which the second is the most relevant to its environmental governance. This strategy aims to construct the desired future by creating a living river room, making it easy to live sustainably, and seeing climate adaptation as a driving force. Älvstaden is expressed to be fossil- and waste-free, which will be achieved by creating conditions to live

sustainably. In contrast, the negative consequences of climate change, in particular sea-level rise and increased precipitation, are described as expected and exciting opportunities of the future, pushing support for climate adaptation.

In turn, the environmental administration develops programs and plans which stem from this vision. For example, in 2014, the municipality adopted the “Strategic Climate Programme for Gothenburg”, which had the central aim of “maintaining an equitable and sustainable level of GHG emissions by 2050” (Göteborgs Stad, 2014, p 3.) Its target included the municipal organisation, industry as well as the citizens of Gothenburg, and carried in large part a consumption-based perspective on emissions. It consisted of 12 local environmental-quality goals that were decided by the city council. It was directly connected to the 16 national objectives, and thus also stressed the generational goal. This program had a follow-up report conducted in 2019 that concluded that none of the 12 goals had been reached, two of which were said to be incredibly difficult to achieve even if extensive measures are put in place and another two that could be achieved with additional effort (Miljöförvaltningen Göteborgs Stad, 2019). They attributed these inadequate results to the collective influence of wider society, and that the effects of the city’s measures should become more clear in the future.

4.2.1 Gothenburg City’s Climate and Environmental Programme, 2021-2030

In March of 2021, the municipality of Gothenburg adopted a new environmental programme titled “Gothenburg City’s climate and environmental programme, 2021-2030”. This replaced the five previous environmental programmes and plans, actively ending them in 2020, despite most of them having had time horizons spanning much further than 2020. It is the overarching governing document within the ecological dimension of sustainable development and applies to all of the municipality’s boards and administrations from 2021 until 2030. It was developed by the environmental administration in collaboration with the city management office and public officials from the city’s administrations and companies. It uses the United Nations’ Sustainable Development Goals (SDGs), Sweden’s national environmental goal system, the Paris Agreement, and the challenges which Gothenburg faces as a society and as an organisation as a starting point. The programme’s “målbild” (target image) is that Gothenburg will transition to an ecologically sustainable city by 2030 and become one of the most climate progressive cities in the world. They express that “our children and future generations should not be burdened with problems we can solve ourselves. Nor should people, animals and nature in other countries be negatively affected by the way we live” (Göteborgs Stad, 2021a, p. 8).

The programme includes 3 key environmental goals titled “Nature: Gothenburg has a high biodiversity”, “Climate: Gothenburg’s climate footprint is close to zero” and “Human: the citizens of Gothenburg has a healthy living environment”, with four sub-goals respectively that target Gothenburg’s activity. These are aimed to be achieved through seven transverse strategies. This structure has been summarized in figure 5.

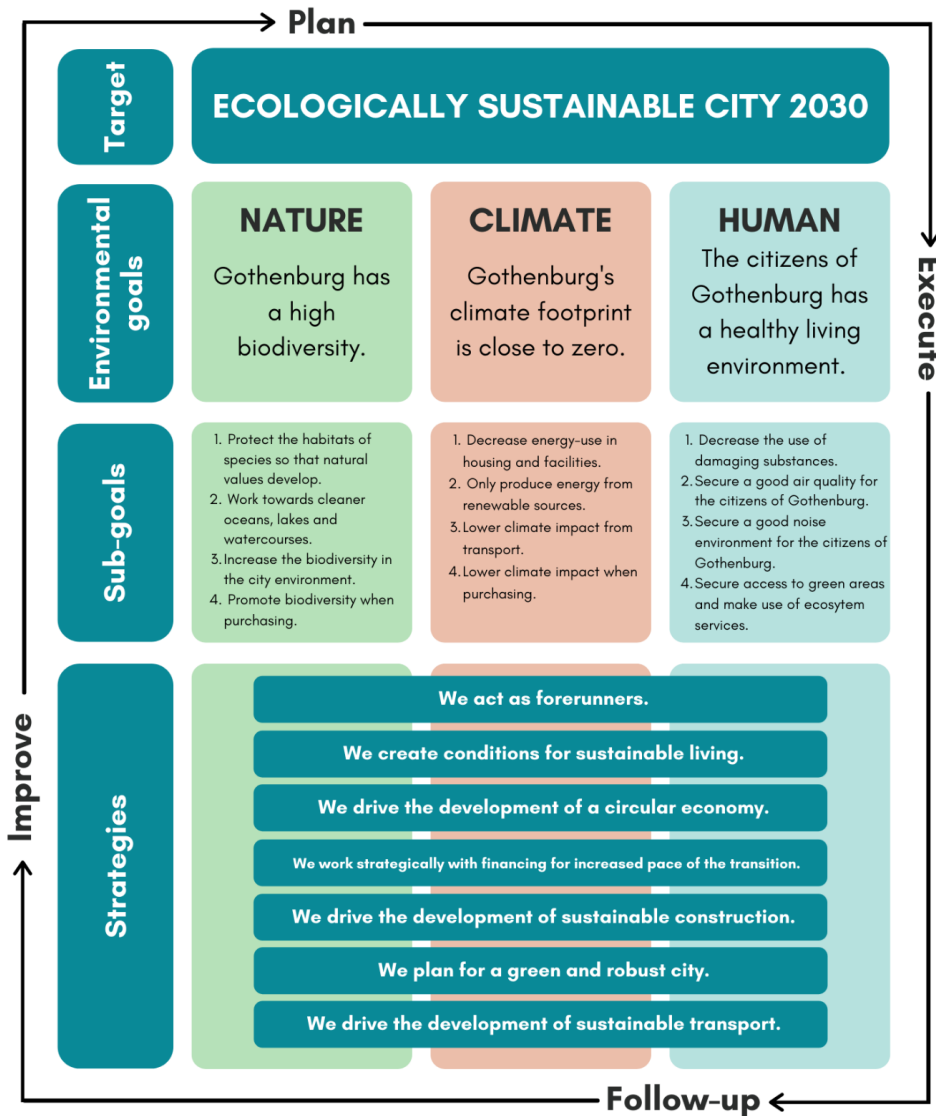


Figure 5. An adapted, translated version of a summarized figure of the environmental and climate programme's target, environmental goals, sub-goals and strategies. The picture is surrounded by the environmental administrations cyclical systematics. In the picture, the goals are simplified (Göteborgs Stad, 2021a).⁴

⁴ See original in appendix A6.

Each environmental goal contains a justification for why it needs to be reached and a description of the reasons why Gothenburg as a city and organisation can work for it. Further, each goal and subgoal is defined by various indicators, some of which are yet to be defined. These indicators describe a current reference value and target value for 2030. Each goal is also ascribed to related national environmental goals (12 out of 16) and related SDGs (12 out of 17). The city divides their perceived control over environmental impact within the Gothenburg region into three levels: direct control, indirect control, and control through influence. Direct control is related to the ability to lower environmental impact from the municipality and its organisation itself (e.g. regulating business travel), indirect control is related to the ability to create conditions for citizens and other actors to lower their environmental impact (e.g. city development), and control through influence is related to the ability to influence citizens and other actors to have a lower environmental impact (e.g. tighter legislation that implicates consumption-based emissions). For each environmental goal and its associated sub-goals, these labels are applied as means to describe which control ‘tool’ is best suited. For example, within “Nature”, sub-goal 1, “protect the habitats of species so that natural values develop”, the perceived control is identified to be both direct and indirect.

Furthermore, the program describes seven transverse strategies which will contribute to reaching environmental goals in different ways. The strategies are described as a platform for driving and coordinating the work with measures that require a high degree of collaboration and aim to achieve change-driven development work to speed up the transition. Its purpose is to create added value to existing projects, collect responsibility and strength, and drive development within areas where responsibility is currently dispersed. Every strategy is related to multiple overarching programs in the municipality because cooperation between these programs is crucial in the development of synergies and the integration of the environment and climate in relevant political arenas. None of these connected programs has time horizons longer than 2035. One identified challenge in transverse collaboration is ensuring that arenas for collaboration have the mandate and conditions needed to drive collaboration to actual effect. This makes trust between participating actors and shared challenges necessary. The strategies are driven from the same core mission, but with variation dependent upon the existing conditions related to each strategy. Finally, the strategies apply a continuous, process follow-up tool that focuses on maintaining and developing capacity in each strategy. This complements the monitoring and evaluation of environmental objections.

4.2.2 Interview results: Environmental administration

Three employees who have worked at the environmental administration between six to ten years with different responsibilities were interviewed and asked about different aspects of Gothenburg's climate governance. The themes discussed ranged from the anticipatory nature of the municipality's governance, challenges in terms of implementation, and the imagination of an environmental future in Gothenburg.

Firstly, there were divided opinions regarding Gothenburg's climate governance being more anticipatory or more reactive to environmental change. Two participants argued that they perceived it to be more proactive and anticipatory, citing the fact that adaptation (which they perceived as more reactive) has no formal part of the ongoing environmental program. Moreover, one also argued that the climate issue has been on the agenda in Gothenburg for a comparatively long time and that the city has been pioneering as compared to other, similar regions in Sweden. The final participant argued that the municipality is more reactive, expressing that "it is easier to react to one who screams the loudest here and now, about what topic you are shouting loudest here and now". They also expressed that though Gothenburg presents governing environmental change as an important issue, it is not prioritized; the main focus is put on education, health and social care.

Secondly, the role of time was a recurring theme throughout the interviews. Overall, it was clear that the ongoing climate governance operates on a short-term scale. This can be attributed to the fact that the budget is only adopted on an annual basis, and that programs are typically in the form of a maximum of ten years, as opposed to plans which range between two to four years. One participant argued that, in one sense, they are governed from a macro perspective by long-term governance in the form of Sweden's environmental law system. Nonetheless, they all agreed that longer time horizons were not necessarily appropriate on a local scale. In particular, when discussing the move from and disruption of the old climate program with a relatively long time horizon, to the current program with a much shorter time horizon. There seemed to be a consensus regarding the conflict between long and short time horizons in governing environmental change; that the battle is long yet that action desperately needs to be taken in the present. One participant said, "We have said that there needs to be a fairly long term timescale anyway because we know that this is a transition that will take time. But it should be such a short time at the same time that it feels real and relevant to the work of today, so it is driving the city's work". This was explained by the fact that long-term goals may lead to a smaller chance that relevant actors will prioritize it, but also because of the inherent uncertainty of this kind of governance: "goals cannot be too long because we live in a changing environment".

In addition, There were multiple other perceived obstacles to implementation and the overall challenges of climate governance in Gothenburg. Though resources and complexity were dominant topics in this discussion, it was also made clear that there is not one distinct obstacle, but rather identifying the obstacles themselves prohibit implementation. In terms of resources, the issue appears to be having enough of them to execute the necessary measures. There was a challenge in combination with the element of time, in a sense that it was difficult to mobilize and then allocate the necessary resources in the little time that is left. All participants agreed that there was a clear political will to transform Gothenburg into an ecologically sustainable city, but that there are potential disputes regarding which solutions are appropriate, the actual implementation of these solutions, and the way they are perceived in practice. This can be attributed to the varying ideological basis of each respective party, and how this ‘colours’ their climate governance in practice. In terms of complexity, one participant argued that a program that is too ‘fuzzy’ and too far into the future will be harder to engage with. However, because the future environment is so uncertain and always changing, it simultaneously makes it difficult to be sure the right action steps are being taken in the present. Another issue was that of conflicting goals between many different actors, with varying responsibilities and power. One participant expressed that many measures are competitive with each other: if you do one thing, you will need less of something else, making it difficult to reach a consensus on what should be done. Finally, the decentralization of the municipality was also attributed to be a challenge, as a large part of day-to-day operations are handled by the respective boards, which means it can be difficult to prioritize the work on environmental programs when the board and companies have other assignments.

Thirdly, there was a clear consensus regarding Gothenburg’s responsibility and role in global environmental governance. All participants agreed that they have good conditions to perform well, both in terms of their ownership of operations in the region and political will, particularly the fact that the municipality has their own energy company. This recognition is why they have organized their ongoing program in a way where they put greater focus on the areas they feel they have more control over. However, they also recognized that they cannot do the work alone and that there is a clear need for collaboration that leads to a societal transformation.

Fourthly, the participants were asked what they imagined Gothenburg’s environmental future may look like, with varied responses. One participant envisioned a closer, greener city, where there are more social initiatives such as shared fridges. They emphasized that everything people need is nearby, reducing the need for mass transportation into the city. The second participant was hesitant in their response, but also expressed concern for Gothenburg’s transportation system and use of space. They did not have such a creative answer but rather brought the focus back into the present. The final participant envisioned a

greener Gothenburg, recognizing the multifunctional nature of having more biodiversity in the city and reducing the exploitation of the land.

Finally, the participants were also questioned regarding citizen's role in the city's climate governance. It was clear that there were many inhabitants in Gothenburg that are climate-conscious and that there are many civil society organisations that work with sustainability. However, all participants agreed that citizens play a very minimal, active role. The environmental administration themselves are not very operational when it comes to citizen engagement, as that is rather up to different committees. They expressed that they have been open to dialogue for those that are interested and that citizens can contact them directly. One participant emphasized "Göteborgsförslaget", a permanent function in the municipality where citizens can submit proposals that are considered if they reach at least 200 votes. They gave an example of a previous proposal to declare a climate emergency, which was denied due to there being no political majority in favour of the suggestion.

5. Discussion

The municipality of Gothenburg acts as an interesting case study of the role of anticipation in local climate governance for multiple reasons. The review of primary sources provided by the municipality and the interviews conducted give rise to several noteworthy points. The most compelling finding from this case study was the drastic disruption of an ongoing climate and environmental programme with a long-term temporal view, to one much shorter. The participants attributed this shift in the interview process to the fact that the longer time horizon was fuzzier and that not much work was happening. More concrete, short-term steps were suggested to be a better, more effective way to actively involve actors to maximise positive environmental impact. Nevertheless, it was still recognized that a long-term horizon was necessary, but needed to be short enough to be relevant in the day to day operations, exemplifying the acknowledgement that governing climate change requires foresight, but simultaneously has to be translated into action in the short-term present. This is a similar conclusion to Boyd et al.'s (2015) case study of anticipation in a different local context in Sweden; there is a conflict between the need for complexity and the requirement for such anticipatory elements to be both comprehensible and accessible.

Relating these results to the theoretical framework described in figure 1 in understanding exactly *how* Gothenburg anticipates environmental change, it is clear that Gothenburg carries a strategy-based approach and consequently mostly aligns with ACG approach one.

5.1 Conceptions of the future

Firstly, in terms of its conception of the future, a mix can be observed. On one hand, vision Älvstaden exemplifies one shared narrative of a future Gothenburg that came to be through the process of local co-creation. This storyline is dynamic, and it is clear that they envision a sustainable city, while also anticipating the need for climate adaptation. On the other hand, the 2021-2030 climate and environmental programme exemplifies a slightly different future, but one that still pertains to Älvstaden in some ways. For one, it is much shorter temporally and contains clear action steps rather than a descriptive image of what the steps will lead to. Additionally, the three interviewees did not have a shared idea of Gothenburg's environmental future. It was a question that the majority of them struggled to answer, let alone agree on. This in itself points to a discrepancy in the narrative of the programme, and raises the question: if they do not know what the future they strategize to create looks like, how could they possibly achieve it?

As such, a key point of interest stemming from the analysis is how the core conceptions of the future between Älvstaden and the programme rise and interact. Älvstaden is referred to four times in the

programme as a connecting document and is only linked to the broad goals of nature and the human. There is a gap in how climate and climate change is understood, as Älvstaden overemphasizes a future in which extensive sea-level rise is not just expected, but almost desired. This supports the notion that local governments stress climate adaptation more often than adaptation (Nilsson et al., 2012). Älvstaden highlights a shift in lifestyles to achieve a fossil-free future, while the 2021-2030 programme focuses extensively on infrastructural change. Therefore, there seems to be a lack of clear guidance for a vision to mitigate climate change in the long run, which could potentially play a role in the urgency (or lack thereof) action in the present. Interestingly, there is also a much stronger emphasis on active participation and collaboration in Älvstaden than in the programme. Essentially, the vision recognizes the importance of involving citizens, but citizens play no role in the strategies of the ongoing programme. Additionally, the language used in their governing documents when describing the future of the city is assertive in general. They employ ‘will be’, or even describing it as ‘is’ in the future, as opposed to ‘can be’, implying a degree of certainty in their ambition. Particularly in their vision, but also continues throughout the ongoing environmental and climate program. For example, the environmental goal “Climate” in figure 5, is formulated as “Gothenburg’s climate footprint is close to zero”. Nevertheless, one can recognize that there is the possibility of multiple futures; seeing as their climate and environmental programs have been interrupted before completion, but also that the current programme operates in a cycling manner, their work is dynamic at the same time.

5.2 Actions in the present

Secondly, in terms of implications for governance and policy actions to be taken in the present, it becomes clear that the municipality has a mission-oriented approach. The goals for the ongoing climate and environmental programme are connected to international and national targets, yet locally specific, and discretized into subgoals and subsequently indicators. This could be attributed to the fact that the previous programme failed because it was too ‘fuzzy’, as described by the interviewees, and the municipality, therefore, needed to be more clear. The use of the three levels of control and applying this to each goal and subgoal is another example of being more explicit in their new strategy. Furthermore, it was expressed that the political will to achieve the current targets is there regardless of party colour, though the solutions differ greatly. This echoes the fact that the process of developing Älvstaden made it clear that there are multiple definitions of a sustainable city, and that actors in Gothenburg do not share an understanding of how to deal with them or what problems to address first (Brorström, 2015). Consequently, having a flexible mission-oriented and strategy-based programme that applies to everyone, can be justified as the most productive approach relative to a more ambiguous one, because it can attempt to ensure that actors with different perspectives are on the same or at least a similar page (Quay, 2010).

Furthermore, Gothenburg's environmental governance has a certain level of complexity that may inhibit it from fully operating at the best possible capacity in the present. It transcends the environmental administration and impacts every other administration, council, board and company covered by the governance of the city, which makes it both difficult to implement and follow up on. This could also be argued to necessitate a strategic, mission-oriented approach to properly function. While Swedish governance is relatively decentralized, municipalities are still limited by the national environmental framework, which in turn is limited by international agreements. Of course, this does not hinder municipalities from expanding the boundaries of their imaginary environmental future, but it does restrict them (Beck & Mahony, 2017). One could argue that it's the role of higher levels of government to be more anticipatory, and for local governments to translate these longer-time horizons into shorter ones, with more strategic planning in the present, as they have the ability and responsibility to put it into actual practice (Fuhr et al., 2018).

5.3 Ultimate aims

Thirdly, their ultimate aim of engaging in anticipatory governance is a combination of safeguarding the future, but also of seizing opportunities. From the perspective of the environment administration, it is evident that there is an ambition to reduce risks and improve the conditions not just for Gothenburg's citizens, but also for future generations and ecosystems. This is most vividly expressed by the shift in climate and environmental programmes in an attempt to reduce complexity and therefore increase the likelihood of successful implementation. Still, there is an overarching objective to have all three dimensions of ecological, social and economic sustainability, as echoed by the comprehensive plan. From this perspective, Gothenburg attempts to "win the future", and seize the opportunities of environmental change along the way. This is also exemplified by Älvstaden and its hopes to use climate adaptation as "a driving force", expecting a rise in sea level and seeing it as an economic and social opportunity, rather than a threat. Notably, as sustainability discourse has dominated the city's policy ambitions and self-image, it does not necessarily reflect reality. Supported by Tahvilzadeh et al. (2017) and Tahvilzadeh et al. (2015), Gothenburg views economic growth and urban densification as drivers of creating a sustainable city and has institutionalized this narrative. An alarming example was the implementation of a congestion tax, legitimated through the broad support of the city council as the means to fund infrastructure investments (Hysing, 2015). Meanwhile, strategies for citizen inclusion in the decision-making process were either neglected or actively opposed; there was a referendum for the congestion tax and 57% voted no, and the tax was still implemented (Tahvilzadeh et al., 2017; Hysing, 2015). Instead of anticipating citizens' views, the municipality relied on sustainability to help push a historic infrastructure investment deal between disputing groups in support of economic growth values

(Tahvilzadeh et al., 2017). This demonstrates that intention in ambition matters, and that citizens in Gothenburg have a reason not to trust the municipality in their ambition, nor in having their voices heard. Moreover, there is an inconsistency in the comprehensive plan and Älvstaden petitioning for eternal economic growth as means to achieve a sustainable city, while the ongoing climate programme pushes for a circular economy. This kind of divergence could help explain why the city struggles to have its policies reach their desired potential.

5.4 Final remarks

Finally, the municipality’s conception of the future, actions in the present and ultimate aims in relation to approach one of the ACG framework can be summarized in the figure below.

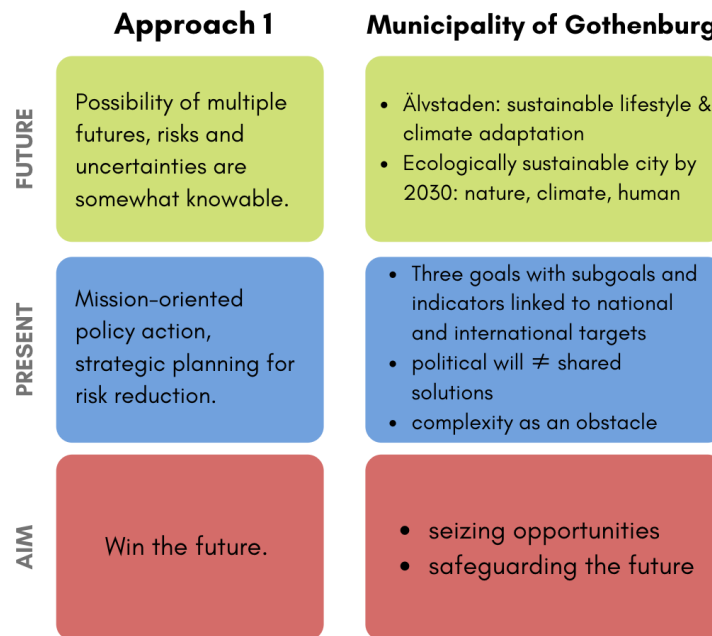


Figure 6. The municipality of Gothenburg in relation to approach one of the Muiderman et al.(2020) framework.

Overall, there is clear ambition, drive, and strategy available to the municipality to both anticipate and respond to changes in the environment. Failing to meet the previous targets and goals does not necessarily have to mean that there is something wrong with the targets themselves, or the future they imagine, but rather suggests that there is potentially something wrong with the actions in the present. The municipality has identified their immense role in the transition to a more sustainable society, as well as its responsibility to act. However, they simultaneously recognize that they cannot do it by themselves and that other municipalities and regional authorities need to be on equal footing. These layers of climate governance are intricate and complex on a Swedish scale, but even more so when factoring in

relationships to the neighbouring Nordic countries, Europe and the EU, and ultimately the international community as a whole. Collaboration is a crucial aspect of the strategies to achieve the goals, as much as it is a challenge - political will cannot function without consensus on which solutions to drive. This conclusively reveals how managing complexity for problems where anticipatory governance is needed is inherently difficult: it requires coordination of knowledge to make credible scenarios of the future, and a willingness to change the status quo (Boyd et al., 2015).

6. Recommendations

Based on the findings of the case study and in referencing the Muiderman et al. (2020) ACG framework, the municipality of Gothenburg should perhaps adopt, or at the very least learn from approach three. This approach aims for radical change conceptualizes multiple futures with largely unknowable trajectories and acts in the present through an interaction between numerous present and future worlds that can be co-created and mobilized through collective action (Muiderman et al., 2020). This approach includes embracing uncertainty, and ultimately creating shared futures to realize them rather than predict them. Including more perspectives beyond the national and international climate targets, and getting a deeper, more detailed understanding of what citizens have to say can be understood to be a driving factor (Boyd et al., 2015; Nuttall, 2010). Therefore, the municipality is encouraged to stimulate more active citizen participation through the adoption of an interactive “Gothenburg Climate Future Lab”.

On their website, the city encourages citizens to make changes or specific choices in their habits, like using public transportation and shopping more sustainably (Göteborgs Stad, n.d.). The interviewees highlighted that citizens are environmentally oriented, but not directly involved in any of the climate and environmental governance unless approached, suggesting a missed opportunity. Moreover, it is briefly mentioned in strategy 2 in the 2021-2030 climate program that Gothenburg should take care of ideas by, and invite civil society organizations to co-create solutions. As such, it acts as a productive site to build a recommendation on. In addition, the fact that municipalities self-govern is a clear advantage in mobilizing citizens to participate more actively in the collective conception and realization of environmental futures. In successfully achieving sustainability and environmental protection targets in a municipal context, participation by citizens is necessary (Hawkins & Wang, 2011). Participation can take many forms, and raising awareness, sharing information, and increasing understanding are not enough to change people's habits of mind and practice; rather, discursive, two-way forms of (positive) communication and collaboration appear to be more effective (Lassen et al., 2011).

6.1 Practical design

The “Gothenburg Climate Future Lab” is inspired by the process of creating Älvstaden, in a sense that it is the co-production of a shared narrative of what the city will be in the future that will eventually inform policy and planning. The biggest difference is that it focuses on citizens’ voices, and places the future in an environmental context. In this lab, citizens can meet, imagine, and create the futures they want, using scenario-building and serious gaming (Gunnarson-Östling & Larsen, 2008). The lab should consist of multiple components over an undecided period. It can in part be made up of smaller workshops, where citizens from diverse areas of the city are invited, and in part be made up of interactive exhibitions

installed in museums and libraries that are continuously building knowledge and changing the idea of Gothenburg's future. It would require robust knowledge of the local climate threats and of their relationship to the broader scales, all of which needs to be communicated in an accessible way. It should equally be a space of scientific reasoning, as it should be a space for art and creativity, where individuals can express their feelings about the environmental future; their hopes and their fears. It should be a space which encourages interdisciplinary thinking and deliberative exchange.

There are existing games that individuals can engage with on a national level, from which inspiration could be derived. For example, the Swedish Meteorological and Hydrological Institute (SMHI) launched a 'Climate Adaptation Game' together with Linköping University which aims to help the user increase their understanding of what a changing and warming climate implies, and how we can adapt to it (Neset et al., 2020; SMHI, n.d.). The user makes urban planning choices in a hypothetical city using a limited amount of money, and has access to relevant SDGs as well as an SMHI graph with risks for different extreme weather events for the upcoming 80 years to inform decisions. This game could be adapted, or a similar game could be developed to be part of this lab, with Gothenburg-specific scenarios and information. The personalised approach of serious gaming potentially has an educational effect, which can result in attitude and behavioural change and ultimately shape its implications for policy development and implementation in the city (Cavada & Rogers, 2020).

6.2 Obstacles to implementation

Nevertheless, there are obstacles to the implementation of such a scheme. Even if citizens have the opportunity to anticipate and imagine the future of the city, it will be impossible to actualize unless they are given the power to do so. Citizen's decision to participate is partly influenced by their relationship to local government actors and consequently their trust (Hawkins & Wang, 2011) Gothenburg has a trust issue with its citizens that can in part be attributed to a major unpopular development project (congestion tax), indicating a barrier to implementation. Moreover, it is key to be mindful of the segregation in the city, and ensure that the experiment is accessible, and that the diverse perspectives of all citizens are equally represented. Additionally, there are competing rationales, such as aiming to achieve a specific goal like trust or using citizens because of the belief that it will lead to better decision-making (Lassen et al., 2011). It is crucial to be transparent about the motive behind utilizing participatory mechanisms to avoid tokenism. Therefore, there needs to be a balance of inviting citizens and making them feel invited to participate on their own. The future lab is not a mechanism to shift responsibility away from the municipality, but rather a means to create a stronger community that can meet and anticipate environmental changes together.

7. Conclusion

This paper has attempted to understand how local governments anticipate changes to the natural environment and ways in which this can be improved using a case study of the municipality of Gothenburg. Gothenburg is an interesting example because there is an unparalleled ambition to be one of the most environmentally progressive cities in the world, yet a clear lack of adequate governance to actualize this vision. There are multiple futures present in the form of Älvstaden and the new climate and environmental programme. Yet, there is a clear lack of shared narrative of what the goals to achieve an ecologically sustainable city in 2030 translate into reality, even among those who designed its goals. Additionally, a rhetoric shift towards sustainability is often decoupled from successful action and can act as a guise for economic and political policies creating a paradox. The concept of a sustainable city is powerful because no one opposes it; there is a political will to fulfil environmental targets, yet they fail to do so. There is a struggle between embracing the complexity, dynamics, and many layers of climate change, but simultaneously having the anticipatory elements be comprehensive and accessible. In the context of ever-increasing time pressure for radical change, it is paramount to broaden the conventional boundaries of governing the environment and envision alternatives. The recommendation that has been proposed, the “Gothenburg Climate Future Lab”, intends to bring the city closer by inviting citizens to collectively create multiple environmental futures and ultimately using these narratives to create change.

The limitations of this paper include the lack of a wider picture. It is difficult to include the connections to regional and national governments within this project’s scope, consequently leaving out potentially important information. Moreover, though case studies can provide detailed overviews, their outcomes are much more difficult to scale up and apply in different contexts. The results in this paper are specific to the municipality of Gothenburg, and although some general lessons can be learned, it is important to keep them in mind. In addition, there are several avenues for future research. Firstly, the case study can be expanded by including perspectives from the city planning office to account for the role of climate adaptation. In general, it would be helpful to have perspectives beyond the environmental administration, to garner an understanding of environmental futures from actors who may not actively engage with them on a day-to-day basis. Second, it would also be useful to do a deeper research project regarding the recommendation, and explore the solution and its consequent implementation with an interdisciplinary lens. Thirdly, it would also be interesting to conduct a comparative study with a similar lens, of Gothenburg and a smaller municipality close-by, or Gothenburg and a similarly sized municipality in a different country. Perhaps it could provide insight into the differences and similarities between local climate governance and how the environmental future is hypothesized.

8. References

- Andersson, R., Bråmås, Å., & Hogdal, J. (2009). *Fattiga och rika-segregerad stad: Flyttningar och segregationens dynamik i Göteborg 1990-2006*. [Poor and rich-segregated city: Relocations and the dynamics of segregation in Gothenburg 1990-2006]. Report City of Gothenburg.
- Beck, S., & Mahony, M. (2017). The IPCC and the politics of anticipation. *Nature Climate Change*, 7(5), 311–313. doi:10.1038/nclimate3264
- Berglöv, G., Asp, M., Berggreen-Clausen, S., Björck, E., Axén Mårtensson, J., Nylén, L., ... Sjökvist, E. (2015). Framtidsklimat i Västra Götalands län - enligt RCP-scenarier. Retrieved from SMHI website: <http://urn.kb.se/resolve?urn=urn:nbn:se:smhi:diva-2829>
- Boyd, E., Nykvist, B., Borgström, S., & Stacewicz, I. A. (2015). Anticipatory governance for social-ecological resilience. *Ambio*, 44(1), 149-161. <https://doi.org/10.1007/s13280-014-0604-x>
- Brorström, S. (2015). Strategizing sustainability: The case of River City, Gothenburg. *Cities*, 42, 25–30. doi:10.1016/j.cities.2014.08.005
- Brinkhoff, T. (2021, April). *Gothenburg Metropolitan Area (Sweden): Municipalities - Population Statistics, Charts and Map*. SWEDEN: Gothenburg Metropolitan Area. <https://www.citypopulation.de/en/sweden/metrogoteborg/>.
- Bulkeley, H. (2010). Cities and the Governing of Climate Change. *Annual Review of Environment and Resources*, 35(1), 229–253. doi:10.1146/annurev-environ-072809-101747
- Burch, S., Gupta, A., Inoue, C. Y. A., Kalfagianni, A., Persson, A., van der Heijden, J., ... & Zondervan, R. (2019). *Earth System Governance: Science and Implementation Plan of the Earth System Governance Project 2018*. Earth System Governance Project. Utrecht, the Netherlands.
- Business Region Göteborg. (2020). *100% Facts and Figures: About doing business in the Gothenburg region* 2020/21. https://www.businessregiongoteborg.se/sites/brg/files/downloadable_files/facts_figures_2020_no_v_update.pdf
- Cano Pecharroman, L. (2018). Rights of Nature: Rivers That Can Stand in Court. *Resources*, 7(1), 13. doi:10.3390/resources7010013

- Cavada, M., & Rogers, C. D. (2020). Serious gaming as a means of facilitating truly smart cities: a narrative review. *Behavior & Information Technology*, 39 (6), 695-710. <https://doi.org/10.1080/0144929X.2019.1677775>
- City of Gothenburg. (2021). *City of Gothenburg Annual Report 2020*. https://goteborg.se/wps/wcm/connect/99cff3a9-4516-485a-a330-c82a3c9cc178/201105-001-010+Annual+Report%2C+en%2C+2020_low_uppslag.pdf?MOD=AJPERES
- City of Gothenburg. (2009). *Comprehensive Plan for Göteborg: Summary*. City Planning Authority. https://goteborg.se/wps/wcm/connect/ef7f3608-57e7-4020-afcf-ccf657e2e16e/OPA_Sammanfattning_OP_eng.pdf?MOD=AJPERES
- Coles, R. (2004). Moving democracy: Industrial areas foundation social movements and the political arts of listening, traveling, and tabling. *Political theory*, 32(5), 678-705. <https://doi.org/10.1177/0090591704263036>
- Dobson, A. (2010). Democracy and nature: Speaking and listening. *Political Studies*, 58(4), 752-768. <https://doi.org/10.1111/j.1467-9248.2010.00843.x>
- Eckersley, R. (1995). Liberal democracy and the rights of nature: The struggle for inclusion. *Environmental Politics*, 4(4), 169-198. <https://doi.org/10.1080/09644019508414232>
- Fuhr, H., Hickmann, T., & Kern, K. (2018). The role of cities in multi-level climate governance: local climate policies and the 1.5 °C target. *Current Opinion in Environmental Sustainability*, 30, 1–6. doi:10.1016/j.cosust.2017.10.006
- Gunnarsson-Östling, U., & Larsen, K. (2008). Climate change scenarios and behavioural change : Navigating between heuristics of deliberative planning processes and astroturfing. Presented at the UK-Ireland Planning Research Conference 2008: Sustainability, space and social justice, 18-29 March, Belfast, Northern Ireland. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-57998>
- Göteborgs Stad. (2021a). *Göteborgs Stads miljö- och klimatprogram 2021–2030* [Gothenburg City's Environmental and climate program 2021-2030]. <https://goteborg.se/wps/wcm/connect/4578bcdd-0a21-4d90-98c5-8ec4e68b366b/G%C3%B6teborgs+Stads+milj%C3%B6-+och+klimatprogram+2021-2030.pdf?MOD=AJPERES>

- Göteborgs Stad. (2021b). *Stadsområden från och med 2021-01-01* [Urban areas from and including 2021-01-01]
<https://goteborg.se/wps/portal/enhetssida/statistik-och-analys/geografi?uri=gbglnk%3A2018839362802>
- Göteborgs Stad. (2021c). *Kommunalråd: Kommunstyrelsen mandatperioden 2019-2022*. [Municipal council: The Municipal Board the term of office 2019-2022]. Goteborg.se.
<https://goteborg.se/wps/portal/start/kommun-o-politik/kommunens-organisation/kommunalrad?uri=gbglnk%3Aagbg.page.f63f69dd-f108-48a1-94e6-1827499cb061>
- Göteborgs Stad. (2021d). *Göteborgs Stads organisation*. [Municipality of Gothenburg's organisation]
https://goteborg.se/wps/wcm/connect/0359b115-5a81-4127-9f02-6e034d4970b2/G%C3%B6teborgs+Stads+organisation_2021.pdf?MOD=AJPERES
- Göteborgs Stad. (2017a). *Sammanfattning av Jämlikhets-Rapporten 2017: Skillnader i livsvillkor i Göteborg*. [Summary of the Equality Report 2017: Differences in living conditions in Gothenburg.]
https://goteborg.se/wps/wcm/connect/1c7c56fb-9ec5-4995-821e-9fda232cec06/jamlikhetsrapporten2017_sammanfattning.pdf?MOD=AJPERES
- Göteborgs Stad. (2017b). *Göteborgs Stads riktlinje för styrande dokument*. [The City of Gothenburg's guideline for governing documents.]
[https://www5.goteborg.se/prod/Stadsledningskontoret/LIS/Verksamhetshandbok/Forfattn.nsf//AE7BB028A7B816F3C12580C70041EFEB/\\$File/C12574360024D6C7WEBVC3F22B.pdf?OpenElement](https://www5.goteborg.se/prod/Stadsledningskontoret/LIS/Verksamhetshandbok/Forfattn.nsf//AE7BB028A7B816F3C12580C70041EFEB/$File/C12574360024D6C7WEBVC3F22B.pdf?OpenElement)
- Göteborgs Stad. (2014). *Klimatstrategiskt program för Göteborg*. [Climate Strategy program for Gothenburg]
<https://goteborg.se/wps/wcm/connect/36fb4599-a2c4-4e46-8621-0c71ceece4c5/Klimatstrategiskt%20program%20f%C3%B6r%20G%C3%B6teborg.pdf?MOD=AJPERES>
- Göteborgs Stad. (n.d.). *Det här kan du göra för att minska miljöpåverkan*. Göteborgs Stad.
<https://goteborg.se/wps/portal/start/miljo/det-har-kan-du-gora>.
- Hawkins, C. V., & Wang, X. (2011). Sustainable Development Governance. *Public Works Management & Policy*, 17(1), 7–29. doi:10.1177/1087724x11429045

- Hysing, E. (2015). Citizen participation or representative government – Building legitimacy for the Gothenburg congestion tax. *Transport Policy*, 39, 1–8. doi:10.1016/j.tranpol.2015.01.002
- Karlsson, M. (2021). Sweden's Climate Act—its origin and emergence. *Climate Policy*, 1-14. <https://doi.org/10.1080/14693062.2021.1922339>
- Kelly, D. A. (2019). River goddesses, personhood and rights of nature: implications for spiritual ecology. *Religions*, 9, 502–502. <https://doi.org/10.3390/rel10090502>
- Kern, K. (2018). Cities as leaders in EU multilevel climate governance: embedded upscaling of local experiments in Europe. *Environmental Politics*, 28(1), 125–145. doi:10.1080/09644016.2019.1521979
- Krznaric, R. (2020). *The good ancestor: how to think long term in a short-term world*. Random House.
- Lassen, I., Horsbøl, A., Bonnen, K., & Pedersen, A. G. J. (2011). Climate Change Discourses and Citizen Participation: A Case Study of the Discursive Construction of Citizenship in Two Public Events. *Environmental Communication*, 5(4), 411–427. doi:10.1080/17524032.2011.610809
- Lundqvist, L. J. (2015). Planning for Climate Change Adaptation in a Multi-level Context: The Gothenburg Metropolitan Area. *European Planning Studies*, 24(1), 1–20. doi:10.1080/09654313.2015.1056774
- Lundqvist, L., & von Borgstede, C. (2008). Whose responsibility? Swedish local decision makers and the scale of climate change abatement. *Urban Affairs Review*, 43(3), 299–324. <https://doi.org/10.1177/1078087407304689>
- Miljöförvaltningen Göteborgs Stad. (2019). *Uppföljning av Göteborgs lokala miljömål 2019*. [Follow-up of Gothenburg's local environmental goals 2019.] https://goteborg.se/wps/wcm/connect/eda6bf20-3ab7-447d-89a9-4a3b48c29514/R+2020_11+Rapport+uppf%C3%B6ljning+av+G%C3%B6teborgs+lokala+milj%C3%B6m%C3%A5l+2019.pdf?MOD=AJPERES
- Muiderman, K, Gupta, A, Vervoort, J, Biermann, F. Four approaches to anticipatory climate governance: Different conceptions of the future and implications for the present. *WIREs Clim Change*. 2020; 11:e673. <https://doi.org/10.1002/wcc.673>

- Neil Adger, W., Arnell, N. W., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change*, 15(2), 77–86. <https://doi.org/10.1016/j.gloenvcha.2004.12.005>
- Neset, T.-S., Andersson, L., Uhrqvist, O., & Navarra, C. (2020). Serious Gaming for Climate Adaptation—Assessing the Potential and Challenges of a Digital Serious Game for Urban Climate Adaptation. *Sustainability*, 12(5), 1789. doi:10.3390/su12051789
- Niemeyer, S. (2013). Democracy and Climate Change: What Can Deliberative Democracy Contribute?. *Australian Journal of Politics & History*. 59. doi:10.1111/ajph.12025.
- Nilsson, A. E., Gerger Swartling, Å., & Eckerberg, K. (2012). Knowledge for local climate change adaptation in Sweden: challenges of multilevel governance. *Local Environment*, 17(6-7), 751-767. DOI: 10.1080/13549839.2012.678316
- Nuttall, M. (2010). Anticipation, climate change, and movement in Greenland. *Études/Inuit/Studies*, 34(1), 21-37. Retrieved June 20, 2021, from <http://www.jstor.org/stable/42870071>
- Ohta H. The Analysis of Japan's Energy and Climate Policy from the Aspect of Anticipatory Governance. *Energies*. 2020; 13(19):5153. <https://doi.org/10.3390/en13195153>
- Prop. 1997/98:145. *Svenska miljömål. Miljöpolitik för ett hållbart Sverige*. <https://www.regeringen.se/49bba3/contentassets/c887c3695078405aa08d48990deec32e/del-1>
- Prop. 2009/10:155. *Svenska miljömål – för ett effektivare miljöarbete*. <https://www.regeringen.se/49bb9d/contentassets/1449a8c7eba646699273112764057181/svenska-miljomal---for-ett-effektivare-miljoarbete-prop.200910155>
- Saward, Michael. 1993. Green Democracy?. In Dobson, A. & Lucardie, P. (Ed.), *The Politics of Nature: Explorations in Green Political Theory* (63-80). London and New York: Routledge.
- Serrao-Neumann, S., Harman, B. P., & Low Choy, D. (2013). The Role of Anticipatory Governance in Local Climate Adaptation: *Observations from Australia*. *Planning Practice and Research*, 28(4), 440–463. doi:10.1080/02697459.2013.795788
- Shahar, D. C. (2015). Rejecting eco-authoritarianism, again. *Environmental Values*, 24(3), 345-366. doi:10.3197/096327114X13947900181996

- SKR. (2021). *Så styrs kommunen*. Sveriges Kommuner och Regioner [Sweden's municipalities and regions].
<https://skr.se/skr/demokratiledningstyrning/politiskstyrningfortroendevalda/kommunaltstjalvstyresastyrskommunenochregionen/sastyrskommunen.735.html>
- SMHI. (n.d.). *Climate Adaptation Game*. Swedish Meteorological and Hydrological Institute.
<https://www.smhi.se/en/climate/education/climate-adaptation-game?l=null>.
- Stegmann McCallion, M. (2007). Multi-Level Governance in Sweden? *Regional & Federal Studies*, 17(3), 335–351. doi:10.1080/13597560701543725
- Tahvilzadeh, N., Montin, S., & Cullberg, M. (2017). Functions of sustainability: exploring what urban sustainability policy discourse “does” in the Gothenburg Metropolitan Area. *Local Environment*, 22(sup1), 66-85, DOI:10.1080/13549839.2017.1320538
- United Nations. (2019). *Cities and Pollution*. United Nations: Climate Action.
<https://www.un.org/en/climatechange/climate-solutions/cities-pollution>.
- Quay, R. (2010). Anticipatory governance: A tool for climate change adaptation. *Journal of the American Planning Association*, 76(4), 496-511. <https://doi.org/10.1080/01944363.2010.508428>
- Van Nes, F., Abma, T., Jonsson, H., & Deeg, D. (2010). Language differences in qualitative research: is meaning lost in translation?. *European journal of ageing*, 7(4), 313-316. doi: 10.1007/s10433-010-0168-y
- Vervoort, J. M., Bendor, R., Kelliher, A., Strik, O., & Helfgott, A. E. (2015). Scenarios and the art of worldmaking. *Futures*, 74, 62-70. <https://doi.org/10.1016/j.futures.2015.08.009>.
- Watson, R., McCarthy, H., Canziani, P., Nakicenovic, N., & Hisas, L. (2019). The truth behind the climate pledges. *The Universal Ecological Fund*. DOI:10.13140/RG.2.2.23744.28169

Appendix

A.1 Letter of Consent

Anticipatory Climate Governance in the Municipality of Gothenburg

How does the governance of the municipality of Gothenburg anticipate changes to the natural environment and in which ways can this be improved?

Consent to take part in research

I..... voluntarily agree to participate in this research study.

- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that participation involves answering a series of open questions broadly related to, and having a discussion about, the climate governance in the municipality of Gothenburg.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being audio-recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in the final draft of the researcher's bachelor thesis and the presentation of said thesis.
- I understand that signed consent forms and original audio recordings will be retained in the researcher's computer, of which only she has access to, until the exam board confirms the results of their thesis (summer 2021).
- I understand that a transcript of my interview in which all identifying information has been removed will be retained until the exam board confirms the result of their thesis (summer 2021).

A.2 Interview Guide (English)

Introduction.

My name is Frida Nilsson and I am a third-year student of the bachelor programme Global Responsibility & Leadership at the University of Groningen/Campus Fryslân.

This research is conducted as part of my Capstone project (bachelor thesis). The purpose of this interview is to help get a deeper and wider understanding of the ways in which the municipality governs the environmental future, through an anticipatory climate governance lens. I am interested in the way the future is conceptualized, and how it translates to policy and implementation. The overarching goal is to develop a governance strategy that can aid in the improvement of local climate governance, for a more sustainable and just future for all.

The data collected during this interview will be utilized in the process of performing a case study. The outcome of this research will have the form of a long discussion paper, as well as a presentation of this paper. Everything you tell me will only be used for this research project and will be strictly kept confidential. We will not share any personal information or data that could reveal your identity with anyone outside our research team. All collected data will be anonymised when referred to in the report. Our research requires the entire interview to be recorded on audio. This audio-recording will be transcribed and this transcription will be anonymised. Afterwards, the audio-recording will be deleted. Even though it is recorded, you are able to change your mind at any time after the interview.

- Do you give permission for audio-recording?
- After all the information given above, do you give consent for this interview?
- Do you have any questions before we begin?

Opening Questions

1. What is your role at the municipality of Gothenburg, and the environmental administration specifically?
2. How many years have you been working there?

Questions about climate and Gothenburg city

3. How is nature understood / treated in Gothenburg's climate governance? (A service? An entity in its own right? etc.)
4. What are the biggest climate change threats Gothenburg faces?

Questions about environmental governance

5. How is Gothenburg's climate governance structured?
6. Could you briefly describe Gothenburg's attitude towards governing environmental change?
7. What time-scales do you work with and why?
 - a. How suited are the current time-scales, and to what extent are they realistic for achieving the specific climate goals?
8. Would you describe Gothenburg's climate governance as more anticipatory or reactionary to environmental change? Why?
9. What do you think are the biggest obstacle(s) to actualizing the climate action steps needed to reach the local climate targets?
 - a. What are the biggest challenges to implementation?
10. How has Gothenburg's climate governance changed over time?

Imagining the future

11. How engaged is civil society in the climate governance of Gothenburg?
12. How would you describe your imagination of the environmental future of Gothenburg?

Debrief

A.3 Interview Guide (Swedish)

Jag heter Frida Nilsson och är tredjeårsstudent på kandidatprogrammet Global Responsibility & Leadership vid University of Groningen / Campus Fryslân.

Detta forskningsprojekt genomförs som en del av mitt Capstone-project (kandidatuppsats). Syftet med denna intervju är att hjälpa mig få en djupare och bredare förståelse för hur kommunen styr miljö-framtiden genom ett förutseende klimat styrningsperspektiv. Jag är intresserad av hur våran kollektiva ekologiska framtid conceptualiseras och hur detta översätts till policy och implementation på en lokal nivå. Det övergripande målet är att utveckla en styrningsstrategi som kan hjälpa till att förbättra den lokala klimat styrningen, för en mer hållbar och rättvis framtid för alla.

Uppgifterna som samlats in under denna intervju kommer att användas för att genomföra en fallstudie. Resultatet av denna forskning kommer att ha formen av en kandidatuppsats samt en presentation av denna uppsats. Allt du berättar för mig kommer endast att användas för detta forskningsprojekt och kommer att hållas konfidentiellt. Jag kommer inte att dela någon personlig information eller data som kan avslöja din identitet med någon. Alla insamlade uppgifter kommer att anonymiseras när de hänvisas till i rapporten. Vår forskning kräver att hela intervjun spelas in på ljud. Ljudinspelningen transkriberas och transkriptionen anonymiseras. Därefter raderas ljudinspelningen. Även om det spelas in kan du ändra dig när som helst efter intervjun.

- Ger du tillstånd för ljudinspelning?
- Efter all information ovan, ger du samtycke till denna intervju?
- Har du några frågor innan vi börjar?

Öppningsfrågor

1. Vad är din roll i Göteborgs kommun och miljöförvaltningen specifikt?
2. Hur många år har du jobbat där?

Frågor om klimat och Göteborgs stad

3. Hur förstås / behandlas naturen i Göteborgs klimatstyrning? (en enhet i sig själv? En tjänst? Eller båda två?)
4. Vilka lokala hot utgör klimatförändringen i Göteborg?

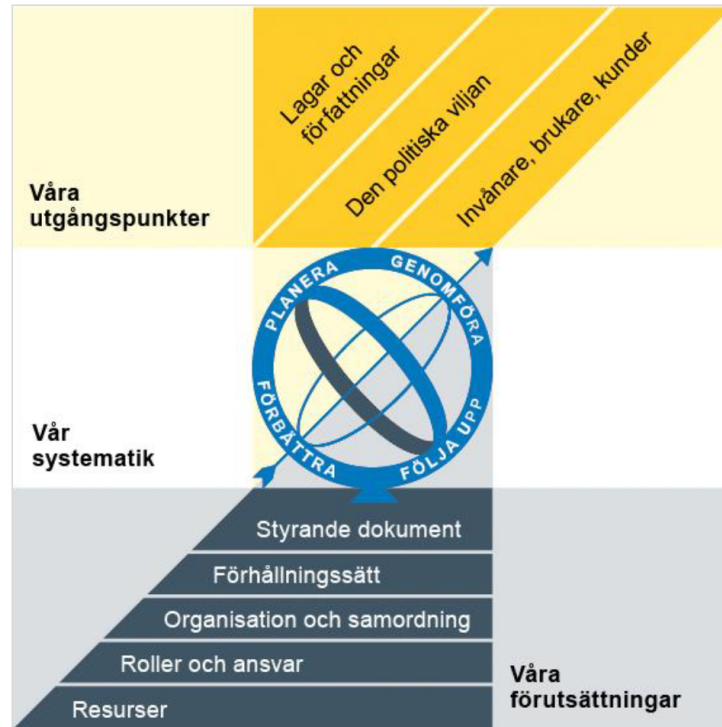
Frågor om miljöstyrning

5. Hur är Göteborgs klimatstyrning organiserad?
6. Kan du kort beskriva Göteborgs inställning till att styra miljöförändringar?
7. Vilka tidsskalor arbetar ni med och varför?
 - a. Hur lämpliga är de nuvarande tidsskalorna och i vilken utsträckning är de realistiska för att uppnå de specifika klimatmålen?
8. Skulle du beskriva Göteborgs klimatstyrning som mer förutseende / pro-aktiv eller reagerande till miljöförändringar? Varför?
9. Vad tror du är det största hindret för att förverkliga de klimatåtgärder som behövs för att nå de lokala klimatmålen?
 - a. Vilka är de största utmaningarna för implementering?
10. Hur har Göteborgs klimatstyrning ändrats med åren?

Föreställa sig framtiden

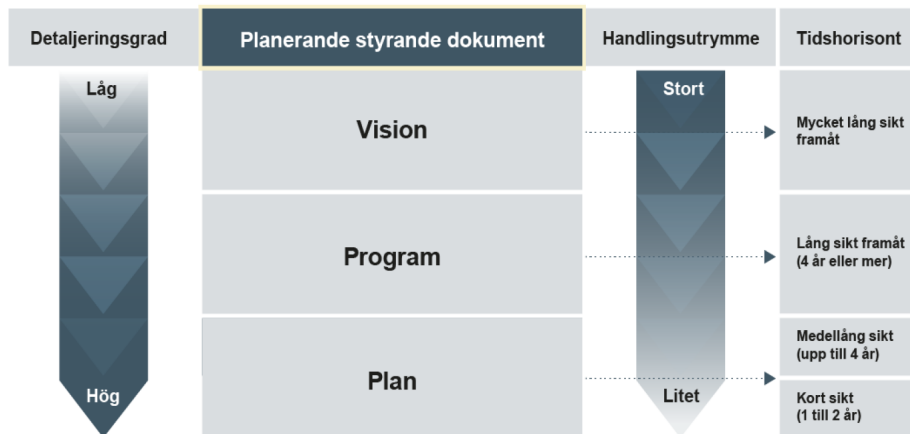
11. Hur engagerade är det civila samhället i Göteborgs klimatstyrning?
12. Hur skulle du beskriva din uppfattning av Göteborgs miljö framtid?

A.4 Governance structure of the municipality of Gothenburg



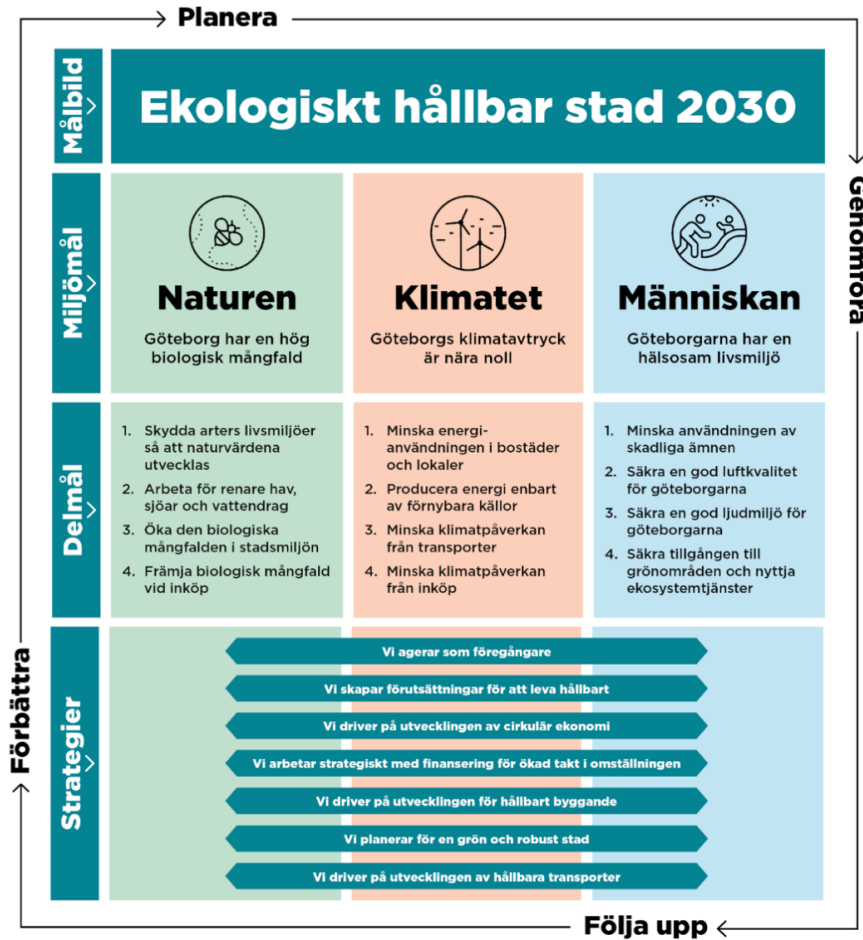
(Göteborgs Stad, 2021a)

A.5 Hierarchical structure of the planning governing documents



Göteborgs Stad. (2017b).

A.6 The environmental and climate programme's target, environmental goals, sub-goals and strategies



(Göteborgs Stad, 2021a)